

Ethical boundaries in the use of ChatGPT in education: Evidence from sports sciences students

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Abstract

This research aims to examine the relationship between students' awareness of ChatGPT use in education and their level of ethical use of information technologies among students enrolled in sports science faculties. The sample of the study, which was structured using a relational survey model, consisted of 392 students selected through convenience sampling from students enrolled in faculties of Sport Sciences at various universities across Türkiye. As data collection tools, the "Personal Information Form," the "ChatGPT Usage Scale in Education," and the "Ethical Use of Information Technologies Scale" were used. The independent samples t-test was used for binary comparisons of scores obtained from scales; one-way analysis of variance and the Tukey HSD test were used for multiple comparisons. The relationship between the scales was analyzed using the Pearson correlation coefficient. When examining the correlations between the sub-dimensions, positive and significant relationships were found between Opportunities and Ethical Awareness and Communication and Respect. The challenges sub-dimension reveals a low level of significant correlation with Ethical Awareness and Cybercrime. Also, significant differences were found in some demographic variables (gender, age, class, department, and use of artificial intelligence). These results indicate that as ethical awareness and communication levels increase, the tendency toward cybercrime decreases, and that the sub-dimensions are significantly correlated to each other. This finding suggests that the use of artificial intelligence tools within an appropriate pedagogical and ethical framework is positively associated with higher levels of ethical awareness.

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Keywords

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Eğitimde ChatGPT kullanımında etik sınırlar: Spor bilimleri öğrencilerinden elde edilen bulgular

Özet

Bu araştırmanın amacı, spor bilimleri fakültelerinde öğrenim gören öğrencilerin eğitimde ChatGPT kullanımına yönelik farkındalıkları ile bilgi teknolojilerini etik kullanma düzeyleri arasındaki ilişkiyi incelemektir. İlişkisel tarama modeli ile yapılandırılan araştırmanın örneklemini, Türkiye'deki çeşitli üniversitelerin Spor Bilimleri Fakültelerinde öğrenim gören ve kolayda örnekleme yöntemiyle seçilen 392 öğrenci oluşturmaktadır. Veri toplama aracı olarak "Kişisel Bilgi Formu", "Eğitimde ChatGPT Kullanım Ölçeği" ve "Bilgi Teknolojilerinin Etik Kullanımı Ölçeği" kullanılmıştır. İkili karşılaştırmalarda bağımsız örneklemler t-testi, çoklu karşılaştırmalarda tek yönlü varyans analizi (ANOVA) ve Tukey HSD testi uygulanmıştır. Ölçekler arasındaki ilişkiler Pearson korelasyon katsayısı ile analiz edilmiştir. Alt boyutlar arasındaki ilişkiler incelendiğinde, fırsatlar ile etik farkındalık ve iletişim ile saygı arasında pozitif ve anlamlı ilişkiler tespit edilmiştir. Zorluklar alt boyutunun ise etik farkındalık ve siber suç ile düşük düzeyde anlamlı ilişki gösterdiği belirlenmiştir. Ayrıca cinsiyet, yaş, sınıf, bölüm ve yapay zekâ kullanımına göre bazı demografik değişkenlerde anlamlı farklılıklar bulunmuştur. Elde edilen bulgular, etik farkındalık ve iletişim düzeyi arttıkça siber suç eğiliminin azaldığını ve alt boyutlar arasında anlamlı ilişkiler olduğunu göstermektedir. Bu sonuçlar, yapay zekâ araçlarının uygun pedagojik ve etik çerçevede kullanımının, daha yüksek etik farkındalık düzeyleri ile pozitif yönde ilişkili olduğunu ortaya koymaktadır.

Anahtar Kelimeler

Akademik dürüstlük, eğitimde yapay zekâ, ChatGPT kullanımı, etik bilinci,

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INTRODUCTION

Recently, large language model-based chatbots such as Anthropic's Claude, Google's Gemini, Meta's Llama series, xAI's Grok models, and DeepSeek, particularly OpenAI's ChatGPT (2022), have caused a major stir in the education community. ChatGPT has rapidly reached a broad user base, attracting the attention of educators and researchers, and has begun to be considered a potential instructional and learning support tool for both teachers and students. However, it has also raised debates regarding academic integrity and ethical use.

Artificial intelligence (AI) technologies, which are becoming increasingly prominent in almost every area of our lives, are also becoming more visible in the field of education with each passing day. Artificial intelligence has the capacity to generate solutions to the most fundamental problems in education systems, improve learning and teaching processes, and significantly accelerate progress towards United Nations Sustainable Development Goal 4 (quality education). In this context, the rapid acceleration of technology in the digital age undoubtedly brings with it certain limitations, ethical dilemmas, difficulties, and uncertainties (UNESCO, 2021). Indeed, Olaf Zawacki-Richter et al. (2019) sought to answer the question of where educators are in their systematic review of AI applications in higher education. While highlighting the absence of critical thinking in relation to the challenges and risks associated with AI usage, they have also pointed out the weakness of pedagogically meaningful usage and drawn attention to the need for further research on ethical and educational approaches. This situation highlights the importance of addressing AI integration in education not only in terms of pedagogical gains but also in terms of information ethics. Because when ethical and governance dimensions are not sufficiently considered, significant problems may arise in terms of fairness, transparency, and accountability in education. Data privacy, algorithmic biases, and the automation of decision-making processes are areas that require particular attention within the scope of information ethics. Therefore, the use of AI in higher education must be addressed within ethical and institutional frameworks beyond technological innovation (Cortez et al., 2026).

It is clear that AI offers groundbreaking opportunities in the context of education for content creation, increasing student engagement, and personalizing learning experiences (Kasneci et al., 2023). Indeed, some educators (Berryhill et al., 2024; Basgen, 2025; Nasr, 2025), despite the risks, position productive AI tools as a thinking partner that supports instructional design and critical thinking rather than as a response generator; they emphasize progressing interactively with the tool in tasks such as lesson planning and problem writing. ChatGPT's ability to provide students with instant feedback and explain complex topics in simplified terms strengthens its position as an innovative tool in educational settings. However, these pedagogical gains also raise new ethical issues in terms of learning responsibility, academic integrity, and cognitive autonomy. While generative AI tools increase productivity, they can limit critical thinking and original production; they can also lead to serious ethical debates on issues such as authorship, bias, and data privacy. Therefore, the use of AI in higher education must be guided by responsible and principle-based frameworks (Almufarreh et al., 2025; Dağlı, 2025). It is understood that the uncontrolled or unconscious use of ChatGPT may raise new issues in education in terms of the learner's effort and privacy, content reliability, equitable access, and social values. These ethical concerns demonstrate that artificial intelligence must be used responsibly and consciously in education.

In the literature, it is observed that studies on the use of artificial intelligence in education worldwide and in Turkey, and its ethical dimensions, have increased significantly since 2010. This trend is also reflected in UNESCO's policy documents promoting the human-centered and ethical use of artificial intelligence in education. While the Beijing Consensus (2019) and the report "Artificial Intelligence and Education: Guidance for Policy-makers" aim to establish a common framework regarding the opportunities offered by AI in education and the challenges encountered, the 2021 "Guidance on Generative Artificial Intelligence for Education and Research" provides concrete principles for the inclusive and ethical use of generative AI. These global initiatives demonstrate that the use of AI in education is not merely a technical innovation but a structural transformation that must be addressed within the framework of human rights, equality, privacy, and accountability principles. Similarly, in the literature, there has been an increase in studies focusing on artificial intelligence

ethics in education, and these studies highlight ethical principles such as fairness, privacy, transparency, and evaluability; systematic reviews reveal that ethical concerns in the field of AI ethics in education are on the rise (Holmes et al., 2021; Yan et al., 2025), while a qualitative study points out that technological developments in the educational environment, namely the use of AI, may overshadow pedagogical gains (Boztepe, 2025). Also, the necessity of integrating AI into education with ethical principles (Syaidina et al., 2024), teaching resources that teachers can use regarding ethical issues encountered in classroom practice (Akgun & Greenhow, 2022), and studies that comprehensively evaluate the ethical dimensions of AI in education through in-depth interaction with ethical theory and educational philosophy (Wieczorek et al., 2025).

Within the context of Türkiye, the use of artificial intelligence in education and issues of information ethics are increasingly becoming part of the research agenda. Therefore, within this scope, the Ministry of National Education (MoNE) organized the “International Forum on Artificial Intelligence Applications in Education” in 2024 to evaluate the opportunities and potential risks in this field through consultation processes involving various stakeholders. In the same year, the Council of Higher Education (CoHE) published the “Ethical Guidelines on the Use of Generative Artificial Intelligence in Scientific Research and Publication Activities of Higher Education Institutions,” establishing and disseminating at the institutional level a framework encompassing fundamental ethical principles, such as transparency, academic integrity, reliability, ethical citation awareness, privacy, and human oversight regarding the use of ChatGPT and similar generative AI tools.

In the field of academic research, there are studies that examine attitudes and approaches toward artificial intelligence in education, focusing specifically on educators and students, and also addressing the field of sports science. İnan (2025) revealed that students’ attitudes toward AI are associated with sports awareness; similarly, Çağdaş and Yazıcı (2025), in their quantitative study on the structural relationships between AI literacy and internet attitudes among students enrolled in faculties of sport sciences, demonstrated that AI literacy influences attitudes; and Karahüseyinoğlu et al. (2025) descriptively examined the relationship between attitudes toward AI and perceptions of academic performance among academics working in the field of sport sciences, observing that AI has the potential to exert a significant impact on academic performance.

The problem addressed in this article is the uncertainty surrounding the ethical boundaries and principles of ChatGPT usage, which is rapidly becoming widespread in educational settings. In other words, the fundamental problem is that it is unclear under what conditions this new technology, which is entering classrooms as part of digital transformation, is pedagogically beneficial and under what circumstances it may be ethically problematic. The primary aim of this study is to examine the relationship between sport sciences students’ perceptions of ChatGPT use in education and their attitudes toward the ethical use of information technologies. The original value of the article lies in its presentation of a comprehensive framework that relates the use of ChatGPT in education to the principles of computer ethics. The original value of the article lies in its presentation of a comprehensive framework that relates the use of ChatGPT in education to the principles of computer ethics.

METHOD

Research Design

Since this research aims to reveal the current situation, it has been structured within the framework of the correlational survey model, one of the survey models. Survey models are research approaches that aim to describe a past or present situation as it exists. The individual or object being studied is defined within its natural conditions and without any intervention or guidance. The correlational survey model, which is one of the subtypes of the survey model, is a research design aiming to determine the co-variation between two or more variables and/or the degree of this variation (Karasar, 2013).

Population and Sample

The population of the research consists of physical education teacher candidates actively enrolled in various universities in Türkiye during the 2025–2026 academic year. The research sample consists of 392 participants selected using convenience sampling from the Coaching Education ($n = 95$), Physical Education and Sports Teaching ($n = 95$), Sports Management ($n = 103$), and Recreation ($n = 99$) departments within the Faculties of Sports Sciences (Table 1). There are various practical rules in the literature for sample size in research sample selection. In the research, the rule that the sample size should be a minimum of 5 and a maximum of 20 times each scale item was taken into consideration (Tavşancıl, 2014). In this context, the determination of the study sample was based on the presence of a total of 50 items in the scales: 12 items in the “ChatGPT Usage Scale in Education” and 38 items in the “Ethical Use of Information Technologies Scale,” and the requirement that the number of participants be at least five times the number of scale items, necessitating a minimum sample size of 250 participants for the study. To prevent potential data loss and increase the reliability of the research, 392 participants were reached.

Table 1.

Descriptive analyses regarding the demographic information of the participants

		f	%
Gender	Female	173	44.1
	Male	219	55.9
	Total	392	100.0
Age	18-20	196	50.0
	21-23	149	38.0
	24-26	29	7.4
	27+	18	4.6
	Total	392	100.0
	Coaching Education	95	24.2
Department	Physical Education and Sports	95	24.2
	Sports Management	103	26.3
	Recreation	99	25.3
	Total	392	100.0
Grade	1. Grade	128	32.7
	2. Grade	91	23.2
	3. Grade	97	24.7
	4. Grade	76	19.4
	Total	392	100.0
Status of Taking Ethics Courses	Yes	134	34.2
	No	258	65.8
	Total	392	100.0
Use of Artificial Intelligence for Educational Purposes	Yes	351	89.5
	No	41	10.5
	Total	392	100.0

Table 1 presents the descriptive statistics regarding the demographic and educational characteristics of the 392 participants. The gender distribution shows that 44.1% are female and 55.9% are male. In terms of age, half of the participants (50.0%) are between 18–20 years old, 38.0% are between 21–23, while smaller proportions fall into the 24–26 (7.4%) and 27+ (4.6%) categories. Departmental representation is relatively balanced: Sports Management (26.3%) and Recreation (25.3%) have slightly higher shares, while Coaching Education and Physical Education & Sports each account for 24.2%. Grade levels are also distributed across all years, with the largest group being first-year students (32.7%), followed by third-year (24.7%), second-year (23.2%), and fourth-year (19.4%). Regarding ethics education, 34.2% of students reported having taken an ethics course, while the majority (65.8%) had not. Finally, the use of artificial intelligence for educational purposes is strikingly high: 89.5% of participants indicated that they employ AI tools in their learning, compared to only 10.5% who do not.

Data Acquisition Tools

Personal Information Form: A personal information form developed by the researcher was used to determine the demographic and educational characteristics of the participants in the study. The form includes questions about participants' gender, age, grade level, and field of study, as well as whether they have taken an ethics course and the use of artificial intelligence in their educational processes.

ChatGPT Usage Scale in Education (CUSE): The “ChatGPT Usage Scale in Education” developed by Taktak & Bafrahi (2025) was used to collect the data. The scale consists of a total of 12 items aimed at determining the opportunities and challenges individuals perceive regarding the use of ChatGPT in

educational settings. The scale has two sub-dimensions: the Opportunities sub-dimension (7 items) measures aspects that could contribute to ChatGPT's learning process (individual learning, quick feedback, academic writing support, ease of planning, etc.); the Challenges sub-dimension (5 items) evaluates potential limitations such as ethical risks, reduced teacher-student interaction, technology dependency, and legal oversight issues.

The scale items are rated on a 5-point Likert scale ranging from 1 = strongly disagree to 5 = Strongly agree. The total score that can be obtained on the scale ranges from 12 to 60, with high scores indicating that participants perceive both the opportunities and challenges associated with ChatGPT use at a high level. As a result of the exploratory and confirmatory factor analyses conducted during the scale development process, a two-factor structure was confirmed; the Cronbach's alpha (α) coefficient calculated for the scale's internal consistency was reported as .74 for the opportunities sub-dimension, .79 for the challenges sub-dimension, and .71 for the scale as a whole. In our current study, the repeated Cronbach's alpha (α) coefficient was found to be .86 for the opportunities sub-dimension, .71 for the challenges sub-dimension, and .74 for the entire scale.

Ethical Use of Information Technologies Scale (EUITs): The scale developed by Konuk (2023) consists of 38 items and four sub-dimensions: ethical awareness, communication and respect, cybercrime, and intellectual property. The scale is a 5-point Likert type, rated from most negative to most positive. The scale can be interpreted separately according to sub-dimensions and taking into account the total score. If only the "cybercrime" sub-dimension is desired, it can be interpreted by reverse coding or evaluated directly by scoring. This means that if reverse coding is not performed, participants' low scores could be interpreted as corresponding to ethical use, while high scores could be interpreted as corresponding to unethical use. (In our current study, the "cybercrime" sub-dimension has not been interpreted by reverse coding). The internal consistency of the scale was examined using Cronbach's alpha (α) coefficients; these values were reported as .90 for ethical awareness, .92 for communication and respect, .95 for cybercrime, .72 for intellectual property, and .92 for the scale as a whole. In our study, the repeated Cronbach's alpha (α) values were determined as follows: ethical awareness .89, communication and respect .90, cybercrime .96, intellectual property .83, and the entire scale .89.

Data Acquisition

The scale form used in the research was prepared by the researchers and consists of four sections. The first section contains an informational text regarding the purpose, scope, and nature of the research. In the second section, the "Personal Information Form" was used to determine the participants' demographic characteristics; in the third section, the "ChatGPT Usage Scale in Education"; and in the fourth section, the "Ethical Use of Information Technologies Scale." The scale form was transferred to Google Forms to facilitate online data collection and distributed to participants. There was no time limit for completing the survey, and participants were given the opportunity to review their previous answers using the "back" option on each page. By clicking the "submit" button at the end of the form, the participant's responses have been saved to the system. Form 04.12.2025-19.01.2026 was available for access between these dates. After reaching a sufficient sample size, the form was closed to access, and the obtained data set was prepared for statistical analysis.

Ethics Statement

Ethical approval for this study was obtained from the Scientific Research and Publication Ethics Committee of Muş Alparslan University (Decision No: 16/73, 09 January 2026). Participation in the study was voluntary and informed consent was obtained from all participants

Data Analysis

In the study, the Kolmogorov-Smirnov normality test was applied to examine the suitability of the data for normal distribution ($p>.05$). An independent sample t-test was used for pairwise comparisons, and one-way analysis of variance and the Tukey HSD test were used for multiple comparisons for the scores obtained from the scale. The relationship between CUSE and EUITS was analyzed using Pearson's correlation test. The research results are presented as percentages (%), means, and standard deviations, and all differences observed in the statistical results were

considered significant at the $p < .05$ level. Data were analyzed using the SPSS 29.0 V. statistical package program.

FINDINGS

The findings related to the research are presented in tables in this section.

Table 2.

Comparisons by participants' gender variable

	Sub-dimensions	Gender	n	X	SD	t	p
CUSE	Opportunities	Female	173	25.15	3.52	.574	0.566
		Male	219	24.94	3.63		
	Challenges	Female	173	15.11	3.08	.378	0.705
		Male	219	14.99	3.14		
EUITs	Ethical Awareness	Female	173	41.03	7.18	-.287	0.775
		Male	219	41.23	6.85		
	Communication and Respect	Female	173	39.94	6.34	2.357	0.019
		Male	219	38.36	6.82		
	Cybercrime	Female	173	21.71	11.75	-1.436	0.153
		Male	219	23.41	11.55		
	Intellectual Property	Female	173	19.86	5.46	.012	0.991
		Male	219	19.85	5.07		

Note: CUSE: ChatGPT Usage Scale in Education, EUITS: Ethical Use of Information Technologies Scale, X: Mean, SD: Standard Deviation

Table 2 shows that no statistically significant differences were found in the CUSE sub-dimensions in terms of the gender variable ($p > .05$). On the other hand, when looking at the sub-dimensions of the EUITS scale, a difference was only found in the “communication and respect” sub-dimension ($p < .05$). In this case, female participants' communication and respect scores were found to be higher than those of male participants.

Table 3.

Comparisons by participants' age variable

	Sub-dimensions	Age	n	X	SD	F	p
CUSE	Opportunities	18-20	196	24.98	3.79	.102	0.959
		21-23	149	25.01	3.30		
		24-26	29	25.34	4.02		
		27+	18	25.22	2.98		
	Challenges	18-20	196	14.96	3.07	.658	0.578
		21-23	149	15.01	3.07		
		24-26	29	15.83	3.55		
		27+	18	15.06	3.49		
EUITs	Ethical Awareness	18-20	196	40.45 ^b	6.96	2.676	0.047
		21-23	149	41.27 ^{ab}	7.24		
		24-26	29	43.38 ^{ab}	5.90		
		27+	18	44.00 ^a	5.64		
	Communication and Respect	18-20	196	38.15 ^b	6.86	3.335	0.020
		21-23	149	39.65 ^{ab}	6.53		
		24-26	29	40.14 ^{ab}	5.44		
		27+	18	42.28 ^a	5.75		
	Cybercrime	18-20	196	23.85	11.74	1.865	0.135
		21-23	149	21.89	11.43		
		24-26	29	21.24	12.00		
		27+	18	18.39	10.99		
	Intellectual Property	18-20	196	19.24 ^b	5.12	2.721	0.044
		21-23	149	20.18 ^{ab}	5.04		
		24-26	29	20.72 ^{ab}	6.38		
		27+	18	22.33 ^a	5.44		

Note: CUSE: ChatGPT Usage Scale in Education, EUITS: Ethical Use of Information Technologies Scale; X: Mean, SD: Standard Deviation. The letters *a* and *b* indicate that the differences between the means in the same row are statistically significant ($p < 0.05$).

Looking at Table 3, no statistical significance was found in the CUSE sub-dimensions in terms of the age variable ($p > .05$). When examining the subscales of the EUITS scale, statistically significant differences were observed in all sub-dimensions except “Cybercrime” ($p < .05$). In this case, participants aged 27 and above scored higher on ethical awareness, communication and respect, and intellectual property compared to other age groups.

Table 4.

Comparisons by participants' department variable

	Sub-dimensions	Department	n	X	SD	F	p
CUSE	Opportunities	Coaching Education	95	25.36	3.50	5.262	0.001
		Physical Education and Sports	95	25.42	3.33		
		Sports Management	103	23.85	3.94		
		Recreation	99	25.58	3.28		
	Challenges	Coaching Education	95	14.75	3.45	.543	0.653
		Physical Education and Sports	95	15.31	2.87		
		Sports Management	103	15.14	2.75		
		Recreation	99	15.00	3.38		
EUITs	Ethical Awareness	Coaching Education	95	40.49	6.48	.867	0.458
		Physical Education and Sports	95	41.31	7.16		
		Sports Management	103	40.78	6.95		
		Recreation	99	41.99	7.34		
	Communication and Respect	Coaching Education	95	37.64	6.61	1.922	0.125
		Physical Education and Sports	95	39.64	6.03		
		Sports Management	103	39.49	6.29		
		Recreation	99	39.40	7.50		
	Cybercrime	Coaching Education	95	25.07 ^a	11.13	3.891	0.009
		Physical Education and Sports	95	20.36 ^b	11.06		
		Sports Management	103	21.08 ^b	10.66		
		Recreation	99	24.20 ^a	13.09		
	Intellectual Property	Coaching Education	95	19.05	5.14	2.363	0.071
		Physical Education and Sports	95	20.31	5.20		
		Sports Management	103	19.30	4.86		
		Recreation	99	20.76	5.63		

Note: CUSE: ChatGPT Usage Scale in Education; EUITS: Ethical Use of Information Technologies Scale; X: Mean, SD: Standard Deviation. The letters *a* and *b* indicate that the differences between the means in the same row are statistically significant ($p < 0.05$).

Table 4 shows that statistical significance was detected in the Opportunities sub-dimension of the CUSE among participants ($p < .05$). On the other hand, when looking at the sub-dimensions of the EUITS scale, a difference was only found in the "Cybercrime" sub-dimension ($p < .05$). In this case, students in the Coaching Education and Recreation Department were found to have higher levels of computer crime than students in the Physical Education and Sports and Sports Management departments.

Table 5.

Comparisons by Participants' Grade Variable

	Sub-dimensions	Grade	n	X̄	SD	F	p
CUSE	Opportunities	1. Grade	128	25.23 ^{ab}	3.18	4.539	0.004
		2. Grade	91	24.04 ^b	4.20		
		3. Grade	97	24.92 ^{ab}	3.60		
		4. Grade	76	26.03 ^a	3.15		
	Challenges	1. Grade	128	14.75	3.02	1.335	0.263
		2. Grade	91	15.55	3.09		
		3. Grade	97	14.87	3.40		
		4. Grade	76	15.18	2.92		
EUITs	Ethical Awareness	1. Grade	128	40.83	6.98	.837	0.474
		2. Grade	91	40.81	7.44		
		3. Grade	97	40.98	6.54		
		4. Grade	76	42.28	7.02		
	Communication and Respect	1. Grade	128	37.76 ^b	6.92	3.347	0.019
		2. Grade	91	39.35 ^{ab}	7.02		
		3. Grade	97	39.19 ^{ab}	6.42		
		4. Grade	76	40.72 ^a	5.65		
	Cybercrime	1. Grade	128	22.45 ^a	11.06	3.079	0.027
		2. Grade	91	24.27 ^a	11.96		
		3. Grade	97	24.00 ^a	12.44		
		4. Grade	76	19.38 ^b	10.70		
	Intellectual Property	1. Grade	128	20.01	4.27	.338	0.798
		2. Grade	91	19.37	6.01		
		3. Grade	97	20.05	5.33		
		4. Grade	76	19.91	5.68		

Note: CUSE: ChatGPT Usage Scale in Education; EUITS: Ethical Use of Information Technologies Scale; X: Mean, SD: Standard Deviation. The letters *a* and *b* indicate that the differences between the means in the same row are statistically significant ($p < 0.05$).

According to Table 5, a statistically significant difference was found in the participants' CUSE "opportunities" sub-dimension scores by their grade level ($p < .05$). As a result of the pairwise

comparisons, it was determined that this difference existed between 4th grade and 2nd grade students. When examining the sub-dimensions of EUITs, statistically significant differences were found in the sub-dimensions of “Communication and Respect” and “Cybercrime” by grade level ($p < .05$). The results indicate that 4th-grade students have higher communication and respect scores compared to 1st-grade students. It was also determined that the group with the lowest average score in the cybercrime sub-dimension was the 4th grade students.

Table 6.

Comparisons based on participants' status of taking ethics courses

	Sub-dimensions	Taking Ethics Courses	n	X	SD	t	p
CUSE	Opportunities	Yes	134	25.05	4.03	0.76	0.940
		No	258	25.02	3.34		
	Challenges	Yes	134	15.27	3.10	1.007	0.314
		No	258	14.93	3.13		
EUITs	Ethical Awareness	Yes	134	41.57	7.05	.866	0.387
		No	258	40.92	6.96		
	Communication and Respect	Yes	134	39.91	6.45	1.838	0.067
		No	258	38.61	6.73		
	Cybercrime	Yes	134	21.34	11.46	-1.626	0.105
		No	258	23.35	11.71		
	Intellectual Property	Yes	134	20.19	5.52	.911	0.363
		No	258	19.68	5.09		

Note: CUSE: ChatGPT Usage Scale in Education, EUITs: Ethical Use of Information Technologies Scale, X: Mean, SD: Standard Deviation

Table 6 shows that no statistically significant differences were found between the CUSE and EUITs sub-dimensions ($p > .05$).

Table 7.

Comparisons of participants based on their use of artificial intelligence for educational purposes

	Sub-dimensions	Use of AI for Educational Purposes	n	X	SD	t	p
CUSE	Opportunities	Yes	351	25.11	3.61	1.260	0.208
		No	41	24.37	3.38		
	Challenges	Yes	351	14.88	3.09	-3.213	0.001
		No	41	16.51	2.98		
EUITs	Ethical Awareness	Yes	351	41.45	6.99	2.565	0.011
		No	41	38.51	6.45		
	Communication and Respect	Yes	351	39.25	6.78	1.698	0.090
		No	41	37.39	5.27		
	Cybercrime	Yes	351	22.22	11.40	-2.205	0.028
		No	41	26.44	13.21		
	Intellectual Property	Yes	351	19.89	5.29	.375	0.708
		No	41	19.56	4.86		

Note: CUSE: ChatGPT Usage Scale in Education, EUITs: Ethical Use of Information Technologies Scale, X: Mean, SD: Standard Deviation

According to Table 7, a statistically significant difference was found in the comparison of participants' use of artificial intelligence for educational purposes in the CUSE difficulty sub-dimension ($p < .05$). In this case, it can be said that participants who did not use AI experienced more difficulties. On the other hand, statistically significant differences were found in the “Ethical Awareness” and “Cybercrime” sub-dimensions of the EUITs. In this case, it was found that participants using AI had higher ethical awareness. In the sub-dimension of cybercrime, participants who do not use AI again have high cybercrime scores.

Table 8.

Correlation between participants' CUSE sub-dimensions and EUITs sub-dimensions

Dimensions	1	2	3	4	5	6
1. Opportunities	1					
2. Challenges	0.039	1				
3. Ethical Awareness	.392**	.115*	1			
4. Communication and Respect	.283**	0.067	.718**	1		
5. Cybercrime	-.132**	.169**	-.191**	-.268**	1	
6. Intellectual Property	.198**	0.050	.398**	.410**	.144**	1

Table 8 shows that the Opportunities sub-dimension has positive and significant relationships with Ethical Awareness ($r = .392$, $p < 0.01$) and Communication and Respect ($r = .283$, $p < 0.01$). A low level of significant relationship was found between the Challenges sub-dimension and Ethical Awareness

($r=.115$, $p<0.05$). Also, a low level of positive and significant correlation was found between Challenges and Cybercrime ($r = .169$, $p<0.01$). There is a high level of positive and meaningful correlation between Ethical Awareness and Communication and Respect ($r = .718$, $p<0.01$). Cybercrime shows a negative and meaningful relationship with the sub-dimensions of Opportunities, Ethical Awareness, and Communication and Respect. This shows that as ethical and communication levels increase, the tendency toward cybercrime decreases. Finally, the Intellectual Property sub-dimension has positive and significant relationships with Ethical Awareness and Communication and Respect.

DISCUSSION and CONCLUSION

This study examined the relationship between the levels of ChatGPT use in education among students in the Faculty of Sports Sciences and their attitudes toward the ethical use of information technologies. The findings indicated that the Opportunities dimension of ChatGPT use was positively and significantly correlated with the Ethical Awareness and Communication and Respect sub-dimensions. This result suggests that teacher candidates who perceive ChatGPT as a supportive learning tool tend to demonstrate higher levels of ethical awareness and more responsible communication in online environments. Rather than indicating a causal relationship, this finding highlights that positive perceptions of artificial intelligence tools may coexist with stronger ethical sensitivity in digital contexts. In the context of sport sciences education, these findings are particularly important, as future physical education teachers are expected to integrate emerging technologies into teaching practices while maintaining ethical responsibility and respect for intellectual labor. Accordingly, artificial intelligence literacy in teacher education should be addressed not only as a matter of technological competence but also as a dimension of ethical awareness and responsible use. According to Long and Magerko (2020), artificial intelligence literacy is associated with an individual's ability to understand the results of artificial intelligence systems' outputs, critically evaluate these outputs, and be aware of their ethical implications. Therefore, it is expected that teacher candidates who better understand the academic and pedagogical opportunities offered by ChatGPT will also have a higher level of ethical awareness. Because AI literacy is defined as an individual's ability to understand the capabilities and limitations of AI systems, critically evaluate their outcomes, and be aware of their ethical implications (Choi et al., 2025). In this context, teacher candidates who are aware of the opportunities offered by ChatGPT also embrace values such as ethical awareness and respectful communication at a higher level, demonstrating that the conscious use of digital tools can support ethical sensitivity (Tagare et al., 2025).

Similarly, studies showing that the conscious use of digital tools in educational settings strengthens ethical attitudes reveal that positive attitudes toward technology do not necessarily conflict with academic integrity; rather, with proper guidance, they can support ethical behavior (Kasneci et al., 2023; Zawacki-Richter et al., 2019). In this context, it can be said that ChatGPT can become a learning tool that supports ethical awareness when used with ethical guidance, rather than being seen solely as a tool for copying or ethical risk. Furthermore, the positive relationship found in the Communication and Respect dimension indicates that teacher candidates' levels of respecting others' work in digital environments, making proper citations, and adopting ethical sharing behaviors increase in parallel with their level of perception of ChatGPT's opportunity dimension. This situation is consistent with the principles of "respect, responsibility, and conscious participation" emphasized in the theory of digital citizenship (TÜBİTAK, 2021; Webster, 2025). It can be considered a critical achievement for teacher candidates to possess these values, as it enables them to instill ethical digital behavior in their future students.

The study found that the Challenges dimension showed low but significant correlations with the sub-dimensions of Ethical Awareness and Cybercrime. It should be noted that the 'Cybercrime' sub-dimension was not reverse coded in this study; therefore, higher scores indicate a higher tendency toward unethical digital behavior. In this context, the negative correlation observed between ethical awareness and cybercrime suggests that individuals with higher ethical awareness tend to report lower levels of cybercrime-related behaviors. This finding is consistent with the 'ethical awareness–

behavior relationship' emphasized in the information ethics literature (Bairaktarova & Woodcock, 2017; Resnik, 2020). Studies in the field of digital ethics and information ethics reveal that individuals' levels of ethical awareness are related to responsible behavior in the digital environment; individuals with high ethical awareness are more sensitive to online norms and ethical principles (Rozak, 2025; Yang, 2024). In this context, the results are consistent with the "ethical awareness-behavior relationship" discussed in the information ethics literature.

Theories of information ethics argue that individuals should evaluate their behavior in digital environments not only in terms of legal responsibility but also in terms of moral responsibility. According to Floridi's (2013) approach to information ethics, every piece of information produced and shared in the digital environment carries ethical responsibility. This perspective points to the profound impact of the proliferation of digital technologies on individuals' moral actions and focuses not only on the consequences of digital actions but also on their intent and responsibility. Furthermore, studies in the field of digital ethics show that high ethical awareness among teachers and students when using digital tools is decisive in exhibiting behavior that is appropriate and responsible in accordance with online norms (Rousi & Vakkuri, 2023).

The study also found significant differences in demographic variables such as gender, age, class level, department, and use of artificial intelligence. This finding indicates that individuals' levels of ethical awareness and their patterns of digital tool usage may vary depending on their personal and educational backgrounds. In the literature, there are studies showing that teacher candidates' attitudes toward technology and their digital literacy vary according to different demographic variables; for example, factors such as gender and educational background have been found to influence attitudes toward technology (Özdemir & Taç, 2017; Çetin et al., 2012). Similarly, there are studies showing that awareness and attitudes towards digital technologies and the use of pedagogical technologies have developed in parallel with the increase in class levels in teacher training processes (Aydemir & Karalı, 2017; Estaiteyeh, 2025). It is stated in the literature that students who receive pedagogical training have more positive perceptions of technology and related educational attitudes, which are associated with ethical awareness and a sense of professional responsibility (Mahken, 2024; Uyangör & Çetin, 2019). In this context, the fact that teacher candidates who receive pedagogical training have higher levels of ethical awareness suggests that the value-based structure of the teaching profession is decisive in this process.

These results demonstrate that the use of artificial intelligence in teacher education must be addressed not only in terms of technical competence but also in terms of its ethical and pedagogical dimensions. Kasneci et al. (2023) emphasize that AI-supported learning can only become meaningful when combined with ethical guidance and critical digital literacy. The results of this study also show that ChatGPT's opportunities increase with ethical sensitivity, but the challenges also bring ethical risks. Indeed, this research found that there are significant correlations between physical education teacher candidates' levels of ChatGPT usage and their attitudes toward the ethical use of information technologies. The findings indicate that individuals who are more aware of the opportunities offered by ChatGPT tend to demonstrate higher levels of ethical awareness and respectful communication. Furthermore, ethical awareness is negatively associated with cybercrime-related tendencies. The findings indicate a positive association between the use of artificial intelligence tools within an appropriate pedagogical and ethical framework and higher levels of ethical awareness.

Based on the findings of this study, it is recommended that teacher education programs strengthen course content related to ethical artificial intelligence literacy. Physical education teacher candidates should be supported not only in the areas of physical education and movement instruction but also in the development of digital pedagogical competence and ethical awareness. Providing practical examples of how artificial intelligence tools can be used responsibly in educational contexts may contribute to the development of academic integrity and digital responsibility among future teachers.

In conclusion, artificial intelligence tools such as ChatGPT have become an increasingly important component of teacher education. Therefore, promoting awareness of their ethical use should be reconsidered not only an individual responsibility but also an institutional priority. In this respect,

the present study contributes to the literature by emphasizing the importance of ethics-based digital literacy in teacher education, particularly in the field of physical education teacher education.

Limitations of the Study

This study has several limitations that should be considered when interpreting the findings. First, the sample was selected using a convenience sampling method, which may limit the generalizability of the results. In addition, the study was conducted with physical education teacher candidates studying in faculties of sports sciences in Türkiye; therefore, the findings should be interpreted within this specific educational context. Second, the study was limited to quantitative data obtained through self-report scales. As a result, the findings reflect participants' perceptions rather than their actual behaviors in digital environments.

Recommendations for Future Research

Future studies may examine the ethical use of artificial intelligence in education using qualitative research methods in order to explore in greater depth the perceptions and experiences of teacher candidates. Furthermore, comparative studies involving different universities and different teaching disciplines may reveal interdisciplinary differences in ethical attitudes toward artificial intelligence use in education. Finally, longitudinal studies could provide valuable insights into how teacher candidates' ethical awareness and digital responsibility develop over time during teacher education programs.

Declarations

Conflict of Interest

The author declared that there is no conflict of interest.

Ethical Statement

This research was conducted with the decision of the Scientific Research and Publication Ethics Committee of Muş Alparslan University (Decision No: 16/73, 09 January 2026).

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AI disclosure statement

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