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The Effect of Generative Artificial Intelligence Literacy on Digital Awareness Perception: The Example of the Faculty of Sports Sciences

Mustafa AKTOP[1], Ali Gürel GÖKSEL[2], Kaan ÇOLAKOĞLU[3]

ABSTRACT

Purpose: This study aimed to examine the effects of participants' generative artificial intelligence literacy levels on their perceptions of digital awareness.

Method: The study sample consisted of 302 undergraduate students actively continuing their education in all departments of the Faculty of Sports Sciences at Erciyes University. The "Demographic Information Form" developed by the researchers; the "Generative Artificial Intelligence Literacy Scale" developed by Wang et al. (2022) and adapted to Turkish by Gökçearslan et al. (2024), and the "Digital Awareness Perception Scale" developed by Karakuş and Kılıç (2024) were used. SPSS 22.0 program was used in the analysis of the data obtained in the study. Frequency/percentage, kurtosis and skewness, t-test, ANOVA and correlation analyses were applied to the data.

Results: Based on the data obtained, it was determined that as participants' generative AI literacy levels increased, their perception of digital awareness was positively affected and increased. In the gender variable, significant differences were found in all subscales and the other scales except for the Generative Artificial Intelligence Literacy Scale and ethical/legal dimension; in the frequency of use of AI-based applications in daily life, a significant difference was found only in the Generative Artificial Intelligence Literacy Scale; and no significant differences were found in the age, department, grade, or average daily internet use duration variables.

Conclusion: The study found that the perception of digital awareness was higher in favor of male students, and that as the frequency of use of AI-based applications increased, generative AI literacy levels also increased.

Keywords: Digital awareness perception, Generative artificial intelligence literacy, Sports sciences, Student

ÖZET

Üretken Yapay Zekâ Okuryazarlığının Dijital Farkındalık Algısına Etkisi: Spor Bilimleri Fakültesi Örneği

Amaç: Bu çalışmada katılımcıların üretken yapay zekâ okuryazarlık düzeylerinin dijital farkındalık algılarına yönelik etkilerinin incelenmesi amaçlanmıştır.

Yöntem: Araştırmanın örneklemini Erciyes Üniversitesi Spor Bilimleri Fakültesinin tüm bölümlerinde aktif olarak eğitimlerine devam eden 302 lisans öğrencisi oluşturmaktadır. Çalışmada, araştırmacılar tarafından oluşturulan "Demografik Bilgi Formu"; Wang ve ark. (2022) tarafından geliştirilen, Gökçearslan ve ark. (2024) tarafından Türkçeye uyarlanan "Üretken Yapay Zekâ Okuryazarlığı Ölçeği" ve Karakuş ve Kılıç (2024) tarafından geliştirilen "Dijital Farkındalık Algısı Ölçeği" kullanılmıştır. Çalışmada elde edilen verilerin analizinde SPSS 22.0 programı kullanılmıştır. Verilere frekans/yüzde, basıklık ve çarpıklık, t-testi, ANOVA ve korelasyon analizleri uygulanmıştır.

Bulgular: Elde edilen veriler ışığında, katılımcıların üretken yapay zekâ okuryazarlık düzeyleri arttıkça dijital farkındalık algı düzeylerinin de pozitif yönde etkilendiği ve arttığı tespit edilmiştir. Cinsiyet değişkeninde, Üretken Yapay Zekâ Okuryazarlığı Ölçeği ve etik/yasal boyut hariç diğer ölçek ile tüm alt boyutlarda anlamlı farklılığa; yapay zekâ tabanlı uygulamaları günlük hayatta kullanım sıklığı değişkeninde yalnızca Üretken Yapay Zekâ Okuryazarlığı Ölçeği'nde anlamlı farklılığa; yaş, bölüm, sınıf ve günlük ortalama internet kullanım süresi değişkenlerinde ise herhangi bir anlamlı farklılığa ulaşılmamıştır.

[1] Erciyes University, Faculty of Sports Sciences, Kayseri/TURKIYE. ORCID NO: 0009-0002-1716-8347, mustafaaktop@erciyes.edu.tr

[2] Muğla Sıtkı Koçman University, Faculty of Sports Sciences, Muğla/TURKIYE. ORCID NO: 0000-0002-3873-1322, aligoksel@mu.edu.tr

[3] Muğla Sıtkı Koçman University, Faculty of Sports Sciences, Muğla/TURKIYE. ORCID NO: 0009-0009-4702-9103, colakoglukaan48@gmail.com

Sonuç: Araştırma sonucunda dijital farkındalık algısının erkek öğrencilerin lehine yüksek olduğu ve öğrencilerde yapay zekâ tabanlı uygulamaların kullanım sıklığı arttıkça üretken yapay zekâ okuryazarlık düzeylerinin de arttığı tespit edilmiştir.
Anahtar Kelimeler: Dijital farkındalık algısı, Üretken yapay zekâ okuryazarlığı, Spor bilimleri, Öğrenci

INTRODUCTION

With rapid advancements in technology, artificial intelligence (AI) has become a very popular concept in recent years. There are different types of AI, and these types perform different functions. For example, some AI systems perform tasks such as classification and finding differences between similar images, while others have the ability to generate text or images that do not exist at all. A type of AI frequently used in recent years is generative AI, which has the ability to generate text and images. Generative AI can be defined as an AI that has the ability to generate many different types of data, such as synthetic data, sound, images, and text. (Lawton, 2023). The evolution of generative artificial intelligence can be divided into three stages: Machine Learning – Prediction and Analysis Phase (2000s), Deep Learning – Conversation and Opinion Phase (2010s), and Generative AI – Introduction to Language Mastery Phase (2020s) (Accenture, 2023; cited in Ünal and Kılınç, 2024).

Generative artificial intelligence is a concept gaining increasing importance in today's world, both economically and educationally. In fact, globally, the market size for generative AI was estimated at $25.86 billion in 2024 and is expected to reach approximately $1.005 trillion by 2034 (Precedence Research, 2025). From an educational perspective, generative AI improves text flow and grammar, thereby facilitating learning for students with weak language skills (Tai et al., 2023). Understanding how generative AI works, its advantages, disadvantages, and limitations is a prerequisite for effectively using it. In this context, being literate in the field of generative AI is necessary. In light of this information, the concept of generative AI literacy can be briefly defined as recognizing and being able to use generative AI systems.

Another concept related to generative AI literacy is digital awareness. Digital awareness refers to individuals' tendency to perceive and react consciously to risks or ethical violations they may encounter in digital environments. Various factors can influence individuals' awareness, including their experiences, education, age, technology usage habits, and cognitive level. While access to technology and digital awareness are crucial in the information age, the usage and access to technology among young people differ significantly (Bennett et al., 2008; Yurdakal, 2024). This situation may arise as a result of differences in how young people use technology and their access to it. Thus, a divergence in perceptions of digital awareness, especially among young people, becomes inevitable.

Due to both the impact of digital transformation and the pandemic, educational activities have been moved to digital environments (Karakuş and Kılıç, 2024). This situation has directly affected the development of students' perceptions of digital awareness and has led to this perception gaining importance. Thus, the need for students to be more aware and careful about the various digital risks they may encounter in digital environments has emerged.

Based on this information, this study aims to examine the effects of the generative artificial intelligence literacy levels of Faculty of Sports Sciences students on their perceptions of digital awareness. A review of the literature revealed no previous research measuring the impact of these two concepts on students studying at the Faculty of Sports Sciences. Therefore, this research is significant in terms of examining and contributing to the literature on the relationship between artificial intelligence literacy and digital awareness, topics that have gained considerable importance today.

Research Questions

Question 1: Do the generative artificial intelligence literacy levels of sports science students differ significantly according to demographic characteristics?

Question 2: Do sports science students' perceptions of digital awareness differ significantly based on demographic characteristics?

Question 3: Is there a significant relationship between the generative artificial intelligence literacy levels and the digital awareness levels of sports science students?

METHODS

Research Model

This study, which utilized the survey technique-a quantitative research method-attempted to determine the direction and extent of the relationship between the generative artificial intelligence literacy levels and digital awareness perceptions of sports science students. The research was conducted based on the relational survey model, one of the general survey models. "Survey models are research approaches that aim to describe a past or present situation as it is; relational survey models are research models that aim to determine the existence and/or degree of covariation between two or more variables" (Karasar, 2000).

Participants

The study population consists of all students enrolled in the Faculty of Sports Sciences at Erciyes University during the Fall semester of the 2025-2026 academic year. The sample

comprises 302 undergraduate students actively enrolled in all departments of the Faculty of Sports Sciences (Physical Education and Sports, Coaching Education, Sports Management, and Recreation). Students participating in the study were selected using convenience sampling, a type of non-probability sampling method.

Data Collection Tools

The study utilized a demographic information form, the Generative Artificial Intelligence Literacy Scale, and the Digital Awareness Perception Scale.

The first section includes a demographic information form created by the researchers, based on a literature review that suggested it might be relevant to the research findings. The form includes variables such as gender, age, department, class, average daily internet usage time, and frequency of using AI-based applications in daily life.

In the second part, the "Generative Artificial Intelligence Literacy Scale," developed by Wang et al. (2022) and adapted into Turkish by Gökçearslan et al. (2024), consisting of 10 items and 4 factors (Awareness, Use, Evaluation, Ethics), was used to determine the participants' generative artificial intelligence literacy levels. However, since this research focused on the general literacy levels of the students instead of the distinctions between sub-factors, the analyses were performed based on the total score instead of the factorial structure of the scale. The Cronbach Alpha coefficient of the scale was determined as 0.739; and the Cronbach α internal consistency coefficients for its sub-factors were 0.60, 0.682, 0.761, and 0.60, respectively. The scale, which has a 5-point Likert type, is rated as follows: “1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree”.

In the third section, the "Digital Awareness Perception Scale" developed by Karakuş and Kılıç (2024), consisting of 20 items and 5 factors (Risks of Digital Tool Use, Positive Effects, Negative Effects, Ethical/Legal Dimension, Social/Communication Dimension), was used. The Cronbach Alpha internal consistency coefficients for the sub-factors of the DFAÖ were determined as 0.68, 0.70, 0.72, 0.71, and 0.71, respectively. The scale, which has a 5-point Likert type, was rated as "1=not aware at all, 2=not aware, 3=partially aware, 4=aware, 5=completely aware".

Statistical Analysis

Data collected digitally via Google Forms were entered into SPSS 22.0. Whether the data exhibited a normal distribution was evaluated by separately examining the skewness and kurtosis coefficients of the total scores obtained from the scale and sub-dimensions for each

variable. A distribution is considered normal if the skewness and kurtosis values are between +2 and -2 (George and Mallery, 2010). The findings revealed that the data showed a normal distribution, and parametric tests were applied accordingly. Frequency/percentage, t-test, ANOVA, and correlation analyses were applied to the data to reveal differences and relationships between groups.

RESULT

Table 1. Information on the demographic characteristics of the participants

	Number of People (n=302)	Percent (%100)
Gender		
Female	140	46.4
Male	162	53.6
Age		
18-20	131	43.4
21-23	140	46.4
24 and over	31	10.3
Department		
Physical Education and Sports	48	15.9
Coaching Education	85	28.1
Sports Management	95	31.5
Recreation	74	24.5
Class		
1st grade	86	28.5
2nd grade	82	27.2
3rd grade	62	20.5
4th grade	72	23.8
Average daily internet usage time		
0-2 hours	16	5.3
3-4 hours	90	29.8
5-6 hours	120	39.7
7 hours and above	76	25.2
Frequency of use of AI-based applications in daily life		
I never use it	22	7.3
A few times a month	67	22.2
Several times a week	133	44.0
Every day	80	26.5

Table 1 shows the demographic characteristics of the participants. According to this information, 140 (46.4%) of the students participating in the study were female and 162 (53.6%) were male. Regarding the ages of the students, 131 (43.4%) were 18-20 years old, 140 (46.4%) were 21-23 years old, and 31 (10.3%) were 24 years and older. Looking at the distribution by department, 48 (15.9%) were from Physical Education and Sports, 85 (28.1%) from Coaching Education, 95 (31.5%) from Sports Management, and 74 (24.5%) from Recreation. When the distribution of students by class is examined, 86 (28.5%) are 1st year students, 82 (27.2%) are 2nd year students, 62 (20.5%) are 3rd year students, and 72 (23.8%) are 4th year students. Looking at the distribution of average daily internet usage times, 16 (5.3%) use it for 0-2 hours,

90 (29.8%) for 3-4 hours, 120 (39.7%) for 5-6 hours, and 76 (25.2%) for 7 hours or more. Regarding the frequency of use of AI-based applications in daily life, 22 (7.3%) never use them, 67 (22.2%) use them a few times a month, 133 (44.0%) use them a few times a week, and 80 (26.5%) use them every day.

Table 2. Mean values of the Generative AI Literacy Scale and the Digital Awareness Perception Scale

	N	Min.	Max.	x̄	Ss	Skewness	Kurtosis	α
Generative AI Literacy Scale	302	1.60	5.00	3.659	0.521	-.022	.470	.791
Digital Awareness Perception Scale	302	1.70	5.00	3.911	0.601	-.286	.170	.935
Risks Of Using Digital Vehicle	302	1.20	5.00	3.939	0.685	-.430	.260	.829
Positive Effects	302	1.20	5.00	3.795	0.718	-.299	.123	.841
Negative Effects	302	1.25	5.00	3.924	0.731	-.632	.654	.805
Ethical-Legal	302	1.67	5.00	3.961	0.769	-.392	-.150	.837
Social-Communication	302	1.00	5.00	3.989	0.696	-.500	.499	.745

Table 2 shows the scores participants received from the Generative AI Literacy Scale and the Digital Awareness Perception Scale. When the results are examined, it is determined that the arithmetic mean from the Generative AI Literacy Scale is 3.659 and the arithmetic mean from the Digital Awareness Perception Scale is 3.911. When the arithmetic means obtained in the sub-dimensions are examined, it is concluded that the risks of using digital tools are 3.939, positive effects are 3.795, negative effects are 3.924, the ethical/legal dimension is 3.961, and the social/communication dimension is 3.989. The Generative AI Literacy Scale showed skewness (-.022) and kurtosis (.470), while the Digital Awareness Perception Scale showed skewness (-.286) and kurtosis (.170). When the sub-dimensions were examined, the risks of digital tool use showed skewness (-.430) and kurtosis (.260); positive effects showed skewness (-.299) and kurtosis (.123); negative effects showed skewness (-.632) and kurtosis (.654); the ethical/legal dimension showed skewness (-.392) and kurtosis (-.150); and the social/communication dimension showed skewness (-.500) and kurtosis (.499). The data were found to exhibit a normal distribution. When the Cronbach Alpha values of the scales and sub-dimensions were examined, it was determined that the Generative AI Literacy Scale had a value of .791 and the Digital Awareness Perception Scale had a value of .935. When the Cronbach Alpha values of the sub-dimensions were examined, the risks of digital tool use were found to be .829, positive effects .841, negative effects .805, ethical/legal dimension .837, and social/communication dimension .745, and it was concluded that the Cronbach Alpha values of the scales and sub-dimensions are highly reliable.

Table 3. T-test results for gender variable

	Gender	n	x̄	Ss	t
Generative AI Literacy Scale	Female	140	3.615	0.467	-1.395
	Male	162	3.698	0.561	
Digital Awareness Perception Scale	Female	140	3.816	0.595	-2.556
	Male	162	3.992	0.597	
Risks Of Using Digital Vehicle	Female	140	3.854	0.638	-2.009
	Male	162	4.012	0.717	
Positive Effects	Female	140	3.698	0.715	-2.190
	Male	162	3.879	0.712	
Negative Effects	Female	140	3.807	0.749	-2.623
	Male	162	4.026	0.701	
Ethical-Legal	Female	140	3.892	0.796	-1.441
	Male	162	4.020	0.741	
Social-Communication	Female	140	3.888	0.720	-2.356
	Male	162	4.076	0.665	

**p<.05*

When the t-test results for the gender variable in Table 3 are examined, it is concluded that male students have higher average scores in the Digital Awareness Perception Scale (p = .011<.05), risks of digital tool use (p = .045<.05), positive effects (p = .029<.05), negative effects (p = .009<.05), and the social/communication dimension (p = .019<.05). However, no significant differences were found in the Generative Artificial Intelligence Literacy Scale (p = .164>.05) and the ethical/legal dimension (p = .151>.05).

Table 4. ANOVA results according to participants' age variable

	Age	n	x̄	σ	F
Generative AI Literacy Scale	18-20	131	3.671	0.476	.135
	21-23	140	3.643	0.554	
	24 and over	31	3.683	0.559	
Digital Awareness Perception Scale	18-20	131	3.917	0.579	.017
	21-23	140	3.904	0.584	
	24 and over	31	3.912	0.767	
Risks Of Using Digital Vehicle	18-20	131	3.946	0.672	.081
	21-23	140	3.924	0.659	
	24 and over	31	3.974	0.852	
Positive Effects	18-20	131	3.801	0.694	.012
	21-23	140	3.788	0.711	
	24 and over	31	3.800	0.861	
Negative Effects	18-20	131	3.937	0.703	.033
	21-23	140	3.914	0.753	
	24 and over	31	3.919	0.764	
Ethical-Legal	18-20	131	3.936	0.773	.186
	21-23	140	3.990	0.755	
	24 and over	31	3.935	0.831	
Social-Communication	18-20	131	4.020	0.680	.234
	21-23	140	3.964	0.705	
	24 and over	31	3.967	0.742	

**p<.05*

Table 4 shows that when the ANOVA results according to the age variable are examined, no significant differences were found in the scales as a whole or in the sub-dimensions. Significant differences were obtained in the Generative Artificial Intelligence Literacy Scale (p = .874 > .05) and the Digital Awareness Perception Scale (p = .983 > .05). In the sub-dimensions, the risks of digital tool use were identified as (p = .923 > .05), positive effects (p = .988 > .05), negative effects (p = .967 > .05), ethical/legal dimension (p = .830 > .05), and social/communication dimension (p = .792 > .05).

Table 5. ANOVA results of participants according to department variable

	Department	n	x̄	σ	F
Generative AI Literacy Scale	Physical Education and Sports	48	3.741	0.484	.693
	Coaching Education	85	3.607	0.511	
	Sports Management	95	3.668	0.495	
	Recreation	74	3.656	0.585	
Digital Awareness Perception Scale	Physical Education and Sports	48	3.961	0.532	.550
	Coaching Education	85	3.846	0.624	
	Sports Management	95	3.946	0.631	
	Recreation	74	3.906	0.581	
Risks Of Using Digital Vehicle	Physical Education and Sports	48	4.066	0.585	1.787
	Coaching Education	85	3.837	0.758	
	Sports Management	95	4.014	0.675	
	Recreation	74	3.875	0.656	
Positive Effects	Physical Education and Sports	48	3.700	0.731	.531
	Coaching Education	85	3.769	0.719	
	Sports Management	95	3.818	0.725	
	Recreation	74	3.856	0.706	
Negative Effects	Physical Education and Sports	48	3.984	0.720	.602
	Coaching Education	85	3.841	0.718	
	Sports Management	95	3.971	0.781	
	Recreation	74	3.922	0.689	
Ethical-Legal	Physical Education and Sports	48	4.090	0.590	.815
	Coaching Education	85	3.874	0.869	
	Sports Management	95	3.971	0.796	
	Recreation	74	3.964	0.712	
Social-Communication	Physical Education and Sports	48	4.062	0.573	.232
	Coaching Education	85	3.968	0.712	
	Sports Management	95	3.989	0.787	
	Recreation	74	3.964	0.635	

**p<.05*

When the ANOVA results according to the department variable are examined in Table 5, no significant differences were found in the scales as a whole and in the sub-dimensions. Significant results were obtained in the Generative Artificial Intelligence Literacy Scale (p = .557 > .05) and the Digital Awareness Perception Scale (p = .649 > .05). In the sub-dimensions, the risks of digital tool use (p = .150 > .05), positive effects (p = .662 > .05), negative effects (p = .614 > .05), ethical/legal dimension (p = .486 > .05), and social/communication dimension (p = .874 > .05) were identified.

Table 6. ANOVA results according to participants' class variable

	Class	n	x̄	σ	F
Generative AI Literacy Scale	1st grade	86	3.675	0.472	.34
	2nd grade	82	3.670	0.500	
	3rd grade	62	3.624	0.541	
	4th grade	72	3.659	0.586	
Digital Awareness Perception Scale	1st grade	86	3.947	0.590	.342
	2nd grade	82	3.929	0.564	
	3rd grade	62	3.900	0.622	
	4th grade	72	3.855	0.644	
Risks Of Using Digital Vehicle	1st grade	86	3.962	0.696	.530
	2nd grade	82	4.000	0.662	
	3rd grade	62	3.871	0.677	
	4th grade	72	3.900	0.708	
Positive Effects	1st grade	86	3.853	0.679	.266
	2nd grade	82	3.778	0.678	
	3rd grade	62	3.774	0.739	
	4th grade	72	3.763	0.797	
Negative Effects	1st grade	86	3.956	0.679	1.113
	2nd grade	82	3.923	0.726	
	3rd grade	62	4.024	0.811	
	4th grade	72	3.802	0.720	
Ethical-Legal	1st grade	86	3.953	0.808	.008
	2nd grade	82	3.963	0.682	
	3rd grade	62	3.973	0.828	
	4th grade	72	3.958	0.777	
Social-Communication	1st grade	86	4.062	0.690	1.039
	2nd grade	82	4.040	0.622	
	3rd grade	62	3.919	0.760	
	4th grade	72	3.902	0.726	

**p<.05*

Table 6 shows that when the ANOVA results according to the class variable are examined, no significant differences were found in the overall scales or in the sub-dimensions. Significant results were obtained in the Generative Artificial Intelligence Literacy Scale (p = .940 > .05) and the Digital Awareness Perception Scale (p = .795 > .05). In the sub-dimensions, the risks of digital tool use (p = .662 > .05), positive effects (p = .850 > .05), negative effects (p = .344 > .05), ethical/legal dimension (p = .999 > .05), and social/communication dimension (p = .376 > .05) were identified.

Table 7. ANOVA results based on the average daily internet usage time variable

	Time	n	x̄	σ	F
Generative AI Literacy Scale	0-2 hours	16	3.693	0.482	2.552
	3-4 hours	90	3.650	0.468	
	5-6 hours	120	3.742	0.520	
	7 hours and above	76	3.534	0.570	
Digital Awareness Perception Scale	0-2 hours	16	3.943	0.476	1.266
	3-4 hours	90	3.892	0.562	
	5-6 hours	120	3.982	0.619	
	7 hours and above	76	3.813	0.635	

Risks Of Using Digital Vehicle	0-2 hours	16	4.050	0.613	.861
	3-4 hours	90	3.928	0.606	
	5-6 hours	120	3.991	0.725	
	7 hours and above	76	3.844	0.721	
Positive Effects	0-2 hours	16	3.737	0.391	1.760
	3-4 hours	90	3.711	0.730	
	5-6 hours	120	3.911	0.689	
	7 hours and above	76	3.723	0.785	
Negative Effects	0-2 hours	16	3.937	0.750	.884
	3-4 hours	90	3.925	0.742	
	5-6 hours	120	3.989	0.697	
	7 hours and above	76	3.819	0.766	
Ethical-Legal	0-2 hours	16	4.062	0.599	1.379
	3-4 hours	90	3.981	0.745	
	5-6 hours	120	4.027	0.785	
	7 hours and above	76	3.811	0.795	
Social-Communication	0-2 hours	16	4.000	0.583	.479
	3-4 hours	90	4.003	0.658	
	5-6 hours	120	4.027	0.712	
	7 hours and above	76	3.907	0.743	

**p<.05*

Table 7 shows that when the ANOVA results are examined according to the average daily internet usage time variable, no significant differences were found in the overall scales or in the sub-dimensions. Significant results were obtained in the Generative Artificial Intelligence Literacy Scale (p = .056 > .05) and the Digital Awareness Perception Scale (p = .286 > .05). In the sub-dimensions, the risks of digital tool use were identified as (p = .462 > .05), positive effects as (p = .155 > .05), negative effects as (p = .471 > .05), ethical/legal dimension as (p = .249 > .05), and social/communication dimension as (p = .697 > .05).

Table 8. ANOVA results according to the frequency of use of artificial intelligence-based applications in daily life

	Time	**n**	**x̄**	**σ**	**F**	***Post-Hoc***
Generative AI Literacy Scale	I never use it[a]	22	3.418	0.526	7.714	**c>b d>a,b**
	A few times a month[b]	67	3.473	0.531		
	Several times a week[c]	133	3.697	0.495		
	Every day[d]	80	3.821	0.489		
Digital Awareness Perception Scale	I never use it	22	3.818	0.672	1.412	
	A few times a month	67	3.811	0.562		
	Several times a week	133	3.922	0.610		
	Every day	80	4.001	0.593		
Risks Of Using Digital Vehicle	I never use it	22	3.881	0.683	1.260	
	A few times a month	67	3.829	0.679		
	Several times a week	133	3.939	0.731		
	Every day	80	4.045	0.601		
Positive Effects	I never use it	22	3.563	0.856	1.429	
	A few times a month	67	3.725	0.629		
	Several times a week	133	3.815	0.763		
	Every day	80	3.885	0.662		

Negative Effects	I never use it	22	3.920	0.817	.742	
	A few times a month	67	3.813	0.776		
	Several times a week	133	3.943	0.680		
	Every day	80	3.987	0.752		
Ethical-Legal	I never use it	22	3.954	0.868	1.333	
	A few times a month	67	3.820	0.759		
	Several times a week	133	3.964	0.772		
	Every day	80	4.075	0.738		
Social-Communication	I never use it	22	3.863	0.639	.868	
	A few times a month	67	3.910	0.618		
	Several times a week	133	4.002	0.708		
	Every day	80	4.066	0.752		

**p<.05*

Table 8 shows that when examining the ANOVA results based on the frequency of daily use of AI-based applications, no significant differences were found except for the Generative AI Literacy Scale (p = .000 < .05). According to the results obtained in the Generative AI Literacy Scale, the average scores of students who use AI-based applications a few times a week in their daily lives are higher than the average scores of students who use them a few times a month; and the average scores of students who use them every day are higher than the average scores of students who do not use them at all or who use them a few times a month. The Digital Awareness Perception Scale yielded a result of (p = .239 > .05), and its sub-dimensions were identified as: risks of digital tool use (p = .288 > .05), positive effects (p = .234 > .05), negative effects (p = .528 > .05), ethical/legal dimension (p = .264 > .05), and social/communication dimension (p = .458 > .05).

Table 9. Correlation analysis of participants.

	n	x̄	σ	1	2	3	4	5	6	7
Generative AI Literacy Scale	302	3.659	0.521	1	.625**	.605**	.499**	.472**	.542**	.489**
Digital Awareness Perception Scale	302	3.911	0.601	.625**	1	.840**	.835**	.857**	.861**	.796**
Risks Of Using Digital Vehicle	302	3.939	0.685	.605**	.840**	1	.578**	.613**	.668**	.606**
Positive Effects	302	3.795	0.718	.499**	.835**	.578**	1	.640**	.597**	.585**
Negative Effects	302	3.924	0.731	.472**	.857**	.613**	.640**	1	.755**	.596**
Ethical-Legal	302	3.961	0.769	.542**	.861**	.668**	.597**	.755**	1	.676**
Social-Communication	302	3.989	0.696	.489**	.796**	.606**	.585**	.596**	.676**	1

***p<.01*

According to the results of the Pearson correlation analysis, a significant positive relationship was found between generative AI literacy and perceived digital awareness (r = .625, p = .000 < .01). Based on these results, it was concluded that as students' levels of generative AI literacy increase, their levels of perceived digital awareness are also positively affected and increase.

DISCUSSION AND CONCLUSION

When the results of the gender variable were examined within the scope of our study's findings, it was concluded that male students had higher average scores in the Digital Awareness Perception Scale, the risks of digital tool use, positive effects, negative effects, and the social/communication dimension. No significant differences were found in the Generative Artificial Intelligence Literacy Scale and its ethical/legal dimension (Table 3). Vargel et al. (2024), in their study on digital technology competence and digital transformation awareness among 10-14 year old students; Batu and Taşdan (2025), in their study on digital transformation awareness among school administrators, found a significant difference in favor of males. Mart and Kaya (2024), in their study on pre-school teacher candidates; Başer Seçer and Seçer (2025), in their study on physiotherapy and rehabilitation students; Younis (2024), in their study on teacher candidates in Palestine; Kazak Saltı et al. (2025) in their study on university students studying in health-related fields, concluded that gender did not affect AI literacy. Since our study also concluded that gender did not affect generative AI literacy, the relevant studies support our research. However, when the literature is examined, there are studies that have obtained different results from our research. For example, Gavriilidou (2024), who conducted a study on students studying in the humanities in Greece and Cyprus; and Elçiçek (2024), who conducted a study on high school, associate degree and undergraduate students, concluded that male students have a higher level of AI literacy. When some studies on digital technology and digital literacy are examined, there are also studies that did not detect a significant difference in the context of the gender variable, and these do not coincide with the results of our study (Erdoğan, 2021; Erten, 2019; Pala and Başıbüyük, 2020). The main reason why related studies differ from our research is thought to be the difference in sample size.

When the ANOVA results were examined according to the age variable, no significant differences were found in the Generative Artificial Intelligence Literacy Scale, the Digital Awareness Perception Scale, and its sub-dimensions (Table 4). When the studies conducted in the literature were examined, Batu and Taşdan's (2025) study on school administrators found no significant difference between digital transformation awareness and the age variable. Yakut (2024), in her study among randomly selected individuals aged 18-59, concluded that attitudes towards artificial intelligence did not differ according to the age variable. In addition, there are other studies that have concluded that the age variable does not affect artificial intelligence literacy (Caz et al., 2024; Cengiz Mater and Yalçınkaya, 2025; Mart and Kaya, 2024). The results of the studies we have cited are similar to our research and support our study. However,

there are also studies in the literature that found that younger individuals have higher levels of AI literacy and awareness, which differs from our study (Chalutz Ben-Gal, 2023; Cirillo et al., 2020; Kazak Saltı et al., 2025; Syed and Basil, 2023). In a study on digital transformation awareness, however, age was found to influence digital transformation awareness, unlike our study (Vargel et al., 2024). It is thought that the reason for the discrepancy between these studies and our research is the differences in the age groups in which the studies were conducted.

When the ANOVA results were examined according to the department variable, no significant differences were found in the Generative Artificial Intelligence Literacy Scale, the Digital Awareness Perception Scale, and its sub-dimensions (Table 5). Güler and Polatgil (2025), in their study conducted on 211 computer science students at Cumhuriyet University, found no significant difference between the students' department and artificial intelligence literacy. In addition, Saatçioğlu and Topsakal (2025), in their study conducted on 246 students at Selçuk University, concluded that there was no significant difference between the students' department and their attitudes towards artificial intelligence. Similarly, Yeniçeri and Kenan (2025), in their study conducted on 339 students at a university in Turkey, concluded that there was no significant difference between the students' department and their attitudes towards artificial intelligence. The results of these studies support the results of our research. İmamoğlu Akman and Akman (2025), in their study conducted on 1626 students at Suleyman Demirel University, concluded that attitudes towards artificial intelligence differed significantly according to the department variable, and these results do not coincide with the results of our study. It is thought that the reason for the difference between their study and our research is due to the diversity of faculties and departments in which the study was conducted.

When the ANOVA results were examined according to the class variable, no significant differences were found in the Generative Artificial Intelligence Literacy Scale, the Digital Awareness Perception Scale, and its sub-dimensions (Table 6). Mart and Kaya (2024), in their study on pre-school teacher candidates, did not find a significant difference between artificial intelligence literacy and class level. In addition, Başer Seçer and Seçer (2025), in their study on physiotherapy and rehabilitation students, concluded that the class variable did not affect artificial intelligence literacy. The results of the relevant studies are parallel to the results of our study and support our study. However, there are also studies in the literature that obtained different results from our study. Özel and Büyükçavuş (2022), in their study on dentistry students, concluded that students in higher classes had more knowledge about artificial intelligence than students in lower classes. Similarly, Cengiz Mater and Yalçınkaya (2025), in

their study on students studying in the information and document management department, concluded that 3rd-year students had higher artificial intelligence literacy than 1st-year students. In addition, Banaz and Demirel (2024), in their study on prospective Turkish language teachers, found that 2nd and 4th-year students had higher levels of artificial intelligence literacy than other grades. Vargel et al. (2024), who conducted a study on students aged 10-14, concluded that the grade level significantly affected digital transformation awareness. The results of these studies differ from our study. This difference is thought to be due to the diversity of the sample.

When the ANOVA results were examined according to the average daily internet usage time variable, no significant differences were found in the Generative Artificial Intelligence Literacy Scale, the Digital Awareness Perception Scale, and its sub-dimensions (Table 7). Banaz and Demirel (2024), in their study on prospective Turkish language teachers, concluded that there was no significant difference between artificial intelligence literacy and internet usage time. Banaz and Maden (2024), in their study on university students, did not find a significant difference between internet usage time and attitudes towards artificial intelligence. Başer Seçer and Seçer (2025), in their study on physiotherapy and rehabilitation students, concluded that artificial intelligence literacy did not differ according to internet usage. The results of these studies support the results of our research. However, when examining some studies conducted on secondary and university students, there are studies that have found significant differences between internet usage time and digital literacy level, reaching different conclusions than our research (Pala and Başıbüyük, 2020; Erdoğan, 2021; Kul, 2020; Sarıkaya, 2019). It is thought that this difference stems from the variation in the sample sizes or the time periods in which the studies were conducted.

A significant difference was found between the daily usage time of AI-based applications by participants and their levels of productive AI literacy. According to the results obtained in the Generative AI Literacy Scale, the average scores of students who use AI-based applications several times a week in daily life are higher than the average scores of students who use them several times a month; and the average scores of students who use them every day are higher than the average scores of students who do not use them at all and those who use them several times a month. No significant differences were found in the Digital Awareness Perception Scale and its sub-dimensions (Table 8). A review of the literature reveals studies that have reached similar conclusions to our research. Wang et al. (2022), in their scale development study, concluded that there are significant differences in AI literacy in terms of

daily AI use. Şeker et al. (2025) In their study conducted on 708 researchers from 110 different universities, Toker Gökçe et al. (2025) found that the frequency of AI use had a significant effect on AI literacy. Similarly, in their study on university students, Toker Gökçe et al. (2025) concluded that the frequency of use of AI technologies had a significant effect on AI literacy. Although the results of these studies are similar to our research, there are also some studies in the literature that reached different results from our research. Shomotova et al. (2025), in their study on undergraduate students in the United Arab Emirates, concluded that there was no significant difference between the level of AI literacy and daily generative AI use. It is thought that the reason for this difference stems from the diversity of the country and university where the study was conducted.

According to the results of the Pearson correlation analysis, a significant positive relationship was found between generative AI literacy and digital awareness perception (Table 9). In this context, it would not be wrong to say that students who have more knowledge in using generative AI applications have higher digital awareness perceptions. A literature review revealed no academic publications that examined the concepts of generative AI literacy and digital awareness perception together. This shows that our study is original and pioneering in the field. There is only one study in the relevant field focusing on similar concepts such as digital literacy and AI literacy (Dağaşan, 2025). A study conducted on 534 students studying at various universities in Turkey found a statistically significant relationship between digital literacy and AI literacy. In conclusion, our study found that as students' generative AI literacy levels increase, their digital awareness perception levels are also positively affected and increase. The limited number of studies conducted in the field also support the results of our research.

Limitations

- The research data is valid at the time of collection, and the findings are subject to outdatedness due to the rapid advancements in generative artificial intelligence, digital awareness, and societal changes.
- The findings of this study are limited to students from the Faculty of Sports Sciences at Erciyes University who voluntarily participated in the study.

Suggestions

- Since there are limited studies in the literature examining generative AI literacy and digital awareness perceptions, applying this study to different sample groups could contribute to the literature.

- According to the study results, as students' generative AI literacy levels increase, their digital awareness perception levels are also positively affected. Therefore, it is recommended that policies be implemented to increase students' generative AI literacy levels in order to improve their digital awareness perceptions.

REFERENCES

Banaz, E., Demirel, O. (2024). Türkçe öğretmen adaylarının yapay zekâ okuryazarlıklarının farklı değişkenlere göre incelenmesi. *Dokuz Eylül Üniversitesi Buca Eğitim Fakültesi Dergisi* (60), 1516-1529. https://doi.org/10.53444/deubefd.1461048

Banaz, E., Maden, S. (2024). Türkçe öğretmen adaylarının yapay zekâ tutumlarının farklı değişkenler açısından incelenmesi. *Trakya Eğitim Dergisi*, 14(2), 1173-1180. https://doi.org/10.24315/tred.1430419

Başer Seçer, M., Seçer, E. (2025). Geleceğe hazır mıyız? Fizyoterapi ve rehabilitasyon öğrencilerin yapay zekâya yönelik tutumları ve yapay zekâ okuryazarlığı. *İzmir Kâtip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi*, 10(3), 358-366. https://doi.org/10.61399/ikcusbfd.1621606

Batu, D., Taşdan, M. (2025). Okul yöneticilerinin okulların dijital dönüşümüne ilişkin farkındalıklarının incelenmesi. *MANAS Sosyal Araştırmalar Dergisi*, 14(1), 70-87. https://doi.org/10.33206/mjss.1540880

Bennett, S., Maton, K., Kervin, L. (2008). The 'digital natives' debate: A critical review of the evidence. *British Journal of Educational Technology*, 39(5), 775–786. https://doi.org/10.1111/j.1467-8535.2007.00793.x

Caz, Ç., Yazıcı, Ö. F., Biçer, T. (2024). Spor bilimleri fakültesi öğrencilerinde dijital iyi oluş ile yapay zekâ okuryazarlığı ilişkisi: Yapısal eşitlik modeli uygulaması. *ROL Spor Bilimleri Dergisi*, 5(4), 581-593. https://doi.org/10.70736/jrolss.463

Cengiz Mater, E., Yalçınkaya, B. (2025). Bilgi ve belge yönetimi bölümü öğrencilerinin yapay zekâ okuryazarlığı düzeyleri üzerine bir araştırma. *Türk Kütüphaneciliği*, 39(4), 388-427. https://doi.org/10.24146/tk.1674520

Chalutz Ben-Gal, H. (2023). Artificial intelligence (AI) acceptance in primary care during the coronavirus pandemic: what is the role of patients' gender, age and health awareness? A two-phase pilot study. *Frontiers İn Public Health*, 10, 931225. https://doi.org/10.3389/fpubh.2022.931225

Cirillo, D., Catuara-Solarz, S., Morey, C., Güney, E., Subirats, L., Mellino, S., Gigante, A., Valencia, A., Rementeria, M. J., Chadha, A. S., Mavridis, N. (2020). Sex and gender differences and biases in artificial intelligence for biomedicine and healthcare. *NPJ Digital Medicine*, 3(1), 81. https://doi.org/10.1038/s41746-020-0288-5

Dağaşan, A. (2025). Dijital okuryazarlık ile yapay zekâ okuryazarlığı arasındaki ilişkide bilgi ve iletişim teknolojilerine yönelik tutumun aracı rolü. *Uluslararası Türkçe Edebiyat Kültür Eğitim (TEKE) Dergisi*, 14(1), 238-251. https://doi.org/10.7884/teke.1628023

Elçiçek, M. (2024). Öğrencilerin yapay zekâ okuryazarlığı üzerine bir inceleme. *Bilgi ve İletişim Teknolojileri Dergisi*, 6(1), 24–35. https://doi.org/10.53694/BITED.1460106

Erdoğan, E. (2021). Dijital okuryazarlık ve siber zorbalık: Ortaokul öğrencilerine yönelik bir ilişkisel tarama araştırması. *International Journal of Field Education*, 7(2), 61-76. https://doi.org/10.32570/ijofe.1013788

Erten, P. (2019). Z kuşağının dijital teknolojiye yönelik tutumları. *Gümüşhane Üniversitesi Sosyal Bilimler Dergisi*, 10(1), 190-202.

Gavriilidou, Z. (2024). AI literacy among university students μajoring in ηumanities in Greece and Cyprus. *Journal of Language and Culture in Education*, 1(1), 104–113. https://doi.org/10.5281/ZENODO.12817808

George, D., Mallery, P. (2010). SPSS for Windows step by step: A simple guide and reference 17.0 update (10th Edition). Boston: Pearson.

Gökçearslan, Ş., Durak, H., Günbatar, M. S., Atman Uslu, N., Elçi, A. N. (2024, July). *Generative artificial intelligence (GenAI) literacy scale: Validity and reliability [Conference paper]*. 4th International Conference on Scientific and Academic Research, Konya, Turkey.

Güler, A., Polatgil, M. (2025). Bilişim alanında öğrenim gören yapay zekâ okuryazarlığı düzeylerinin ölçülmesi. *Bilgisayar ve Eğitim Araştırmaları Dergisi*, 13(25), 30-53. https://doi.org/10.18009/jcer.1549267

İmamoğlu Akman, G., Akman, Y. (2025). Eğitim inançları ve yapay zekâ: Eğitim fakültesi öğrencilerinin algıları üzerine bir araştırma. *Batı Anadolu Eğitim Bilimleri Dergisi*, 16(1), 911-928. https://doi.org/10.51460/baebd.1601530

Karakuş, İ., Kılıç, F. (2024). Dijital Farkındalık Algısı Ölçeği: Geçerlik ve güvenirlik çalışması. *Kesit Akademi Dergisi*, 10(38), 132-158. https://doi.org/10.29228/kesit.75135

Karasar, N. (2000). Bilimsel araştırma yöntemleri. Ankara: Nobel Yayın Dağıtım.

Kazak Saltı, A., Topalı, H., Türkmen, O. O. (2025). Sağlık ile ilgili bölümlerde okuyan üniversitesi öğrencilerinin yapay zekâ okuryazarlığı. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 34 (Özel Sayı, Uygarlığın Dönüşümü: Yapay Zekâ), 51-64. https://doi.org/10.35379/cusosbil.1625358

Kul, S. (2020). Dijital okuryazarlık ve diğer değişkenlerle internet bağımlılığı ilişkisinin incelenmesi. *International Journal of Management Information Systems and Computer Science*, 4(1), 28-41. https://doi.org/10.33461/uybisbbd.646682

Lawton, G. (2023). What is generative AI? Everything you. https://www.techtarget.com/searchenterpriseai/definition/generative-AI, Erişim: 12.03.2025

Mart, M., Kaya, G. (2024). Okul öncesi öğretmen adaylarının yapay zekâya yönelik tutumları ve yapay zekâ okuryazarlığı arasındaki ilişkinin incelenmesi. *Edutech Research*, 2(1), 91-109.

Özel, Ş., Büyükçavuş, M. H. (2022). Diş hekimliği öğrencilerinin diş hekimliğinde yapay zekâ uygulamaları ile ilgili düşüncelerinin incelenmesi. *7tepe Klinik Dergisi*, 18(2), 55-60. https://doi.org/10.5505/yeditepe.2022.27928

Pala, Ş. M., Başıbüyük, A. (2020). Ortaokul beşinci sınıf öğrencilerinin dijital okuryazarlık düzeylerinin incelenmesi. *Cumhuriyet Uluslararası Eğitim Dergisi*, 9(3), 897-921. https://doi.org/10.30703/cije.672882

Precedence Research. (2025). Generative AI Market Size, Share, and Trends 2025 to 2034. https://www.precedenceresearch.com/generative-ai-market, Erişim: 12.03.2025

Saatçioğlu, Ö., Topsakal, E. (2025). Öğretmen adaylarının yapay zekâya yönelik tutumlarının çeşitli değişkenler açısından incelenmesi. *Uluslararası Toplumsal Bilimler Dergisi*, 9(2), 168-191. http://dx.doi.org/10.30830/tobider.sayi. 22.10

Sarıkaya, B. (2019). Türkçe öğretmeni adaylarının dijital okuryazarlık durumlarının çeşitli değişkenler açısından değerlendirilmesi. *Journal Of International Social Research*, 12(62). http://dx.doi.org/10.17719/jisr.2019.3122

Shomotova, A., ElSayary, A., Husain, S. (2025). What shapes students' AI literacy? Investigating digital competence, student background, and GenAI use in higher education.

Education and Information Technologies, 30. 1-32. https://doi.org/10.1007/s10639-025-13832-x

Syed, W., Basil A. Al-Rawi, M. (2023). Assessment of awareness, perceptions, and opinions towards artificial intelligence among healthcare students in Riyadh, Saudi Arabia. *Medicina*, 59(5), 828.

Şeker, O., Kwon, K., Koçak, O. (2025). Exploring researchers' artificial intelligence (AI) literacy: The mediating role of digital literacy and data literacy between 21st century skills and AI literacy. *Information Development*. https://doi.org/10.1177/02666669251336368

Tai, A. M. Y., Meyer, M., Varidel, M., Prodan, A., Vogel, M., Iorfino, F., Krausz, R. M. (2023). Exploring the potential and limitations of ChatGPT for academic peer-reviewed writing: Addressing linguistic injustice and ehtical concerns. *Journal of Academic Language & Learning*, 17(1), 16–30.

Toker Gökçe, A., Deveci Topal, A., Kolburan Geçer, A., & Dilek Eren, C. (2025). Investigating the level of artificial intelligence literacy of university students using decision trees. *Education and Information Technologies*, 30(5), 6765-6784. https://doi.org/10.1007/s10639-024-13081-4

Ünal, A., Kılınç, İ. (2024). Üretken yapay zekâların iş dünyası üzerine etkilerine ilişkin erken dönem bir değerlendirme. *Elektronik Sosyal Bilimler Dergisi*, 23(90), 776-797. https://doi.org/10.17755/esosder.1411805

Vargel, İ., Aslan, Ö., Karaoğlu, H. B., Özdemir, M. A. (2024). Öğrencilerde dijital dönüşüm farkındalığının demografik faktörler yönünden değerlendirilmesi. *Ulusal Eğitim Dergisi*, 4(3), 1074-1087. https://doi.org/10.5281/zenodo.10909839

Wang, B., Rau, P. L. P., Yuan, T. (2022). Measuring user competence in using artificial intelligence: Validity and reliability of Artificial Intelligence Literacy Scale. *Behaviour & information technology*, 42(9), 1324-1337. https://doi.org/10.1080/0144929X.2022.2072768

Yakut, İ. (2024). Yapay zekaya yönelik tutum ve dindarlık ilişkisi. *Kocatepe İslami İlimler Dergisi*, 7(1), 37-59. https://doi.org/10.52637/kiid.1426977

Yeniçeri, Ü., Kenan, A. (2025). Öğretmen adaylarının yapay zekâya yönelik tutum ve kaygılarının çeşitli değişkenler açısından betimsel analizi. *Ege Eğitim Dergisi*, 26(2), 226-245. https://doi.org/10.12984/egeefd.1625648

Younis, B. (2024). Effectiveness of a professional development program based on the instructional design framework for AI literacy in developing AI literacy skills among pre-service teachers. *Journal of Digital Learning in Teacher Education*, 40(3), 142–158. https://doi.org/10.1080/21532974.2024.2365663

Yurdakal, İ. H. (2024). Increasing digital awareness of pre-service teachers (An experimental research). *The Journal of Limitless Education and Research*, 9(2), 318-339. https://doi.org/10.29250/sead.1476799