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Primary School Teachers' Concerns About Technology-Induced Unemployment and Their Attitudes Toward Artificial Intelligence in Education

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ABSTRACT

The purpose of this study is to examine the relationship between primary school teachers' attitudes towards the use of Artificial Intelligence (AI) in education and their concerns about technology-induced unemployment. A convergent parallel design from mixed research methods was used in the study. A correlational survey design was used in the quantitative part, while a case study design was preferred in the qualitative part. Quantitative data were collected using scales developed by Aksekili and Kan (2024) and Civelek and Pehlivanoğlu (2020). Qualitative data were collected using a semi-structured interview form. Quantitative data were obtained from 149 classroom teachers selected by random sampling in the 2024-2025 academic year, while qualitative data were obtained from 24 classroom teachers selected by convenience sampling. Quantitative data were analysed using descriptive statistics and parametric tests. Qualitative data were analysed using content analysis. The findings reveal that class teachers have a high level of attitude towards the use of AI in education. It was found that class teachers have a low level of concern about technology-induced unemployment. The relationship between these two variables is understood to be moderately negative. It was determined that most teachers have a positive view of the use of AI in primary school lessons. It is thought that AI cannot replace the profession of classroom teaching. It has been established that AI cannot perform many human skills. Among the views of classroom teachers, the fact that AI is emotionally inadequate stands out.

Keywords: Artificial intelligence, technology, primary school, classroom teacher, mixed method

INTRODUCTION

Today, artificial intelligence is one of the most important technologies in the spotlight. Artificial intelligence transforms the intelligent behaviours seen in humans, machines, and animals into a computer-like object (Coppin, 2004). Although the concept of artificial intelligence is popular today, its history dates back to 1956. At the Dartmouth conference held in that year, computer experts such as John McCarthy, Marvin Minsky, and Nathaniel Rochester introduced artificial intelligence (Moor, 2006). The spread and use of artificial intelligence gained momentum from 2010 onwards (Köse et al., 2023). The intense focus on artificial intelligence tools has increased interest in these technologies in educational settings. According to Al Darayseh (2023), this interest began as a result of schools closing due to COVID-19. However, it is not possible to explain the growing interest in artificial intelligence in education solely by the pandemic, as artificial intelligence stands out as a technology that can make significant contributions to teaching processes. Artificial intelligence is a technology that genuinely contributes to education and teaching activities. According to Osetskyi et al. (2021), artificial intelligence is a technology that enables lifelong learning, is useful in content production, provides rapid feedback, and is beneficial in observing learning processes. According to Göçen and Aydemir (2020), artificial intelligence effectively facilitates learning in education. According to Yumbul and Sulak (2024), artificial intelligence saves time, provides practicality, increases student motivation, and attracts interest. According to Sevil and Saralar Aras (2024), artificial intelligence tools can be used in areas such as Turkish, mathematics, science, physics, chemistry, biology, history, geography, primary school, pre-school, special education, foreign languages, and information technologies, as well as in the teaching of students with various disabilities. In this context, it is possible to say that a new era in education with artificial intelligence has begun.

The new era ushered in by artificial intelligence in education has brought with it certain challenges. One such challenge is the concern over technology-driven unemployment. These concerns are not new; their origins date back to the 1930s. During this period, Keynes drew attention to the relationship between technology and unemployment, issuing important warnings (Tekin and Demirel, 2024). In a report published in 2017, the American consulting firm McKinsey Global Institute stated that robots would take over most jobs by 2055 (McKinsey Global Institute, 2018). The 2020 World Economic Forum report also contains predictions about the future unemployment rates of many professions. These predictions indicate that the sectors most at risk are accommodation and food services, followed by education, wholesale and retail trade, public transport, and

construction (World Economic Forum, 2020). Again, when examining the 2023 World Economic Forum report, it is possible to say that 14 million jobs will be lost due to the impact of artificial intelligence and socio-economic conditions. The report also states that the professions of classroom teaching and pre-school teaching will be affected by this situation between 2023 and 2027. The graph shows that between 2023 and 2027, job losses in the professions of classroom teaching and pre-school teaching will exceed new job creation. This indicates that there will be a net decrease in the number of people working in these fields (World Economic Forum, 2023). Another graph in the report shows that there has been significant movement in the fields of classroom teaching and pre-school teaching over the last five years, and that this movement has been in the direction of job losses or employment contraction (World Economic Forum, 2023). The World Economic Forum's 2025 report includes a graph indicating that there will be an increase in employment in the fields of classroom teaching and pre-school teaching between 2025 and 2030 (World Economic Forum, 2025). The positive or negative changes seen in the reports over the years can be attributed to many reasons. However, technological development and artificial intelligence are significant factors in these changes.

Although the World Economic Forum's 2025 report states that productive artificial intelligence cannot replace manual dexterity, resilience and sensitivity, empathy and active listening skills (World Economic Forum, 2025), technological developments and the current advancement of artificial intelligence may cause unemployment risks for classroom teachers. This may give rise to concerns. These concerns may also cause stress in individuals. Furthermore, these concerns reduce self-motivation and negatively affect work performance, job commitment, and decision-making processes (Civelek and Pehlivanoğlu, 2020). At the same time, concerns about technology-induced unemployment will also affect classroom teachers' attitudes towards the use of artificial intelligence in education. Attitudes encompass knowledge, feelings, and behaviour regarding a subject (Tekindal, 2015). The positive or negative impact of technology-induced unemployment anxiety on classroom teachers' attitudes towards the use of artificial intelligence in education will also affect their use of artificial intelligence in education. Concerns about technology-induced unemployment may increase primary school teachers' inclination towards artificial intelligence in education, but when they have a negative effect, they may also reduce the use of these technologies. For this reason, it is important to determine this relationship. Furthermore, once this relationship is determined, examining it in detail and revealing the underlying reasons will clarify the issue.

Numerous studies on education related to artificial intelligence have been conducted in the literature. Akdeniz and Özdinç (2021); Ateş (2025); Garzón et al., (2025); Güzey et al. (2023); İrfanoğlu et al., (2025); Kaymak et al., (2025); Meço and Coştu (2022); Oruç et al. (2024); Temur, (2024) and Ustun (2024) have systematically reviewed these studies. Upon reviewing these studies, no research was found that examined the relationship between primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education using a mixed-method approach. According to İrfanoğlu et al. (2025), the studies conducted mainly focus on teaching with artificial intelligence, while according to Kaymak et al. (2025), they focus on the use of artificial intelligence in education, and according to Temur (2024), they focus on the effect of artificial intelligence on various variables. Furthermore, Garzón et al. (2025) point out the scarcity of teacher-focused studies on artificial intelligence. Therefore, it is possible to state that this study is a first in the literature. Quantitatively determining the relationship between primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education and, qualitatively, revealing the underlying reasons for this relationship can make important contributions to the literature. Furthermore, comparing classroom teachers' technology-induced job insecurity concerns and attitudes towards the use of artificial intelligence in education with demographic data may shed light on different aspects. This study may guide future research on similar topics. It is also possible to state that this study will contribute not only to the literature but also to educational programmers, policymakers, and institutions guiding teacher education. In light of all this information, the aim of this study is to examine classroom teachers' attitudes towards the use of artificial intelligence in education and their concerns about technology-induced unemployment, to evaluate these two variables in terms of various factors, to determine the relationship between them, and to examine classroom teachers' views on this subject. Within this scope, answers were sought to the following questions:

1. What is the level of primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education?
2. Are there any significant differences between primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education and demographic data (gender, age, professional seniority, educational status, place of work, in-service training on technology, time spent using technology, geographical region where they grew up)?
3. Is there a relationship between primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education?

4. How do primary school teachers define artificial intelligence?
5. What are primary school teachers' views on the use of artificial intelligence in primary schools?
6. What are primary school teachers' views on artificial intelligence replacing primary school teaching?
7. What are primary school teachers' views on the skills that artificial intelligence cannot replace?

METHOD

The purpose of this study is to examine primary school teachers' attitudes towards the use of artificial intelligence in education and their concerns about technology-induced unemployment, to evaluate these variables in terms of various demographic variables, to determine the relationship between them, and to reveal teachers' views on the subject. A mixed-method approach was used to achieve this purpose. In this method, quantitative and qualitative data are collected and integrated, and the advantages of this integration are utilised (Creswell, 2021). The convergent parallel design from mixed methods designs was used in this study. In this design, quantitative and qualitative data are collected and analysed together. The results obtained are combined into a single interpretation. This design aims to gain an in-depth understanding of the subject (Creswell and Plano Clark, 2020). The quantitative part of the study was conducted using a correlational survey design. In this design, the existence, degree, or level of prediction of the relationship between two or more variables is examined (Ocak and Olur, 2019). A case study design was used in the qualitative part of the study. This design is a research design in which the researcher collects and describes detailed information from information sources within multiple or limited situations in real life within a specific time frame (Creswell, 2020).

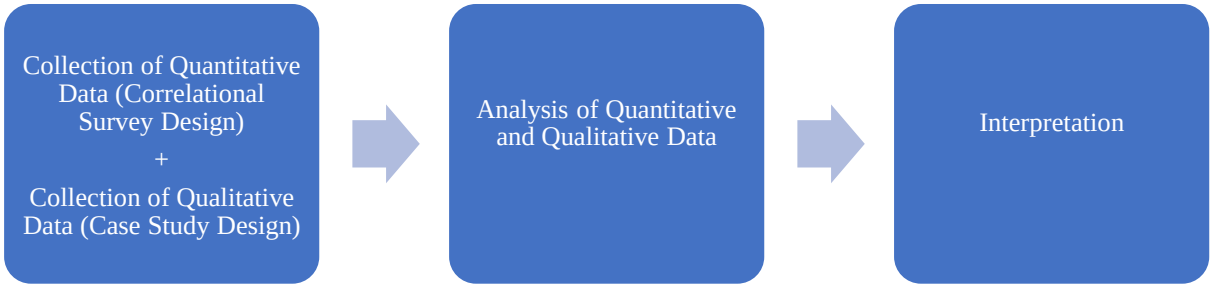

Figure 1. Flow Chart of the Study

Participants

The participants in both the quantitative and qualitative parts of the study are class teachers working in various provinces of Turkey during the 2024-2025 academic year. The participants in the quantitative part are 149 class teachers selected using random sampling. In this sampling method, all elements in the population have an equal chance of being included in the study. This increases generalisability and reduces bias (Korkmaz, 2020). The qualitative part of the study consists of 24 primary school teachers selected using the convenience sampling method, unlike the participants in the quantitative part. The convenience sampling method involves inexpensive, easily accessible situations. This makes the study faster and more practical. This sampling method is an economical method involving low cost and little effort (Patton, 2002; Yıldırım and Şimşek, 2016). When determining the sample size, it was ensured that there were between 5 and 10 times the number of participants for the quantitative parts (Tavşancıl, 2014). For the qualitative part, data saturation was taken as a reference (Yazar and Keskin, 2020).

Table 1 presents the demographic data of the class teachers who participated in the quantitative part.

Table 1. Demographic Data of Classroom Teachers Participating in the Quantitative Section

Characteristic		*F*	%
Gender	Male	64	43.0
	Female	85	57.0
Age	20–29	29	19.5
	30–39	67	45.0
	40–49	35	23.5
	50 and above	18	12.1
Professional seniority	1-5 years	38	25.5
	6-10 years	36	24.2
	11-15 years	25	16.8
	16-20 years	19	12.8

	Over 20 years	31	20.8
Educational status	Postgraduate	45	30.2
	Undergraduate	104	69.8
Place of work	Village	27	18.1
	District centre	49	32.9
	Provincial centre	73	49.0
Receiving in-service training on technology	Yes	68	45.6
	No	81	54.4
Time spent using technology Daily	0-1 hour	5	3.4
	1-3 hours	54	36.2
	3-5 hours	53	35.6
	More than 5 hours	37	24.8
Region where they grew up	Eastern Anatolia	20	13.4
	Southeastern Anatolia	15	10.1
	Central Anatolia	27	18.1
	Marmara	30	20.1
	Aegean	21	14.1
	Mediterranean	25	16.8
	Black Sea	11	7.4
Total		149	100

Table 1 shows that the majority of classroom teachers participating in the study were female (57.0%), aged 30-39 (45.0%), had 1-5 years of professional experience (25.5%), undergraduate degree (69.8%), worked in the city centre (49.0%), had not received in-service training on technology (54.4%), spent 1-3 hours per day using technology (36.2%), and grew up in the Marmara region (20.1%).

Table 2 presents the demographic data of the primary school teachers who participated in the qualitative section.

Table 2. Demographic Data of Classroom Teachers Participating in the Qualitative Section

Characteristic		*F*	%
Gender	Male	7	29.2
	Female	17	70.8
Professional seniority	1-5 years	4	16.7
	6-10 years	7	29.2
	11-15 years	3	12.5
	16-20 years	2	8.3
	Over 20 years	8	33.3
Educational status	Postgraduate	6	25
	Undergraduate	18	75.0
Total		24	100

Table 2 shows that the majority of classroom teachers participating in the study are female, have over 20 years of professional experience, and undergraduate degree.

Data Collection Tools and Data Collection

Four data collection tools were used in the study. These tools were a personal information form, an attitude scale towards the use of artificial intelligence in education developed by Aksekili and Kan, (2024), a technology-induced unemployment anxiety scale developed by Civelek and Pehlivanoğlu, (2020), and a semi-structured interview form. The personal information form is a form containing the participants' demographic information. The attitude scale towards the use of artificial intelligence in education by teachers is an 18-item, 3-subfactor measure developed by Aksekili and Kan, (2024). The subfactors of the scale are activity in artificial intelligence, resistance to artificial intelligence, and adoption of artificial intelligence. The technology-induced unemployment anxiety scale is a 12-item, 3-subfactor measure developed by Civelek and Pehlivanoğlu, (2020). The subfactors of the scale are lack of technical skills, continuous technological developments, and disruptive technological developments. Permission for both scales was obtained from the scale owners via email. Finally, the semi-

structured interview form was created by the researchers. The form contains four items. Three expert opinions were consulted during the form's creation. Additionally, a pre-test was conducted to assess whether the questions were comprehensible.

The data was collected electronically via Google Forms. Care was taken to ensure that participants were voluntary. In addition, to prevent data loss, the mandatory option was left open while collecting the data.

Data Analysis

When analysing quantitative data, the normality of the data distribution was first examined. For this purpose, the kurtosis and skewness values were examined. Kurtosis and skewness values between -1.96 and +1.96 indicate that the data is normally distributed (Can, 2019).

Table 3 presents the normality and reliability values of the scales used in the study.

Table 3. Normality and Reliability Values

Scale	Number of items	N	X	SS	Skewness	Kurtosis	Cronbach's Alpha
Technology-induced unemployment anxiety scale	12	149	2.07	0.64	0.25	-0.29	0.89
Teachers' Attitude Scale Towards the Use of Artificial Intelligence in Education	18	149	3.92	0.57	-0.26	-0.33	0.93

Table 3 shows that the mean score for the technology-induced unemployment anxiety scale is X=2.07, with a standard deviation of SS=0.64. Furthermore, the skewness (0.25) and kurtosis (-0.29) values of the technology-induced unemployment anxiety scale indicate a normal distribution. The internal consistency coefficient of the technology-induced unemployment anxiety scale was also calculated as 0.89, indicating that the scale is highly reliable.

Upon re-examining Table 3, it is observed that the mean score of the teachers' attitude scale towards the use of artificial intelligence in education is X=3.92, with a standard deviation of SS=0.57. Furthermore, the skewness (-0.26) and kurtosis (-0.33) values of the scale measuring teachers' attitudes towards the use of artificial intelligence in education show a normal distribution. The internal consistency coefficient of the scale measuring teachers' attitudes towards the use of artificial intelligence in education was also calculated as 0.93, indicating that the scale is highly reliable.

Percentage and frequency calculations were performed in the analysis of demographic data. Arithmetic mean and standard deviation calculations were performed while examining the descriptive statistics of the scales. Since the data were normally distributed, an independent samples t-test and one-way analysis of variance were performed when making comparisons based on demographic data. Furthermore, Cohen's (d) effect size was calculated in cases where the independent sample t-test results showed a significant difference. Since the data was normally distributed, Pearson correlation analysis was performed to examine the relationship between class teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education.

As the scale used in the interpretation of the data was a five-point Likert type, the total range (4) was divided into five groups, and the range width for each category was calculated as 0.80. Accordingly, the scores were interpreted as follows: 1.00–1.80 as "very low", 1.81–2.60 as "low", 2.61–3.40 as "medium", 3.41–4.20 as "high", and 4.21–5.00 as "very high".

Content analysis was used in the analysis of qualitative data. In content analysis, the collected data are organised and interpreted under common themes (Yıldırım and Şimşek, 2016). In this context, similar views obtained from class teachers were coded and brought together. Then, themes were created based on the coded opinions. These processes were carried out within the framework of the research questions, in an electronic written environment and with the help of a computer-assisted programme.

Validity and Reliability

First, permission was obtained from the Scientific Research and Ethics Committee of İnönü University's Faculty of Social and Human Sciences before starting the study. Cronbach's Alpha coefficient was calculated to ensure the validity and reliability of the quantitative part of the study. Permission was also obtained via email from the scale owners for the measurement tools used. Credibility, transferability, verifiability, and consistency were sought to ensure the validity and reliability of the qualitative part of the study. Credibility ensures internal validity, transferability ensures external validity, consistency ensures internal reliability, and confirmability ensures

external reliability (Arslan, 2022). In this context, expert opinion was sought regarding the semi-structured form to ensure internal validity. Interaction was established among the researchers. The process was described in detail to ensure external validity. To ensure internal reliability, direct quotations were included in the study. Furthermore, consensus was sought when coding the data, and different opinions were discussed to reach agreement. To ensure external reliability, both raw and processed data were preserved.

FINDINGS

The findings are presented under two sections: quantitative results and qualitative results.

Quantitative Findings

Table 4 presents the descriptive statistics of primary school teachers' responses to the scales.

Table 4. Descriptive Statistics for the Scales

Scale	N	Minimum	Maximum	X	SS
Technology-induced unemployment concern scale	149	1.00	3.58	2.07	0.64
Teachers' Attitude Scale Towards the Use of Artificial Intelligence in Education	149	2.44	5	3.92	0.57

Table 4 shows that primary school teachers' concerns about technology-induced unemployment are low ($\bar{x}$ =2.07). Therefore, it can be concluded that primary school teachers' concerns about technology-induced unemployment are low.

Upon re-examining Table 4, it is seen that classroom teachers' attitudes towards the use of artificial intelligence in education are high ($\bar{x}$ =3.92). Based on this, it can be concluded that classroom teachers have a high level of attitude towards the use of artificial intelligence in education.

Table 5 presents the results of the independent samples t-test conducted to determine whether there are significant differences between primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education and the gender variable.

Table 5. Results of the Analysis of Significant Differences by Gender

Dependent variable	Independent variable	N	$\bar{X}$	SS	Sd	t	p
Technology-induced unemployment concern scale	Male	64	2.04	0.61	147	-0.491	0.62
	Female	85	2.09	0.66			
Teachers' Attitude Scale Towards the Use of Artificial Intelligence in Education	Male	64	3.94	0.52	147	0.255	0.79
	Female	85	3.91	0.61			

Table 5 shows that primary school teachers' concerns about technology-induced unemployment [t (147) = -0.491, p > 0.05] and their attitudes towards the use of artificial intelligence in education [t (147) = 0.255, p > 0.05] do not differ according to gender. Therefore, it can be concluded that gender does not influence primary school teachers' concerns about technology-induced unemployment or their attitudes towards the use of artificial intelligence in education.

Table 6 presents the results of the one-way analysis of variance (ANOVA) conducted to determine whether there are significant differences between primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education and the age variable.

Table 6. Results of the Analysis of Significant Differences According to the Age Variable

Dependent variable	Independent variable	N	$\bar{X}$	S	Source of variance	Sum of squares	Sd	Mean mean	F	p
Technology-induced unemployment concern scale	20-29	29	2.04	0.75	Between groups	0.251	3	0.84	0.198	0.89
	30-39	67	2.05	0.63						
	40-49	35	2.14	0.52	Within groups	61.111	145	0.421		
	50 and above	18	2.02	0.72						
	Total	149	2.07	0.64						
					Total	61,361	148			

Teachers' Attitude Scale Towards the Use of Artificial Intelligence in Education	20-29	29	3.95	0.57	Between groups	0.087	3	0.029	0.085	0.96
	30-39	67	3.91	0.62						
	40-49	35	3.90	0.52	Within groups	49.268	145	0.340		
	50 and above	18	3.96	0.54						
	Total	149	3.92	0.57	Total	49,355	148			

When examining Table 6, primary school teachers' concerns about technology-induced unemployment [F= (3, 145) = 0.198, p>0.05)] and their attitudes towards the use of artificial intelligence in education [F= (3, 145) = 0.085, p>0.05)] do not differ according to the age variable. Therefore, it can be concluded that the age variable does not affect primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education.

Table 7 presents the results of a one-way analysis of variance (ANOVA) conducted to determine whether there are significant differences between primary school teachers' technology-induced unemployment concerns and attitudes towards the use of artificial intelligence in education and the professional seniority variable.

Table 7. Results of the Analysis of Significant Differences According to Professional Seniority Variable

Dependent variable	Independent variable	N	$\bar{X}$	S	Source of variance	Sum of squares	Sd	Mean mean	F	p
Technology-induced unemployment concern scale	1-5 years	38	2.11	0.72	Between groups	0.345	4	0.086	0.203	0.93
	11-15 years	36	2.07	0.67						
	16-20 years	25	1.97	0.57	Within groups	61,017	144	0.424		
	Over 20 years	19	2.07	0.60						
	Total	31	2.08	0.60						
		149	2.07	0.64	Total	61,361	148			
Teachers' Attitude Scale Towards the Use of Artificial Intelligence in Education	1-5 years	38	3.89	0.66	Between groups	0.750	4	0.188	0.556	0.695
	6-10	36	3.87	0.57						
	11-15 years	25	4.02	0.60	Within groups	48.604	144	0.338		
	16-20 years	19	3.83	0.54						
	Over 20 years	31	4.00	0.46						
	Total-	149	3.92	0.57	Total	49,355	148			

When examining Table 7, primary school teachers' concerns about technology-induced unemployment [F= (4, 144) = 0.203, p>0.05)] and their attitudes towards the use of artificial intelligence in education [F= (4, 144) = 0.556, p>0.05)] do not differ according to the professional seniority variable. Therefore, it can be concluded that professional seniority does not affect primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education.

Table 8 presents the results of the independent samples t-test conducted to determine whether there are significant differences between primary school teachers' technology-induced job insecurity concerns and attitudes towards the use of artificial intelligence in education and their educational background.

Table 8. Results of the Analysis of Significant Differences by Educational Status

Dependent variable	Independent variable	N	$\bar{X}$	SS	Sd	t	p
Technology-induced unemployment concern scale	Postgraduate	45	2.03	0.55	147	-0.476	0.63
	Undergraduate	104	2.08	0.68			
Teachers' Attitude Scale Towards the Use of Artificial Intelligence in Education	Postgraduate	45	4.01	0.58	147	1,287	0.20
	Undergraduate	104	3.88	0.57			

Table 8 shows that primary school teachers' concerns about technology-induced unemployment [t (147) = -0.476, p > 0.05] and their attitudes towards the use of artificial intelligence in education [t (147) = 1.287, p > 0.05] do not

differ according to educational status. Therefore, it can be concluded that educational status does not affect primary school teachers' concerns about technology-induced unemployment or their attitudes towards the use of artificial intelligence in education.

Table 9 presents the results of a one-way analysis of variance (ANOVA) conducted to determine whether there are significant differences between primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education, and the variable of place of employment.

Table 9. Results of the Analysis of Significant Differences According to the Place of Employment Variable

Dependent variable	Independent variable	N	$\bar{X}$	S	Source of variance	Sum of squares	Sd	Mean mean	F	p
Technology-induced unemployment concern scale	Village	27	1.89	0.62	Intergroup	2.231	2	1.116	2.755	0.06
	District centre	49	2.23	0.60						
	Provincial centre	73	2.02	0.66	Within groups	59,130	146	0.405		
	Total	149	2.07	0.64						
					Total	61,361	148			
Teachers' Attitude Scale Towards the Use of Artificial Intelligence in Education	Village	27	4.04	0.59	Between groups	1.093	2	0.546	1.653	0.19
	District centre	49	3.81	0.54						
	Provincial centre	73	3.95	0.58	Within groups	48,262	146	0.331		
	Total	149	3.92	0.57						
					Total	49,355	148			

When examining Table 9, primary school teachers' concerns about technology-induced unemployment [F= (2, 146) = 2.755, p>0.05)] and their attitudes towards the use of artificial intelligence in education [F= (2, 146) = 1.653, p>0.05)] do not differ according to the place of work variable. Therefore, it can be concluded that the place of work variable does not affect primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education.

Table 10 presents the results of the independent samples t-test conducted to determine whether there are significant differences between primary school teachers' technology-induced unemployment concerns and attitudes towards the use of artificial intelligence in education and the variable of receiving in-service training on technology.

Table 10. Results of the Analysis of Meaningful Differences According to the Variable of Receiving In-Service Training on Technology

Dependent variable	Independent variable	N	$\bar{X}$	SS	Sd	t	p	Cohen's *d*
Technology-induced unemployment concern scale	Yes	68	1.96	0.57	147	-1.811	0.07	
	No	81	2.15	0.68				-
Teachers' attitudes towards the use of artificial intelligence in education scale	Yes	68	4.03	0.51	147	2,168	0.03	0.34
	No	81	3.84	0.60				

When Table 10 is examined, it is seen that primary school teachers' concerns about technology-induced unemployment [t (147) = -1.811, p > 0.05] do not differ according to the variable of receiving in-service training on technology. Consequently, it can be concluded that the variable of receiving in-service training on technology is not effective in primary school teachers' concerns about technology-induced unemployment.

Upon re-examining Table 10, it is seen that primary school teachers' attitudes towards the use of artificial intelligence in education [t (147) = 2.168, p < 0.05] differ according to the variable of receiving in-service training on technology. This difference favours those who have received training on technology. Based on this, it can be concluded that classroom teachers who received training on technology (X=4.03) have a higher attitude towards the use of artificial intelligence in education than those who did not (X=3.94). This difference (Cohen's d= 0.34) is small (Cohen, 1988).

Table 11 presents the results of a one-way analysis of variance (ANOVA) conducted to determine whether there are significant differences between classroom teachers' concerns about technology-induced unemployment, their

attitudes towards the use of artificial intelligence in education, and the amount of time they spend with technology on a daily basis.

Table 11. Results of the Analysis of Significant Differences Based on Daily Time Spent with Technology

Dependent variable	Independent variable	N	$\bar{X}$	S	Source of variance	Sum of squares	Sd	Mean	F	p
Technology-induced unemployment concern scale	0-1 hour	5	2.43	0.87	Between	3.214	3	1.071	2,672	0.05
	1-3 hours	54	2.13	0.58	groups					
	3-5 hours	53	2.13	0.63	Within	58,147	145	0.401		
	More than 5 hours	37	1.83	0.67	groups					
	Total	149	2.07	0.64	Total	61,361	148			
Teachers' Attitude Scale Towards the Use of Artificial Intelligence in Education	0-1 hour	5	3.96	0.56	Between	1.050	3	0.350	1.051	0.372
	1-3 hours	54	3.88	0.57	groups					
	3-5 hours	53	3.86	0.54	Within	48,304	145	0.333		
	More than 5 hours	37	4.06	0.63	groups					
	Total	149	3.92	0.57	Total	49,355	148			

When examining Table 11, primary school teachers' concerns about technology-induced unemployment [F= (3, 145) = 2.672, p>0.05)] and their attitudes towards the use of artificial intelligence in education [F= (3, 145) = 1.051, p>0.05)] do not differ according to the amount of time spent with technology on a daily basis. Therefore, it can be concluded that the amount of time spent with technology daily does not affect primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education.

Table 12 presents the results of the one-way analysis of variance (ANOVA) conducted to determine whether there are significant differences between primary school teachers' attitudes towards technology-induced unemployment concerns and the use of artificial intelligence in education and the geographical region in which they grew up.

Table 12. Results of the Analysis of Significant Differences Based on the Geographic Region Variable

Dependent variable	Independent variable	N	$\bar{X}$	S	Source of variance	Sum of squares	Sd	Mean	F	p
Technology-induced unemployment concern scale	Eastern A.	20	2.17	0.60	Between	1.030	6	0.172	0.404	0.87
	Southeast A.	15	2.17	0.67	groups					
	Central A.	27	2.05	0.65	Within	60.331	142	0.425		
	Aegean	21	2.03	0.57	groups					
	Marmara	30	2.11	0.68						
	Mediterranean	25	2.02	0.72	Total	61,361	148			
	Black Sea	11	1.85	0.56						
	Total	149	2.07	0.64						
Teachers' Attitude Scale Towards the Use of Artificial Intelligence in Education	Eastern A.	20	3.90	0.51	Between	1.165	6	0.194	0.572	0.75
	South-East A.	15	3.77	0.65	groups					
	Central A.	27	4.03	0.59	Within	48.190	142	0.339		
	Aegean	21	3.89	0.51	groups					
	Marmara	30	3.87	0.66						
	Mediterranean	25	4.03	0.56	Total	49,355	148			
	Black Sea	11	3.84	0.44						
	Total	149	3.92	0.57						

When Table 12 is examined, primary school teachers' concerns about technology-induced unemployment [F= (6, 142) = 0.404, p>0.05)] and their attitudes towards the use of artificial intelligence in education [F= (6, 142) = 0.572, p>0.05)] do not differ according to the geographical region variable. Therefore, it can be concluded that the geographical region in which they grew up does not affect primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education.

Table 13 presents the results of the Pearson Moment Product Correlation Coefficient analysis conducted to determine the relationship between primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education.

Table 13. The Relationship Between Concerns About Technology-Driven Unemployment and Attitudes Towards the Use of Artificial Intelligence in Education

Variables	Concerns about technology-induced unemployment	Attitudes towards the use of artificial intelligence in education
Concerns about technology-induced unemployment	-	-0.390**
Attitudes towards the use of artificial intelligence in education	-0.390**	-

p<0.01

Table 13 shows that there is a moderately negative relationship (r(149) = -.39, p < 0.01) between primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education.

Qualitative Findings

Qualitative data obtained from teachers' views were categorised as follows: Primary school teachers' definitions of artificial intelligence, their views on the skills that artificial intelligence cannot replace, Classroom teachers' views on the use of artificial intelligence in primary school lessons, Classroom teachers' views on whether artificial intelligence can replace the teaching profession, Classroom teachers' views on the skills that artificial intelligence cannot replace" were examined under four sub-themes.

Figure 2 shows primary school teachers' views on what artificial intelligence is.

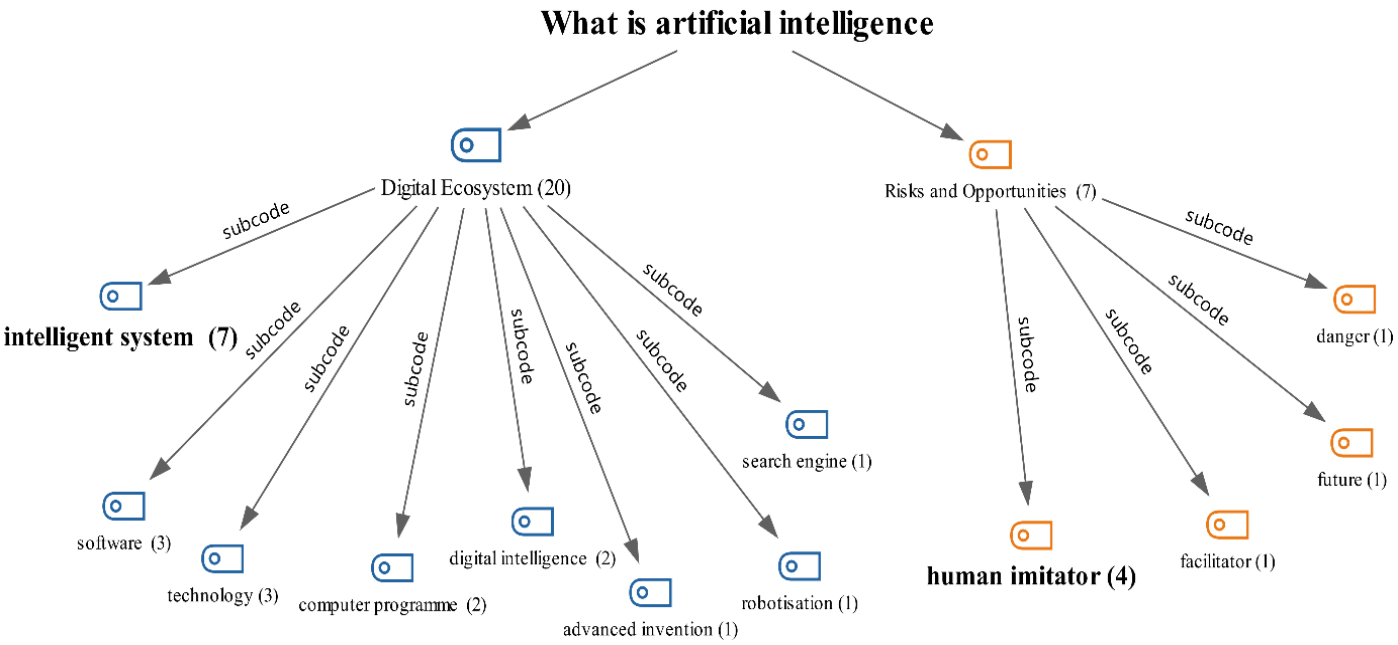

Figure 2. Primary School Teachers' Views on What Artificial Intelligence Is

Figure 2 shows that primary school teachers' views on what artificial intelligence is can be divided into two categories under the theme of 'What is artificial intelligence?'. These are digital ecosystem and risk and opportunity. In the digital ecosystem category, the code for intelligent system (f=7) was used most frequently, and the codes for software (f=3), technology (f=3), computer programme (f=2), digital intelligence (f=2), advanced invention (f=1), robotisation (f=1) and search engine (f=1) were also concentrated in this category. In the risks and opportunities category, the most frequently used code is human imitator (f=4), and codes such as facilitator (f=1), future (f=1), and (f=1) are also concentrated in this category.

Some direct statements reflecting primary school teachers' views on what artificial intelligence is are as follows:

K4: *"...A computer or machine system that can think and learn like a human..."* (intelligent system)

K1: *"...Software that creates designs from data..."* (software)
K16: *"...I think it is technology..."* (technology)
K2: *"...A computer programme that provides problem-solving skills that mimic human intelligence..."* (computer programme)
K14: *"...Artificial intelligence created by humans..."* (artificial intelligence)
K5: *"...An advanced invention used in every field..."* (advanced invention)
K17: *"...The most significant step in robotisation in human history..."* (robotisation)
K23: *"...Search engine..."* (search engine)
K6: *"...Artificial intelligence is a computer system that mimics the tasks performed or capable of being performed by humans..."* (human mimic)
K11: *"...Artificial intelligence is about making existing or emerging needs easier to fulfil..."* (facilitator)
K13*: "... It will come..."* (future)
K21: *"... It is a danger..."* (danger)

Figure 3 shows primary school teachers' views on the use of artificial intelligence in primary school lessons.

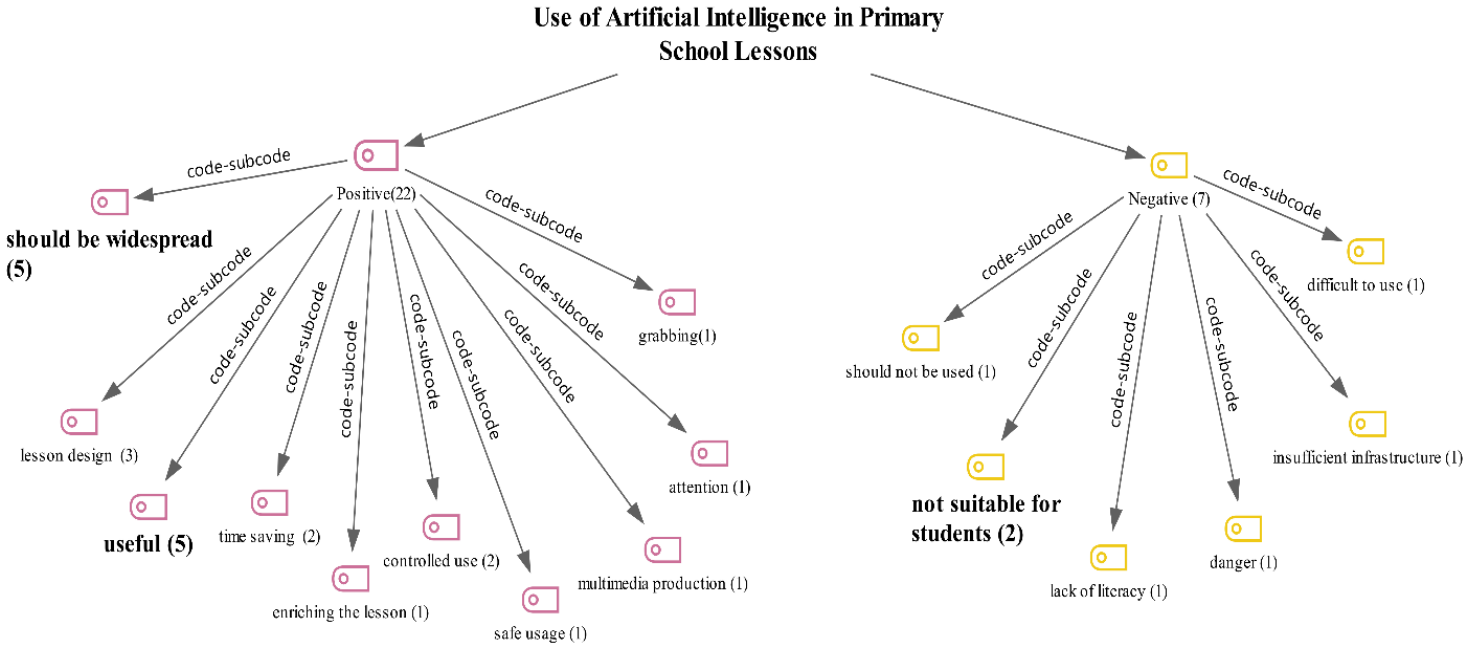

Figure 3. Primary School Teachers' Opinions on the Use of Artificial Intelligence in Primary School Lessons

Upon examination of Figure 3, it can be seen that primary school teachers' views on the use of artificial intelligence in primary school lessons are divided into two categories under the theme of artificial intelligence use in primary school lessons. These are positive and negative. In the positive category, the most common codes are should be widespread (f=5) and useful (f=5), followed by lesson design (f=3), useful (f=3), time saving (f=2), enrichment (f=1), controlled use (f=2), safe use (f=1), multimedia production (f=1), attention-grabbing (f=1), and guiding (f=1). In the negative category, the code not suitable for students (f=2) is most frequently used, and the codes should not be used (f=1), lack of literacy (f=1), dangerous (f=1), insufficient infrastructure (f=1), and difficult to use (f=1) are also concentrated in this category.

Some direct statements reflecting primary school teachers' views on the use of artificial intelligence in primary school lessons are as follows:

K5: "…It *is quite useful and it would be good if it became more widespread..."* (should be widespread)
K1: *"...It will be useful in lesson design..."* (lesson design)
K2: *"...I believe it will be useful..."* (useful)
K18: *"...I think it is right for teachers to use it, as it saves time in terms of preparing activities and lesson plans..."* (time saving)
K3: *"...I think it is useful in terms of diversity and saving time..."* (enriching the lesson)
K11: *"...Therefore, incorporating artificial intelligence provides additional support if used in moderation..."* (controlled use)
K17: *"...It will enable children to conduct their research quickly in a safe manner..."* (safe usage)

K12: *"...I use it for gamification and content creation..."* (multimedia production)
K15: *"...It can be attention-grabbing and guiding for children..."* (attention-grabbing)
K21*: "...Negative..."* (should not be used)
K18: *"...I think it is too early for students..."* (not suitable for students)
K7: *"...Our teachers do not yet have sufficient knowledge and equipment to use it..."* (lack of literacy)
K14: *"...I find artificial intelligence dangerous..."* (danger)
K6: *"...It's a bit difficult with the current opportunities and circumstances. Learning and use at school alone is not enough. It's also difficult because the technological equipment at school is inadequate. We have to guide the child at every step..."* (insufficient infrastructure - difficult to use)

Figure 4 shows the views of classroom teachers on whether artificial intelligence can replace the profession of classroom teaching.

Figure 4. Classroom Teachers' Opinions on Whether Artificial Intelligence Can Replace the Profession of Classroom Teaching

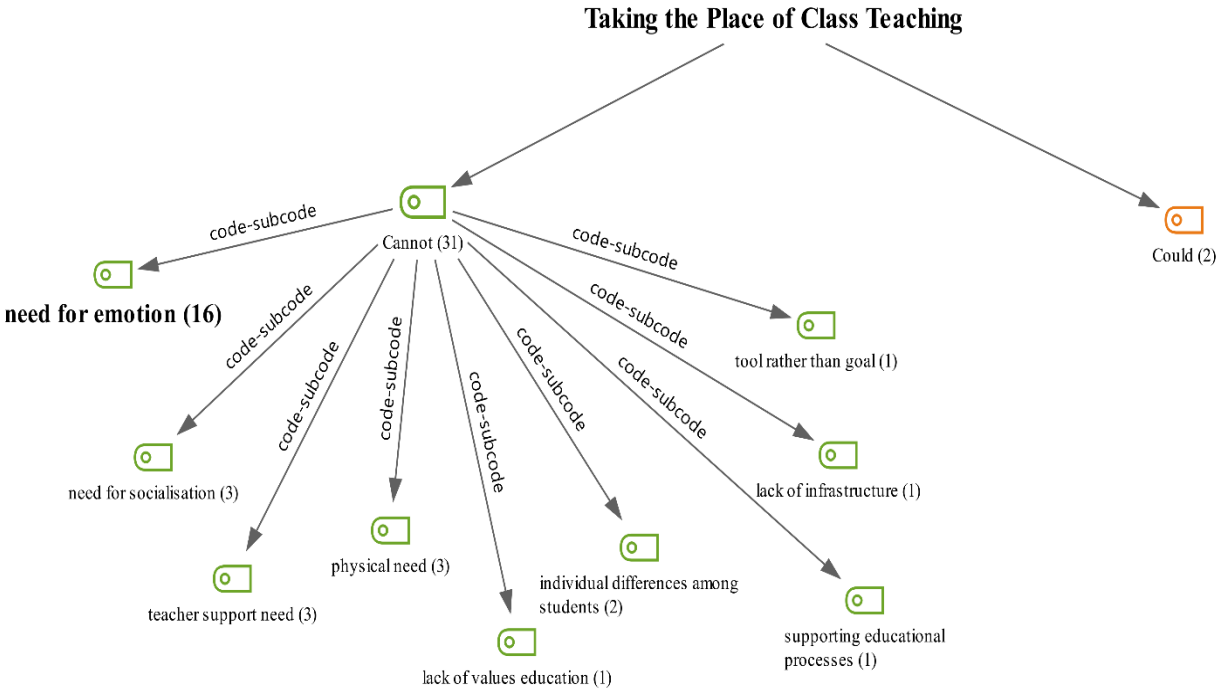

Figure 4. Classroom Teachers' Opinions on Whether Artificial Intelligence Can Replace the Profession of Classroom Teaching

When examining Figure 4, it can be seen that classroom teachers' opinions on whether artificial intelligence can replace the teaching profession are divided into two categories under the theme of replacing teaching. These are 'cannot' and 'could'. The "cannot" category most frequently included emotional needs (f=16), followed by social needs (f=3), teacher support needs (f=3), physical needs (f=3), lack of values education (f=1), individual differences among students (f=2), supportive in educational processes (f=1), lack of infrastructure (f=1), and purpose codes are also concentrated in this category. In the "can replace" category, there are no sub-codes.

Some direct statements reflecting class teachers' views on whether artificial intelligence can replace the teaching profession are as follows:

K2: *"...It cannot. Because classroom teaching is an emotional profession; you usually act with your emotions rather than logic..."* (need for emotion)
K23: *"...In primary school, my children need to be understood, socialise and form emotional bonds more than they need knowledge..."* (need for socialisation)
K6: *"...There will always be a need for someone to demonstrate and monitor the accuracy of information. The class teacher is not just an educator for the child. Sometimes they need to be in the position of a mother, sometimes in the position of a father..."* (teacher support need)
K1: *"...They cannot. Because students need emotional and physical communication..."* (physical need)
K24*: "...However, teachers' emotions, the moral role they play, and their efforts provide children with implicit learning..."* (lack of values education)

K10: *"...It cannot. It should be in the form of individual attention and recognition. Artificial intelligence cannot do this at first, but if a personalised artificial intelligence model is created, then it can provide individual education..."* (individual differences among students)
K4: *"…Not yet, but it can be helpful…* (supporting educational processes)
K16: *"…Currently, there is no internet connection even in village schools…"* (lack of infrastructure)
K1: *"...Recognising the existence of artificial intelligence and using it as a tool rather than a goal would be beneficial for the education system..."* (tool rather than goal)

Figure 5 shows the views of classroom teachers on the skills that artificial intelligence cannot replace.

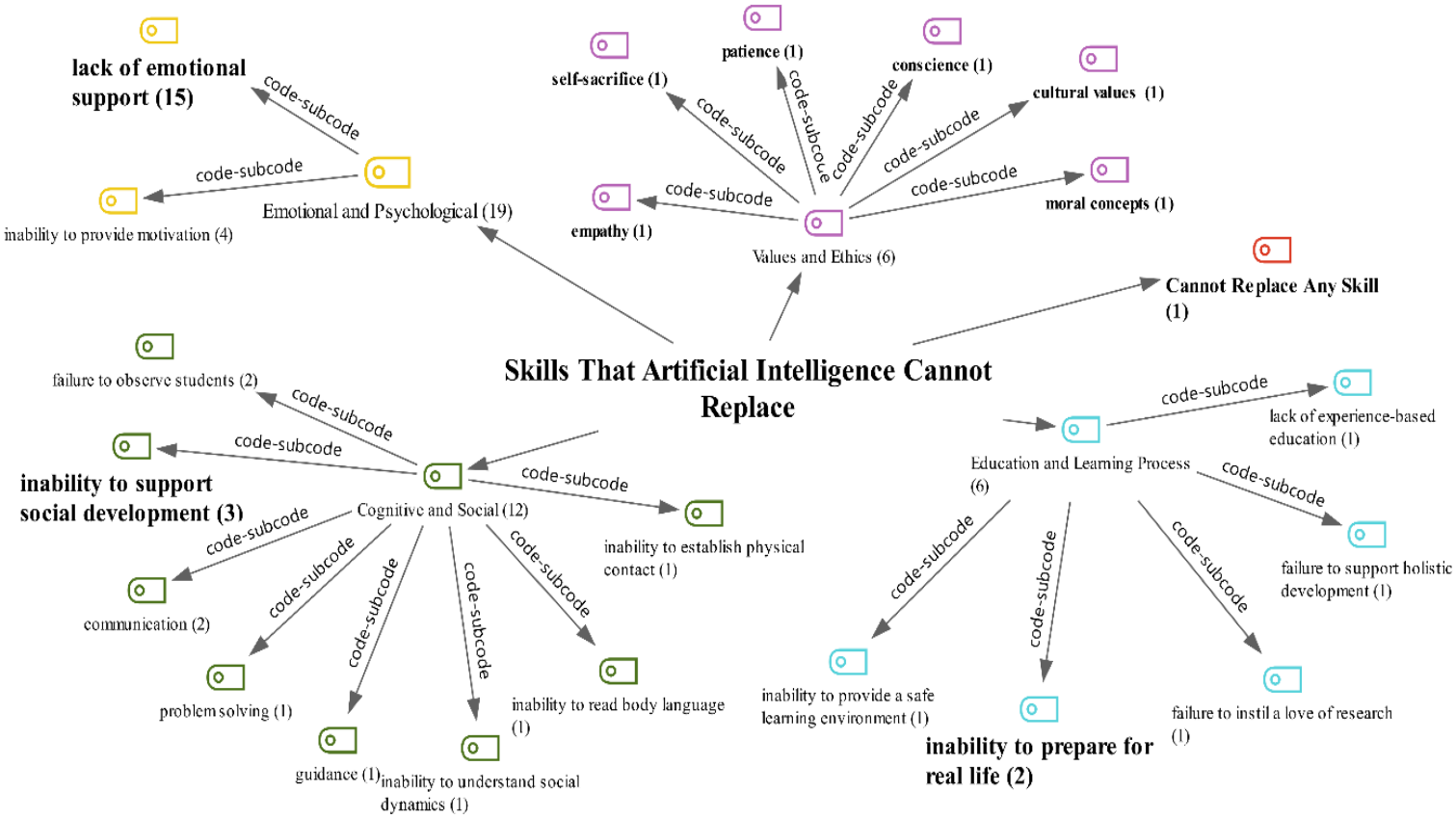

Figure 5. Classroom Teachers' Views on Skills That Artificial Intelligence Cannot Replace

Upon examining Figure 5, it is seen that the views of classroom teachers on the skills that artificial intelligence cannot replace are divided into five categories under the theme of skills that artificial intelligence cannot replace. These are emotional and psychological, cognitive and social, education and learning process, values and ethics, and cannot replace any skill it. In the emotional and psychological category, the code for lack of emotional support (f=15) is most prevalent, and the code for inability to provide motivation (f=4) is also concentrated in this category. In the cognitive and social category, the code for inability to support social development (f=3) is most prevalent, followed by observing the student (f=2), communication (f=2), problem solving (f=1), guidance (f=1), inability to understand social dynamics (f=1), inability to read body language (f=1), inability to establish physical contact (f=1) codes are also concentrated in this category. In the education and learning process category, the code for failing to prepare for real life (f=2) is the most prevalent, and the codes for failing to provide a safe learning environment (f=1), failing to instil a love of research (f=1), failing to support holistic development (f=1), and lack of experiential education (f=1) are also concentrated in this category. In the values and ethics category, the codes empathy (f=1), self-sacrifice (f=1), patience (f=1), conscience (f=1), cultural values (f=1), and moral concepts (f=1) appear most frequently. In the category of cannot replace any skill no sub-codes are found.

Some direct statements reflecting class teachers' views on skills that artificial intelligence cannot replace are as follows:

K24: *"...Struggles to establish an emotional connection..."* (lack of emotional support)

K18: *"...Cannot provide motivation and support training for students..."* (inability to provide motivation)
K9: *"...Motivating and inspiring students, establishing emotional communication with them, solving problems, etc..."* (problem solving)
K6: *"…Guiding…"* (guidance)
K1: *"…Cannot observe students…"* (failure to observe students)
K24: *"…Therefore, the teacher cannot fulfil any social role…"* (inability to support social development)
K1: *"...Cannot understand the student's peer and family relationships..."* (inability to understand social dynamics)
K2: *"...Cannot understand the meaning conveyed by the expressions on their students' faces..."* (inability to read body language)
K23: *"…Communication…"* (communication)
K21: *"…Cannot hug the child…"* (inability to establish physical contact)
K15: *"…a safe classroom environment…" (inability to provide a safe learning environment)*
K2: *"...School is life itself, and artificial intelligence will be insufficient in preparing students for life..."* (inability to prepare for real life)
K3: *"…K3: Classroom teaching is about fostering a love of research in children, supporting and encouraging them in every way. It is about being right there with the student as they learn not only academically but also socially and emotionally. A student who does not enjoy questioning and researching cannot progress with artificial intelligence alone. Learning by doing, experiencing, and social support are human things..." (*failure to instil a love of research - failure to support holistic development - lack of experience-based education)
K7: *"…Empathy…"* (empathy)
K13: *"...Patience, self-sacrifice..."* (patience-self-sacrifice)
K14: *"...Cannot fulfil the sense of conscience..."* (conscience)
K4: *"...culture, traditions and customs, along with certain abstract moral concepts..."* (cultural values - moral concepts)

DISCUSSION AND CONCLUSION

The aim of this study is to examine primary school teachers' attitudes towards the use of artificial intelligence in education and their concerns about technology-induced unemployment, to evaluate these variables in terms of various demographic variables, to determine the relationship between them, and to reveal teachers' views on the subject. In line with this aim, various findings were obtained, discussed, and conclusions were drawn.

An examination of the study's findings reveals that primary school teachers have a high level of attitude towards the use of artificial intelligence in education. This result is to be expected. The high level of attitude among primary school teachers towards the use of artificial intelligence in education may stem from the benefits and conveniences offered by artificial intelligence technology. Various studies in the literature support this finding. When examining the study by Erol and Erol (2024), it is seen that primary school teachers emphasise that artificial intelligence facilitates their work. When examining the study by Sontay et al. (2024), it is possible to say that classroom teachers see artificial intelligence as a technology that facilitates teaching processes and brings innovation. Furthermore, Önderöz and Karabay (2024) found that classroom teachers stated that AI is also useful in creating text and visuals. When examining the study by Kurtdede Fidan and Kayar (2025), it is seen that classroom teachers stated that they use artificial intelligence in preparing presentations, in measurement and evaluation, for research purposes, and in translation tasks. Furthermore, Kurtdede Fidan and Kayar's (2025) study shows that classroom teachers stated that artificial intelligence would be useful in terms of providing students with digital literacy, creativity, algorithmic thinking, critical thinking, entrepreneurship, problem solving, and time management skills. When Yılmaz and Ungan's (2024) study is examined, it is seen that primary school teachers consider the use of artificial intelligence in primary school important, state that primary school students need to be made aware of artificial intelligence, and indicate that they are ready to use artificial intelligence at the primary school level. A review of the study by Aksakal et al. (2024) shows that classroom teachers responded at the "I agree" level to items reflecting positive attitudes towards artificial intelligence. A review of Uzunağaç's (2025) study shows that child-friendly artificial intelligence tools develop primary school students' problem-solving, creativity, empathy, and collaboration skills. According to Klieba et al. (2024), primary school teachers can use artificial intelligence tools such as ChatGPT, Bing Ai, Perplexity, Bard, and Claude in their professional activities. Furthermore, artificial intelligence tools can be used in administrative tasks, creating educational materials, conducting research, writing and checking texts, thereby improving the education and teaching processes (Klieba et al., 2024). It is possible to say that the studies in the literature support the findings of this study. Furthermore, the fact that classroom teachers' attitudes towards the use of artificial intelligence in education are high rather than very high may be due to various reasons. Classroom teachers may have various concerns about the use of artificial intelligence in education. When Yılmaz and Ungan's (2024) study is examined, it is seen that classroom teachers expressed views that artificial intelligence would create dependency, inequality, and ethical problems. When examining the study by Arı (2024),

it is seen that classroom teachers' concerns about artificial intelligence are at an uncertain level, but when examined on an item-by-item basis, concerns about artificial intelligence replacing the teaching profession are close to a high level. When examining the study by Mazı and Yıldırım (2025), it is seen that primary school teachers state that artificial intelligence will weaken human-centred education, it is seen that primary school teachers state that artificial intelligence will weaken human-centred education. It is possible to say that the studies in the literature support the findings of this study.

When examining the findings of the study, it is observed that concerns about technology-induced unemployment are low. This situation can be linked to primary school teachers' attitudes towards technology and their technological literacy, as their positive attitude towards technology and high level of technological literacy may reduce their concerns about unemployment. The concept of technological literacy is closely related to the skills of using, managing, understanding, and evaluating technology (Herman et al., 2019). Individuals who possess these skills are unlikely to have concerns about unemployment due to technology. Özdemir and Taç (2017) examined that prospective classroom teachers have a high level of attitude towards technology. Ayvacı et al. (2019) examined that prospective classroom teachers have a high level of technological literacy. When Güneş and Buluç (2017) and Güneş and Buluç (2018) studies are examined, it is seen that classroom teachers have a high level of technological literacy. Furthermore, the same studies reveal that classroom teachers use technology at a high level contextually. Aslan's (2022) study shows that classroom teachers possess a very high level of technological literacy. All these findings support the findings of this study. According to Yaşaroğlu (2018), the use of technology in education is an inevitable necessity. Furthermore, the emergence of high-tech classrooms will not cause the teaching profession to disappear; it will only bring about changes in the roles of teachers (Yaşaroğlu, 2018).

When the findings of the study are examined, it is seen that there is no significant difference between primary school teachers' concerns about technology-induced unemployment and variables such as gender, age, professional seniority, educational status, place of work, time spent with technology on a daily basis, and the geographical region where they grew up. This result is positive. It shows that classroom teachers, regardless of demographic variables, do not see technology as a threat to their jobs but rather as a factor that supports education. There are research results in the literature that support this situation. Erbil and Kocabaş (2019) examined that classroom teachers find the use of technology in education beneficial, that technology-based teaching methods should be included in teaching programmes, and that the technology infrastructure in schools and classrooms should be supported. When Güneş and Bulut's (2017) sstudy is examined, it is seen that classroom teachers have a high level of technology use. Furthermore, it is seen that there is no significant difference between classroom teachers' attitudes towards the use of artificial intelligence in education and variables such as gender, age, professional seniority, educational status, place of work, time spent with technology on a daily basis, and the geographical region where they grew up. This is a positive result. It shows that teachers have a positive attitude towards using artificial intelligence, which is present everywhere in our lives, in education, regardless of their profile. Artificial intelligence technology is a technology that can be used in primary education. When examining the Turkish Ministry of National Education's teacher handbook on artificial intelligence tools used in education, it is seen that Homer, ReadingIQ, Duolingo, ABCmouse, Starfall, Seesaw, Epic!, Raz-Kids, Prodigy, Mathseeds, SplashLearn, Kodable, and BrainPOP Jr applications are tools that can be used at the primary school level. These applications can be used to develop students' reading and writing skills and their comprehension levels. Furthermore, these applications can be used to instil a habit of reading in primary school students, track their homework, provide language teaching, provide mathematics teaching, provide coding education, and develop their algorithmic thinking skills (Sevil and Saralar Aras, 2024). When examining the Report of the International Forum on Artificial Intelligence Applications in Education held on 25 May 2024, it is seen that artificial intelligence should be reduced to the primary school level and even added to the curriculum (Gülnar et al., 2024). When examining the study by Aksakal et al. (2024), it is seen that there is no difference between primary school teachers' attitudes towards artificial intelligence and variables such as educational status, professional seniority, school of graduation, and age. Findings in the literature support the findings of this study.

When the findings of the study are examined, it is seen that there is a significant difference between primary school teachers' attitudes towards the use of artificial intelligence in education and the variable of receiving in-service training on technology. Primary school teachers who receive in-service training on technology have higher attitudes towards the use of artificial intelligence in education. This result is an expected one. Receiving in-service training on technology will increase primary school teachers' level of technological knowledge. Furthermore, the in-service training received by classroom teachers will improve their skills in adapting technology to education. Receiving in-service training on technology will also reduce classroom teachers' resistance to technology. All these positive developments will result in classroom teachers viewing artificial intelligence as a supportive tool in education. Consequently, classroom teachers who receive in-service training on technology will have a more positive attitude towards the use of artificial intelligence in education. There are studies in the literature showing

the relationship between technological knowledge and technology use. When Gözel's (2022), study is examinedit is seen that as classroom teachers' self-efficacy in using information technologies increases, their technological pedagogical content knowledge also increases. When Güneysu's (2024), it is seen that study is examinedas classroom teachers' technological pedagogical content knowledge increases, their self-efficacy perceptions regarding the use of technology in education also increase. It is possible to say that the studies in the literature support the findings of this study. An examination of the study's findings reveals a significant difference between classroom teachers' attitudes towards the use of artificial intelligence in education and the variable of receiving in-service training on technology. Classroom teachers who receive in-service training on technology have higher attitudes towards the use of artificial intelligence in education. This result is to be expected. Classroom teachers receiving in-service training on technology will increase their level of technological knowledge. Furthermore, the in-service training received by classroom teachers will improve their skills in adapting technology to education. Receiving in-service training on technology will also reduce classroom teachers' resistance to technology. All these positive developments will result in classroom teachers viewing artificial intelligence as a supportive tool in education. Consequently, classroom teachers who receive in-service training on technology will have a more positive attitude towards the use of artificial intelligence in education.

An examination of the study's findings reveals a meaningful and moderately negative relationship between classroom teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education. This is a positive outcome because when classroom teachers' concerns about technology-induced unemployment decrease, their attitudes towards the use of artificial intelligence in education increase. The controlled integration of technology into our lives, ensuring it does not reach a level that leaves classroom teachers unemployed, will also increase the use of artificial intelligence tools in education. In this way, artificial intelligence technology will become a factor that facilitates teaching rather than a threat to classroom teachers' professional lives. According to Taştan et al. (2024), AI-supported tools can be used to create personalised learning plans, exercises, materials and tests for students, identify student deficiencies, check homework, provide personalised learning and access information quickly. When evaluated from another perspective, the reason why there is not a very high correlation between primary school teachers' concerns about technology-induced unemployment and their attitudes towards the use of artificial intelligence in education may be that teachers do not have sufficient knowledge and awareness about artificial intelligence. When examining the study by Mazı and Yıldırım (2025), it is seen that primary school teachers do not have sufficient knowledge, awareness, and skills regarding artificial intelligence. The researchers suggest that this finding may stem from the relatively weak digital literacy skills of classroom teachers and the insufficient inclusion of content related to artificial intelligence in teacher training programmes. Maigina et al. (2024) examined primary school teachers' high belief in and positive attitude towards artificial intelligence but found that they lacked sufficient knowledge and digital competence. Ceylan (2025) examined primary school teachers' artificial intelligence literacy found that it was not very high. According to Polatgil and Güler (2023), artificial intelligence literacy is related to being able to use artificial intelligence, being aware of artificial intelligence, being able to evaluate artificial intelligence, and having ethical knowledge about artificial intelligence. The fact that classroom teachers are not highly literate in artificial intelligence may be the reason for this low correlation.

When examining the qualitative findings of the study, primary school teachers' views on what artificial intelligence is are predominantly that it is an intelligent system and a human imitator. These views coincide with the definition of artificial intelligence. According to Miller (2024), artificial intelligence is the ability of a computer or machine to do what human intelligence requires. Classroom teachers' definitions are similar. Furthermore, Kurtdede Fidan and Kayar (2025) found that classroom teachers defined artificial intelligence as an imitation of human intelligence. It can be said that the definitions in the literature support the results obtained from teachers' definitions.

When examining the qualitative findings of the study, it is observed that primary school teachers have both positive and negative views regarding the use of artificial intelligence in primary school lessons. Upon examining the positive views, it is seen that the majority of opinions support the widespread adoption and use of artificial intelligence in primary school lessons. This finding is also supported by the quantitative findings, as it is observed that primary school teachers have a high level of acceptance towards the use of artificial intelligence in education. The fact that classroom teachers view artificial intelligence as a supportive technology is a positive outcome. When Önderöz and Karabay’s (2024), study is examined in the literatureit is seen that classroom teachers state that artificial intelligence is suitable for use in problem-based lessons, mathematics, life skills, science, and music lessons. When examining the study by Arı and Erkuş (2025), it is seen that classroom teachers state that artificial intelligence is useful in making life skills lessons more concrete, ensures lasting learning, makes lessons more enjoyable, and has positive aspects in terms of visualisation. In the study by Kurtdede Fidan and Kayar (2025), it is seen that classroom teachers want to use artificial intelligence in science, social studies, and Turkish lessons in

the future, want to use artificial intelligence to determine student levels, and want to benefit from artificial intelligence in enriching lesson content. When Yılmaz and Ungan's (2024) study is examined, it is seen that classroom teachers frequently use artificial intelligence in mathematics and Turkish lessons, frequently use it in language learning, state that artificial intelligence lessons should be included in schools, and that teachers should be trained in artificial intelligence. These findings in the literature support the findings of this study. When negative views are examined, it is seen that teachers mostly state that artificial intelligence is not suitable for primary school students' level. This situation supports the fact that primary school teachers' attitudes towards the use of artificial intelligence in education are not at a very high level. This is because the fact that primary school teachers have question marks in their minds about artificial intelligence and also have negative ideas affects their attitude levels. A review of the literature reveals that in the study by Kurtdede Fidan and Kayar (2025), classroom teachers expressed views that artificial intelligence would make education too easy, lead to a lack of control, cause health problems, and potentially lead to job losses. Again, Kurtdede Fidan and Kayar (2025), in the study by it is seen that classroom teachers stated that artificial intelligence would hinder the creativity of primary school students, create discipline problems, and that they had insufficient knowledge and belief. When examining the studies by Yumbul and Sulak (2024) and Erol and Erol (2024), it is seen that primary school teachers state that the use of artificial intelligence in education can create various disadvantages. According to Yıldırım and Karagöl (2025), Turkish teacher candidates see artificial intelligence as a threat to the teaching profession. These findings in the literature support the findings of this study.

When examining the qualitative findings of the study, it is observed that primary school teachers expressed both positive and negative views on whether artificial intelligence will replace the profession of primary school teaching. The view that it cannot is largely based on the fact that artificial intelligence does not incorporate emotions. This explains the moderate negative correlation between technology-induced unemployment concerns in the quantitative findings and attitudes towards the use of artificial intelligence in education. The fact that the relationship is not high is related to classroom teachers not seeing artificial intelligence as a significant threat. When Çetin and Aktaş's (2021) study is examined in the literatureit is seen that with the sufficient development of artificial intelligence, it could replace teachers and school principals, but for now, it cannot replace teachers. When examining the study by Demir Dülger and Gümüşeli (2023), school principals and teachers do not view artificial intelligence as a threat to the teaching profession. When examining the study by Yumbul and Sulak (2024), it is seen that primary school teachers working at the Council of Education emphasise that artificial intelligence tools should not replace teachers. Erol and Erol's (2024) study shows that primary school teachers indicate that artificial intelligence may partially replace teachers. Furthermore, numerous studies in the literature on artificial intelligence for teachers emphasise that artificial intelligence lacks emotions (Ateş et al., 2025; Bayraktar et al., 2023; Kalaba Yıldırım and Önder, 2025; Özer et al., 2023; Yıldırım and Karagöl, 2025). These findings in the literature support the findings of this study.

When the qualitative findings of the study are examined, it is seen that the views of classroom teachers regarding the skills that artificial intelligence cannot replace are divided into five categories under the theme of skills that artificial intelligence cannot replace. These are emotional and psychological, cognitive and social, education and learning process, values and ethics, and no skill can replace it. This situation may indicate that artificial intelligence will actually have an auxiliary and supportive role in education and cannot replace classroom teaching. This is because the skills grouped under the specified categories are seen to be human-specific skills. When examining the work of Yıldırım and Karagöl (2025), it is seen that Turkish teacher candidates stated that artificial intelligence does not possess characteristics such as emotional contact and empathy and therefore contains incompatibilities with the teaching profession. Furthermore, Yıldırım and Karagöl (2025), according to teaching is not only a profession that transfers knowledge but also plays an important role in raising people. When examining the study by Demir Dülger and Gümüşeli (2023), it is seen that school principals and teachers state that artificial intelligence cannot possess empathy. According to Kaya (2023), even if education is moving towards virtualisation today teachers will continue to be value transmitters or role models. Furthermore, Kaya (2023) according to, compassion, gestures, facial expressions, and eye contact make the presence of teachers important.

In conclusion, classroom teachers view artificial intelligence as a technology that supports education, and their attitudes towards it are highly positive. Concerns about technology-induced unemployment are low, and positive views on the use of artificial intelligence in primary school lessons prevail. Most teachers believe that artificial intelligence cannot replace the profession of classroom teaching and cannot perform many human skills. In particular, the view that artificial intelligence is inadequate in emotional terms stands out.

Recommendations

Based on the findings, several recommendations can be made at the end of the study.

1. The fact that primary school teachers have a positive attitude towards the use of artificial intelligence in education and low concerns about technology-induced unemployment indicates that they do not perceive artificial intelligence as a threat. For this reason, materials explaining how artificial intelligence tools can be used in primary education should be produced. Sample lesson plans should be included in these materials.
2. An examination of the study's findings reveals that classroom teachers who have received training in technology have a more positive attitude towards the use of artificial intelligence in education. For this reason, in-service training courses covering artificial intelligence literacy should be provided to classroom teachers.
3. The fact that primary school teachers' attitudes towards the use of artificial intelligence in education are moderate, along with their concerns about technology-induced unemployment, indicates that teachers also have various concerns regarding artificial intelligence. Furthermore, the existence of both positive and negative views on the use of artificial intelligence in primary school lessons supports this idea. For this reason, artificial intelligence tools should be integrated into primary school education without neglecting human aspects.
4. A moderate negative relationship has been observed between primary school teachers' attitudes towards the use of artificial intelligence in education and their concerns about technology-induced unemployment. New studies could be designed incorporating variables such as artificial intelligence literacy, awareness, and self-efficacy, which may mediate this relationship. This would allow for a more in-depth examination of the subject.

Ethical Approval

Prior to commencing this study, permission was obtained from the İnönü University Social and Human Sciences Scientific Research and Publication Ethics Committee at its meeting dated 12-06-2025 (meeting number 13, decision number 1).

Conflict of Interest

There is no conflict of interest among the authors in this study.

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