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AI Literacy in Distance Learning: Analyzing Graduate Students' Competencies Across Key Variables

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Abstract

This study was conducted to examine the artificial intelligence literacy levels of non-thesis graduate students studying through distance education in terms of different variables. A total of 354 distance education graduate students participated in the quantitative research. The data were collected using the "Artificial Intelligence Literacy Scale" developed by Wang, Rau, and Yuan (2023) and adapted into Turkish by Çelebi et al. (2023). Some of the findings obtained as a result of the research are as follows: (1) Students' AI literacy levels show a significant difference according to monthly income level, duration of using technological devices and frequency of using AI tools. (2) Artificial intelligence usage levels of students working in the private sector are higher than those of students working in the public sector. (3) Artificial intelligence literacy levels of students with incomes above the poverty line were found to be higher than those of students with incomes between hunger and poverty line. (4) It was determined that students who always or very often use artificial intelligence tools have highe levels of artificial intelligence literacy, artificial intelligence awareness, artificial intelligence tool use and evaluation skills, and knowledge of artificial intelligence ethics than students who rarely or never use these tools. (5) It was determined that students mostly use artificial intelligence tools for translation, producing written texts, and for courses and academic studies.

Keywords: artificial intelligence, distance learning, graduate students, AI literacy, quantitative method

1. Introduction

The use of artificial intelligence-supported tools has become increasingly widespread in recent years. While the widespread use of artificial intelligence technologies has increased the efficiency and effectiveness of the learning process, it has also necessitated the development of new strategies to promote artificial intelligence literacy among students and faculty members. The use of artificial intelligence technologies in the field of open and distance learning is increasing. These developments have made artificial intelligence literacy an

important issue, especially since it plays a key role in ensuring the effective and ethical use of artificial intelligence. Therefore, when designing AI-supported educational applications that provide personalised learning experiences and personalised feedback to students, it is important to know the knowledge levels of students about the functions, application areas, social and ethical aspects and social effects of artificial intelligence technologies.

When the literature was analysed, no research directly related to this study was found. However, it was observed that there is a wide range of research on artificial intelligence literacy (Alamäki et al., 2024; Kong, Cheung & Zhang, 2023; Ma & Lei, 2024; Porter & Foronda, 2024; Pretorius, 2023). When some of these studies are examined, Ma and Lei (2024), in their experimental study based on the Technology Acceptance Model (TAM), investigated the factors affecting the adoption of artificial intelligence technologies by students studying in the field of Information Based Education. As a result of the research, it was determined that these factors were AI literacy, perceived usefulness and behavioural intention, respectively. Porter and Foronda (2024) investigated the effect of artificial intelligence in nursing education, the problem of bias in artificial intelligence data, and the unintended consequences of the increasing presence of artificial intelligence in health services. As a result of the research, it was emphasised that it is necessary to train a new generation of nurses who prioritise critical thinking skills and human supervision in health environments and who can also make effective use of artificial intelligence tools. Alam et al. (2024) examined the level of AI literacy of librarians working in academic libraries in Zambia. In this study, which was conducted with the participation of 82 librarians in total, it was found that Zambian librarians had knowledge about the basics of artificial intelligence and had positive attitudes towards the potential benefits of artificial intelligence. In another source, the relationship between social studies and artificial intelligence was explored and the potential role of social studies in teaching AI literacy was examined. In this study, an activity-supported applied lesson plan that can be used in social studies courses was put forward (Yetişensoy & Rapoport, 2023). In their study, Kajiwara and Kawabata (2024) proposed a curriculum that teaches the ethical use of large language models (LLM) such as ChatGPT. In the study, using the technology acceptance model, the ethical principles of artificial intelligence were examined to determine technology acceptance and it was determined that usefulness, fairness and equity, privacy and data protection directly affect attitudes towards ChatGPT. Unlike the studies mentioned above, this study investigates the artificial intelligence literacy levels of non-thesis master's degree students studying in open and distance learning environments. It is thought that this research is important in terms of both including different variables and examining the reasons for the emerging/non-emerging differences in depth.

This research was conducted to determine the artificial intelligence literacy levels of students studying in distance education non-thesis master's degree programmes and to determine whether these levels differ according to various variables. In line with this purpose, answers to the following research questions were sought.

1. Do the artificial intelligence literacy levels of students studying in Distance Education Non-Thesis Master's Programmes show a significant difference according to gender variable?
2. Do the artificial intelligence literacy levels of students studying in Distance Education Non-Thesis Master's Programmes show a significant difference according to occupational status variable?
3. Do the artificial intelligence literacy levels of students studying in Distance Education Non-Thesis Master's Programmes show a significant difference according to monthly income level variable?

4. Do the artificial intelligence literacy levels of students studying in Distance Education Non-Thesis Master's Programmes show a significant difference according to the variable of the duration of using technological devices?
5. Do the artificial intelligence literacy levels of students studying in Distance Education Non-Thesis Master's Programmes show a significant difference according to the variable of frequency of use of artificial intelligence tools?
6. For which purpose do students studying in Distance Education Non-Thesis Master's Programmes use artificial intelligence tools the most?

2. Methods

2.1. Research Design

This research is a quantitative study that examines the artificial intelligence literacy levels of students studying in distance education non-thesis master's programmes in terms of various variables. In the study, cross-sectional survey model, which is one of the survey models, was used. Cross-sectional survey model is a quantitative research model in which the characteristics of a population or sample are measured at a single time in a certain time interval (Creswell, 2012). In this study, a cross-sectional survey model was employed since the objective was to obtain a general understanding of the artificial intelligence literacy levels of non-thesis master's degree students pursuing their studies through distance education and to ascertain their current levels.

2.2. Population and Sample

The population of the study consists of 2492 students enrolled in the Distance Education Non-Thesis Master's Degree programmes at Anadolu University Graduate Education Institute in the 2024–2025 academic year. The sample of the study consists of 354 students studying in Distance Education Non-Thesis Master's Programmes. Convenience sampling, a non-random sampling method, was employed in the formation of the research sample. In this sampling method, researchers predominantly work with individuals who participate voluntarily and aim to collect the most accurate information in the fastest way (Creswell, 2012; Fraenkel, Wallen, & Hyun, 2012). The demographic characteristics of the students in the study sample are presented in Table 1.

Table 1: Demographic characteristics

Variable	Variable Groups	Frequency (N)	Percentage Value (%)
Gender	Female	219	61.9
	Male	135	38.1
Occupational Status	Unemployed	75	21.2
	Public employee	180	50.8
	Private sector	81	22.9
	Retired	6	1.7
	Self-employed	12	3.4
Income Level	Below the starvation line	84	23.7
	Between starvation and poverty line	219	61.9
	Above the poverty line	51	14.4
The Duration of Use of Technological Devices	Less than 1 hour	5	1.4
	Between 1-3 hours	76	21.5
	Between 4-6 hours	139	39.3
	7 hours and over	134	37.9
The Frequency of Use of AI Tools	Never	31	8.8
	Rarely	128	36.2
	No opinion	11	3.1
	Often	140	39.5
	Always	44	12.4

2.3. Data Collection Tools

The data for the study were collected using a personal information form and the Artificial Intelligence Literacy Scale developed by Wang, Rau, and Yuang (2023) and adapted into Turkish by Çelebi, Yılmaz, Demir, and Karakuş (2023). The data was collected online via Google Forms. The forms prepared online were submitted by students enrolled in Anadolu University's Graduate School of Distance Education Non-Thesis Master's Degree programmes between 1 November 2024 and 10 January 2025. The principle of voluntary participation was utilised as the basis for the data collection process, which was conducted through Google Forms. Participants who did not explicitly indicate their voluntary participation were excluded from the study. The students participating in the study were provided with the necessary information to ensure the reliability of their responses.

2.3.1 Personal information form

The personal information form is a form designed to determine the demographic characteristics of the participants in the research sample, such as gender, occupational status, income level, duration of use of technological tools, frequency of use of artificial intelligence tools, and the purpose for which artificial intelligence tools are most used.

2.3.2 Artificial intelligence literacy scale

The artificial intelligence literacy scale was developed by Wang et al. This scale, which will be utilised in the present study, was adapted into Turkish by Çelebi, Yılmaz, Demir, and Karakuş (2023). The scale is composed of 12 items and 4 sub-dimensions in total, and is a 7-point Likert scale. Items 1, 2, 3 of the scale measure students' level of artificial intelligence awareness; items 4, 5, 6 measure students' level of artificial intelligence usage; items 7, 8, 9 measure students' level of assessment of artificial intelligence tools; and items 10, 11 and 12 measure students' attitudes towards artificial intelligence ethics. The Cronbach Alpha internal reliability coefficient of the scale is $\alpha = 0.85$. The Cronbach's Alpha internal reliability

coefficients of the sub-dimensions of the scale were found to be greater than 0.70 (Çelebi et al., 2023).

As this research was conducted on a different population and sample group, the validity of the research was to be determined. To this end, Confirmatory Factor Analysis (CFA) was conducted. The results of the CFA, conducted using the Jamovi 2.3.28 program, yielded the following values: $\chi 2/sd= 2.128$, RMSEA= 0.056, CFI= 0.96, TLI= 0.95, IFI= 0.96, GFI= 0.99, AGFI= 0.99, and the SRMR value was calculated to be 0.045. The values obtained demonstrated that the validity of the study was assured and that there was an acceptable level of goodness of fit (Kline, 2011; Schermelleh-Engel, Moosbrugger, & Müller, 2003). In order to ascertain the reliability of the research, Cronbach Alpha internal reliability coefficients were calculated. The analysis yielded a Cronbach Alpha value of $\alpha= 0.76$ for this study. Furthermore, the Cronbach Alpha values of the sub-dimensions of the scale were observed to be $\alpha>0.70$. These findings collectively indicate that the research demonstrates acceptable reliability.

2.4. Data Analysis

The data collated for the study were initially opened using the Microsoft Office Excel programme, and subsequently transferred to the IBM SPSS 26.0 programme following the execution of requisite preparations. Thereafter, the data were examined for any missing or erroneous entries, with the requisite corrections being applied to the data that were found to be inaccurate. The normality of the data obtained in the study was analysed using a variety of statistical methods, including the calculation of kurtosis and skewness values, the analysis of the Normal Q-Q Plot and histogram graphs, and the Kolmogorov-Smirnov test. Within the scope of this analysis, the kurtosis and skewness values, Normal Q-Q Plot and histogram graphs, and Kolmogorov-Smirnov test results were analysed. This analysis yielded several key findings. Firstly, skewness and kurtosis values were observed to be within the range of -1.5 to +1.5. Subsequent analysis of the Normal Q-Q Plot and histogram graphs indicated that the data followed a normal distribution. Finally, the results of the Kolmogorov-Smirnov test indicated a p-value greater than 0.05. Collectively, these findings suggest that the research data set conforms to a normal distribution (Tabachnick & Fidell, 2013). Frequency analysis, independent samples t-test and one-way analysis of variance were used respectively. The implementation of both descriptive and inferential statistics was conducted utilising the IBM SPSS 26.0 programme, whilst the execution of Confirmatory Factor Analysis (CFA) was conducted using the Jamovi 2.3.28 programme. In this study, the significance value was accepted as $p<0.05$. While Cohen's d value was calculated in order to measure the effect size between two groups, Eta squared ($\eta 2$) values were calculated to measure the effect size of independent variables on the dependent variable (Cohen, 1988). In the study, the significance level was set at $\alpha=0.05$.

2.5. Limitations of the Study

The present study is subject to certain limitations. Firstly, the study was conducted exclusively on students enrolled in the Distance Education Non-Thesis Master's programme. Furthermore, the exclusive utilisation of a singular measurement instrument to gauge students' artificial intelligence literacy levels constitutes an additional limitation.

2.6. Ethical Clearances

Within the scope of this research, an ethics committee permission document dated 26.08.2024 and protocol number 765845 was obtained from Anadolu University Publication Ethics Committee.

3. Results

The results of the analysis conducted to determine the artificial intelligence literacy levels of students enrolled in Distance Education Non-Thesis Master's programmes are presented in the study's results section.

An independent samples t-test was conducted to ascertain whether the artificial intelligence literacy levels of the students participating in the study differed according to gender. The findings of the analysis are presented in Table 2.

Table 2: The differentiation of students' artificial intelligence literacy levels by gender

Subscale/Scale	Gender	N	X̄	S	t	SD	*p*
Awareness	Female	219	4.780	.8262	-.413	352	.680
	Male	135	4.817	.7745			
Usage	Female	219	4.564	.7421	-1.529	321.547	.127
	Male	135	4.676	.6188			
Assessment	Female	219	5.482	1.110	-.534	352	.593
	Male	135	5.548	1.142			
Ethics	Female	219	4.869	.6937	1.103	352	.271
	Male	135	4.777	.8493			
Total	Female	219	4.924	.5888	-.490	352	.624
	Male	135	4.954	.5424			

Table 2 presents information on whether the artificial intelligence literacy levels of the students differ according to gender. Upon examination of the information presented in Table 2, it is determined that the artificial intelligence literacy levels of the students do not demonstrate a statistically significant difference according to gender ($t(352)=-490$, $p>0.05$). A similar outcome was observed in the sub-dimensions of the scale.

A one-way analysis of variance was conducted to ascertain whether there were any differences in artificial intelligence literacy levels among students according to their occupational status. The findings obtained are given in Table 3.

Table 3: Differentiation of students' artificial intelligence literacy levels according to occupational status

Subscale/Scale	Occupational Status	N	X̄	S	DF	F	*p*	Difference
Awareness	Unemployed	75	4.840	.8442	353	.273	.895	-
	Public employee	180	4.807	.7878				
	Private sector	81	4.732	.8035				
	Retired	6	4.611	1.254				
	Self-employed	12	4.833	.6890				
Usage	Unemployed	75	4.693	.5997	353	3.352	**.010***	3 > 2
	Public employee	180	4.485	.7526				
	Private sector	81	4.761	.5170				
	Retired	6	5.055	1.289				
	Self-employed	12	4.638	.8699				
Assessment	Unemployed	75	5.666	5.666	353	2.320	.057	-
	Public employee	180	5.340	5.340				
	Private sector	81	5.740	5.740				
	Retired	6	5.333	5.333				
	Self-employed	12	5.527	5.527				
Ethics	Unemployed	75	4.813	.7212	353	1.670	.156	-
	Public employee	180	4.874	.7680				
	Private sector	81	4.711	.7795				
	Retired	6	5.444	.8344				
	Self-employed	12	4.888	.4569				
Total	Unemployed	75	5.003	.5390	353	1.056	.378	-
	Public employee	180	4.876	.5896				

	Private sector	81	4.986	.5284				
	Retired	6	5.111	1.069				
	Self-employed	12	4.972	.4194				
*p<0.05								

Following a thorough analysis of the data presented in Table 3, it was determined that there was no statistically significant difference in the artificial intelligence literacy levels of the students based on their professional status (F(4,349)=[1056], p>0.05). However, the findings indicated a significant discrepancy in the sub-dimension of artificial intelligence usage level. To ascertain the variable groups responsible for this significant difference, a Tukey HSD multiple comparison test was performed. The results of the analysis revealed that there was a statistically significant difference in the level of artificial intelligence usage between students employed in the private sector ($\bar{X}$=4.761, S=.5170) and students employed in the public sector ($\bar{X}$=4.485, S=.7526). This significant difference was found to have a medium effect size (η2=0.065).

It was aimed to determine whether there is a significant difference between students' artificial intelligence literacy levels and income level. In this direction, one-way variance analysis was performed. The findings of the analysis are presented in Table 4.

Table 4: Differentiation of students' artificial intelligence literacy levels according to income level

Subscale/Scale	Income Level	N	$\bar{X}$	S	DF	F	p	Difference
Awareness	Below the starvation line	84	4.761	.7992	353	1.476	.230	-
	Between starvation and poverty line	219	4.765	.7923				
	Above the poverty line	51	4.973	.8662				
Usage	Below the starvation line	84	4.674	.5301	353	1.762	.173	-
	Between starvation and poverty line	219	4.554	.7339				
	Above the poverty line	51	4.725	.7737				
Assessment	Below the starvation line	84	5.611	.9760	353	1.964	.142	-
	Between starvation and poverty line	219	5.418	1.197				
	Above the poverty line	51	5.719	.9738				
Ethics	Below the starvation line	84	4.825	.7289	353	2.899	.056	-
	Between starvation and poverty line	219	4.783	.7813				
	Above the poverty line	51	5.065	.6600				
Total	Below the starvation line	84	4.968	.4989	353	3.905	**.021***	3 > 2
	Between starvation and poverty line	219	4.880	.5969				
	Above the poverty line	51	5.120	.5339				
*p<0.05								

When the results of the analyses in Table 4 are examined, it is determined that there is a statistically significant (F(2,351)=3905, p<0.05) difference between students' AI literacy levels and income levels. Tukey HSD test was conducted to determine which groups this significant difference was between. According to the results of the test, it was determined that the artificial intelligence literacy levels of the students who were above the poverty line ($\bar{X}$=5.120, S=.5339) were higher than the students who were between starvation and poverty line ($\bar{X}$=4.880, S=.5969). This significant difference was found to have a small effect size (η2=0.021).

A one-way analysis of variance was conducted to ascertain whether there were any differences in the levels of artificial intelligence literacy among students based on the duration of their utilisation of technological devices. The findings obtained as a result of the analysis are given in Table 5.

Table 5: Differentiation of students' artificial intelligence literacy levels according to the duration of use of technological devices

Subscale/Scale	The Duration of Use of Technological Devices	N	$\bar{X}$	S	DF	F	*p*	Difference
Awareness	Less than 1 hour	5	4.866	.5577	353	.049	.986	-
	Between 1-3 hours	76	4.776	.7628				
	Between 4-6 hours	139	4.810	.8607				
	7 hours and over	134	4.786	.7856				
Usage	Less than 1 hour	5	4.066	1.064	353	2.299	.077	-
	Between 1-3 hours	76	4.526	.7683				
	Between 4-6 hours	139	4.577	.7394				
	7 hours and over	134	4.704	.5804				
Assessment	Less than 1 hour	5	4.466	2.218	353	8.167	**.000***	4 > 1, 4 > 2, 4 > 3, 3 > 2, 3 > 1, 2 >1
	Between 1-3 hours	76	5.122	1.174				
	Between 4-6 hours	139	5.465	1.076				
	7 hours and over	134	5.808	.9957				
Ethics	Less than 1 hour	5	4.200	1.788	353	1.552	.201	-
	Between 1-3 hours	76	4.776	.7270				
	Between 4-6 hours	139	4.836	.7511				
	7 hours and over	134	4.888	.7219				
Total	Less than 1 hour	5	4.400	1.267	353	4.745	**.003***	4 > 1, 4 > 2, 4 > 3, 3 > 1, 3 > 2
	Between 1-3 hours	76	4.800	.5619				
	Between 4-6 hours	139	4.922	.5668				
	7 hours and over	134	5.046	.5214				
*$p<0.05$								

Upon analysis of the findings presented in Table 5, it is determined that there is a statistically significant ($F(3,350)=[4.745]$, $p<0.05$) difference between the artificial intelligence literacy levels of the students and the duration of their usage of technological devices. A similar observation was made in the evaluation sub-dimension, where a statistically significant difference was found. To identify specific groups that exhibited significant differences, a Tukey HSD multiple comparison test was conducted. Accordingly, it was determined that the artificial intelligence literacy levels of the students who used technological devices more than 4 hours a day were higher than the students who used these devices less than 4 hours a day. This significant difference has a small effect size ($\eta 2=0.039$). On the other hand, it was determined that as the duration of students' use of technological devices increased, their level of evaluation of artificial intelligence tools also increased. This significant difference was found to have a medium effect size ($\eta 2=0.065$).

The objective of the study was to ascertain whether there were discrepancies in the artificial intelligence literacy levels of students in accordance with the frequency of utilisation of artificial intelligence tools. In line with this objective, one-way variance analysis was performed. The findings obtained are presented in Table 6.

Table 6: Differentiation of students' artificial intelligence literacy levels according to frequency of use of artificial intelligence tools

Subscale/Scale	The Frequency of Use of AI Tools	N	$\bar{X}$	S	DF	F	*p*	Difference
Awareness	Never	1	4.731	.6407	353	3.244	**.012***	5 > 4, 5 > 2, 5 > 1
	Rarely	28	4.705	.7548				
	No opinion	11	4.666	.4472				
	Often	140	4.776	.7991				
	Always	44	5.189	1.030				
Usage	Never	31	4.032	.7857	353	16.295	**.000***	5 > 1, 5 > 2, 5 > 3, 5 > 4, 4 > 2, 4 > 1, 2 > 1
	Rarely	128	4.442	.7542				
	No opinion	11	4.424	.6513				
	Often	140	4.747	.5347				
	Always	44	5.090	.4947				
Assessment	Never	31	4.698	1.711	353	24.285	**.000***	5 > 1, 5 > 2, 5 > 3, 5 > 4, 4 > 2, 4 > 1, 2>1
	Rarely	128	5.130	1.040				
	No opinion	11	4.787	.8853				
	Often	140	5.781	.8394				
	Always	44	6.484	.6161				
Ethics	Never	31	4.440	.9902	353	2.567	**.038***	4 > 1, 4 > 2
	Rarely	128	4.867	.6511				
	No opinion	11	4.666	.7601				
	Often	140	4.883	.7834				
	Always	44	4.901	.7173				
Total	Never	31	4.475	.7466	353	20.973	**.000***	5 > 1, 5 > 2, 5 > 4, 4 > 2, 4 > 1, 2 > 1
	Rarely	128	4.786	.5270				
	No opinion	11	4.636	.4877				
	Often	140	5.047	.4573				
	Always	44	5.416	.4662				
*$p<0.05$								

Table 6 presents the findings on whether the artificial intelligence literacy levels of the students differ according to the frequency of use of artificial intelligence tools. The results presented in Table 6 indicate a statistically significant difference (F(4,349)=[20.973], $p<0.05$) between students' AI literacy levels and the frequency of use of artificial intelligence tools. Similar differences were also observed in other sub-dimensions of the scale. The Tukey HSD test was employed to ascertain the groups responsible for these significant differences. The Tukey HSD test results indicated that as the frequency of students' usage of artificial intelligence tools increased, their levels of artificial intelligence literacy concomitantly increased. This discrepancy was found to have a large effect size ($\eta 2=0.193$). On the other hand, students who always use AI ($\bar{X}=5.189$, S=1.030) have a higher level of AI awareness than students who do often ($\bar{X}=4.776$, S=.7991), rarely ($\bar{X}=4.705$, S=.7548) or never ($\bar{X}=4.731$, S=.6407) use this technology. This significant difference was found to have a small effect ($\eta 2=0.035$). A further difference was found in the sub-dimension of use. The findings indicated that students who always ($\bar{X}=5.090$, S=.4947) and often ($\bar{X}=4.747$, S=.5347) used AI were able to use AI tools at a higher level than students who rarely ($\bar{X}=4.442$, S=7.542) or never ($\bar{X}=4.032$, S=.7857) used this technology. This significant difference was found to have a large effect ($\eta 2=0.157$). Another significant difference was observed in the evaluation sub-dimension. Consequently, it was ascertained that as the frequency of students' usage of AI tools increased, so did their level of evaluation of these tools. This significant difference was found to have a large effect ($\eta 2=0.217$). Another significant difference was identified in the ethics sub-dimension. In this context, it was determined that students who always use artificial intelligence ($\bar{X}=4.901$, S=.7173) have higher attitudes towards artificial intelligence ethics compared to students who

rarely ($\bar{X}$=4.867, S=.6511) or never ($\bar{X}$=4.440, S=.9902) use this technology. This significant difference was found to have a large effect size (η^2=0.285).

In Table 7, information about the purpose for which students use artificial intelligence tools the most is given.

Table 7: The most common purpose of using artificial intelligence tools

Most Common Purpose of Use	Frequency (N)	Percentage Value (%)
I never use it	38	10.7*
I use it for translation	119	33.6*
I use it for product and material design	6	1.7
I use it to produce written text	124	35.0*
I use it to produce images (pictures, photos)	15	4.2
I use it to produce and edit videos	2	0.6
I use it for audio processing	2	0.6
I use it to manage my calendar	4	1.1
I use it to write code	10	2.8
I use it for lectures and academic studies (article summarising, presentation preparation, literature review, homework preparation, data collection and analysis, etc.).	27	7.6*
I use it to find answers to questions I wonder about in everyday life	7	2.0

Students were asked for which purpose they use artificial intelligence tools the most. Accordingly, it was revealed that students mostly use artificial intelligence tools to produce written texts, to translate, and in their lectures and academic studies. Some of the students use these tools to produce images (pictures, photographs), write code, access information they are curious about in daily life, design products and materials, manage calendars, and edit video and audio. On the other hand, 10.7% of the students stated that they have never used artificial intelligence technology.

4. Discussion and Conclusion

In this study, the level of AI literacy of students enrolled in distance learning non-thesis Master's programmes was examined in terms of various variables. The results obtained are discussed with the relevant sources and presented below.

In the initial phase of the research study, the primary objective was to ascertain whether there existed a significant difference in the AI literacy levels of the students according to the gender variable. The findings of the analyse indicated that there was no significant difference in the artificial intelligence literacy levels of the students according to gender. This finding suggests that both female and male students have equal opportunities in terms of their concepts, applications and access to artificial intelligence technologies. It is therefore concluded that artificial intelligence literacy develops with individual interest and effort rather than gender.

Another research question that was sought to be answered in the study was whether the students' levels of artificial intelligence literacy changed according to their professional status. The findings of the study indicated that the occupational status of the students did not engender a statistically significant difference in their artificial intelligence literacy skills. However, a significant difference was observed in terms of artificial intelligence usage levels. The findings indicated that students employed in the private sector demonstrated higher levels of artificial intelligence usage skills compared to their counterparts working in the public sector. This finding may be due to the fact that private companies instruct their employees to use new technologies to make them faster and more efficient compared to public institutions. The greater complexity of internal structures within public institutions, characterised by extensive

bureaucracy, results in a protracted process of acceptance and integration of novel technologies. However, given the private sector's more flexible organisational structure, it is better positioned to adopt and adapt to new technologies.

The present study examined whether there was a statistically significant difference in the artificial intelligence literacy levels of students according to their income level. The analysis revealed that the monthly income level of students is a variable that significantly impacts their artificial intelligence literacy. Accordingly, it was found that students whose monthly income is above the poverty line have higher AI literacy than students whose monthly income is between the poverty line and the starvation line. The underlying reason for this outcome may be attributed to the enhanced access to technology, education and other opportunities that students from higher income levels typically enjoy. Consequently, students from higher income brackets may enhance their AI literacy by acquiring greater knowledge and expertise in technical domains such as AI.

It was questioned whether there was a significant difference between the students' use of technological devices and their artificial intelligence literacy levels. As a result of the questioning, it was determined that students who use technological devices more than 4 hours a day have higher artificial intelligence literacy levels than students who use them less. At the same time, it was determined that with the increase in the use of technological devices, students' ability to evaluate artificial intelligence tools also increased. The utilisation of technological devices over an extended period may facilitate students' comprehension of the novel technologies they access through these devices, promote the development of their skills related to these technologies, and enhance their knowledge and evaluation levels on this subject. In this respect, it can be said that the duration of the use of technological devices is an effective variable for AI literacy.

When it was examined whether the frequency of using artificial intelligence tools made a significant difference on artificial intelligence literacy, it was found that there was a statistically significant difference between these two variables. In addition, it was observed that there were significant differences in the dimensions of awareness, usage, evaluation and ethics. Continuous use of a technological tool can reinforce the level of knowledge and awareness of that technology, its use and evaluation skills, and its moral perspective. Therefore, it can be said that students who use artificial intelligence tools more have higher knowledge and skills in terms of literacy, awareness, use and ethics than students who use this technology less.

Finally, the study sought to ascertain the primary purposes for which students utilise artificial intelligence tools. The results obtained from the study indicated that students predominantly utilise artificial intelligence for the creation of written texts, translation, and for their course and academic studies. Conversely, 10.7% of the students have never used artificial intelligence technology. This rate indicates that 10% of the student population has not yet used this technology. The underutilisation of AI by some students can be attributed to a number of factors. These include a paucity of training and support to use the technology, problems with access, low awareness and use, and negative attitudes. Consequently, concerted efforts must be made to address these challenges.

4.1. Practical Implications

Within the scope of the practical implications presented in line with the findings of the study, socioeconomic issues should be emphasised first. To ensure equal access to AI literacy, financial support mechanisms, scholarships or subsidised access to technological resources should be provided, especially for students whose income levels are between the hunger and poverty lines. Curricula of distance education programmes should be reorganised. AI literacy

training should be integrated into curricula, with an emphasis on practical applications such as academic writing, translation and study assistance, given their use by students in these fields. Given that students working in the public sector have lower levels of AI literacy compared to students in the private sector, targeted professional development programmes and training workshops should be organised in public institutions to bridge this competence gap. Regular use of AI should be encouraged. Institutions should actively encourage and facilitate the regular use of AI tools among postgraduate students, as regular use is associated with higher literacy and competence. Distance education institutions should provide adequate technological infrastructure, such as providing licences for AI software, providing fast internet connections and offering technical support to enhance students' experience and literacy in AI. Furthermore, institutions should organise training programmes for faculty members to effectively integrate AI technologies into their teaching methodologies, thus creating an ecosystem that supports the development of both lecturers and students in AI literacy. Finally, emphasis should be placed on embedding AI ethics in educational programmes to enhance students' understanding and responsible use of AI technologies, while academic integrity policies should be aligned with the increasing use of AI-based tools.

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