

How AI and Automation Knowledge Level affect AI anxiety

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Abstract

This study investigates the relationship between AI and Automation Knowledge Level and AI Anxiety among 188 statistics students from public universities in Ankara. The methodology includes descriptive statistics, Pearson correlation analysis, and logistic regression. Results show that AI and Automation Knowledge Level is significantly negatively correlated with AI Anxiety ($r = -0.168$, $p < 0.01$). Logistic regression results indicate that students with no AI knowledge are 7.8 times more likely to report slight anxiety and 18 times more likely to report moderate anxiety compared to those with AI knowledge. These findings highlight that basic AI knowledge reduces anxiety, while overly advanced knowledge does not further alleviate anxiety. The study recommends that governments and schools popularize AI education at a foundational level to reduce psychosocial risks.

keywords: Artificial Intelligence; AI; Automation Knowledge Level; AI Anxiety; Correlation Analysis; Logistic Regression

1. Introduction

In recent years, the rapid development of artificial intelligence has brought about the improvement of social productivity and the liberation of workers on the one hand, and on the other hand, it has also brought many social problems. In addition to the social problems such as the increase in unemployment caused by the replacement of low-end labor by AI, social psychological phenomena such as AI anxiety have also emerged for the uncertain future. Worrying about AI replacing jobs, uncertainty about AI's capabilities, and confusion about the role of humans in the AI era are all examples of AI anxiety.

So far, there is no clear definition of AI anxiety. AI anxiety can be defined as the apprehension and stress individuals may feel about AI's increasing presence and influence in various aspects of life. From wondering if AI will make certain jobs obsolete to privacy concerns, AI's impact is far-reaching and often uncertain, leading to a sense of unease for many people. According to EY's survey report on AI anxiety among employees in the U.S. workplace¹, 71% of employees are worried about AI, 48% say they are more anxious than a year ago, and 41% think AI is developing too fast. The report shows that EY employees' main anxiety about AI includes unemployment risks, limited salary and promotions, security risks, and concerns about AI ethics.

Recent studies have further explored the relationship between AI anxiety, AI exposure, and learning outcomes. For example, Chen et al. (2024) found that AI self-efficacy can buffer the negative effects of AI anxiety on students' motivation^[4]. Similarly, Fan et al. (2025) showed that AI-assisted pair programming significantly reduced programming anxiety compared to traditional programming^[5]. Ayed et al. (2025) demonstrated that limited exposure to AI is positively correlated with AI anxiety, particularly among non-users^[6]. Kim et al. (2024) revealed that AI adoption is associated with job stress and burnout, but AI learning self-efficacy alleviates these negative outcomes^[7]. Hu et al. (2025) also showed that AI workplace anxiety negatively predicts life satisfaction, mediated by negative emotions and moderated by social support^[8].

So for college students who are about to enter society, does the rapid development of AI affect the mental health and career development of college students, what are the influencing factors of AI anxiety, how can we alleviate AI anxiety, which suggestions are effective and which will only aggravate the AI anxiety of college students.

¹ EY. 《the AI Anxiety in Business Survey》 [Businesses can stop rising AI use from fueling anxiety | EY - US](#)

Therefore, the goal of this paper is to explain the main factors associated with AI anxiety with the help of questionnaire data from statistics students in Ankara state, and to make reasonable suggestions for educational improvement accordingly.

2. Literature Review

Previous articles on AI anxiety have mainly focused on the development of AI anxiety scales and the definition of AI anxiety, but there is no clear consensus. Kim et al. (2025) ^[1] give their definition of AI anxiety and believe that the way to alleviate AI anxiety lies in achieving technological transparency, public education progress, and interdisciplinary cooperation and regulation, striving to build human dominance in AI development. Wang et al. (2022) ^[2] studied the key factors affecting students' AI learning behavior from the perspective of AI anxiety and pointed out that the improvement of AI learning anxiety significantly reduced the interest and employment advantages of students in Taiwan from AI learning and then reduced the willingness to learn at the AI and Automation Knowledge Level. It is pointed out that students with high self-efficacy will reduce their dependence on external rewards due to self-confidence, thereby increasing their willingness to learn AI and Automation Knowledge Level. Yaşar et al. (2025) ^[3] based on the analysis of questionnaire data of English majors in Turkey, the study shows that AI anxiety varies by major and believes that educators should design anxiety relief measures according to the characteristics of the subject.

Previous studies have focused on students' willingness to learn AI, and the major has chosen an English major, which has the particularity of an English major. Compared with previous studies, this study has the following innovations: first, this study selects statistics majors to conduct a questionnaire survey to study the influencing factors of AI anxiety among science and technology majors who are greatly affected by the development of AI; Second, this study conducted a multi-factor analysis, such as gender and university type, which broadened the scope of discussion on AI anxiety-related research.

3. Methodology

This paper uses a variety of statistical methods to analyze the questionnaire data. The specific analysis ideas are as follows :

First, descriptive statistics were performed on the dataset to qualitatively understand the various factors related to AI anxiety.

Based on the fact that the questionnaire data in this study are all categorical data, the Pearson chi-square test was selected to analyze the influencing factors with significant differences in different AI anxiety level groups. Pearson's chi-squared test is widely used in the test of independence of categorical data and can also be used in the comparative test of categorical variables.

Finally, logistic regression was used to quantitatively describe the influencing factors of AI anxiety.

The study selected 188 statistics students from public universities in Ankara. I passed a questionnaire to get their Gender, University, Year of Study, GPA, Internship Experience, AI and Automation Knowledge Level, Impact of AI on Career Plans, Impact of AI on Job Opportunities, Concern Level, Anxiety Level, If I Studied Engineering, Math Courses Help Understand AI, Statistics Curriculum Helps Adapt, Satisfaction with Studying Statistics, Education Prepares for AI Field, Future Focus on AI and Automation. All data is multi-classified.

4. Data Analysis & Results

4.1 Descriptive Statistics

Because the data used in the research are classified data and the classifications are ordered, this study is encoded from low to high from 1. The descriptive statistics of the data are shown in Table 1:

Table1 Result of Descriptive Statistics

Variable	Sample	Max	Min	Avg	Std	Median	Variance	CV
Impact of AI on Career Plans	188	2	1	1.383	0.487	1	0.238	0.352
Impact of AI on Job	188	3	1	1.511	0.791	1	0.626	0.524

Variable	Sample	Max	Min	Avg	Std	Median	Variance	CV
Opportunities								
Concern Level	188	4	1	2.122	0.948	2	0.899	0.447
Anxiety Level	188	4	1	2.021	1.034	2	1.069	0.512
Math Courses Help Understand AI	188	3	1	1.718	0.739	2	0.546	0.43
Statistics Curriculum Helps Adapt	188	3	1	1.824	0.875	2	0.766	0.48
Satisfaction with Studying Statistics	188	5	1	3.213	0.9	4	0.81	0.28
Education Prepares for AI Field	188	3	1	2.112	0.933	2	0.87	0.442
Future Focus on AI and Automation	188	2	1	1.303	0.461	1	0.212	0.354
Research Opportunities at University	188	2	1	1.559	0.498	2	0.248	0.319
AI Influence on Choosing Statistics	188	4	1	2.335	1.133	2.5	1.283	0.485
Difficulties in Internship Interviews	188	3	1	2.574	0.781	3	0.609	0.303
Gender	188	2	1	1.42	0.495	1	0.245	0.348
University	188	4	1	2.021	1.08	2	1.165	0.534
Year of Study	188	6	1	3.362	1.663	4	2.767	0.495
GPA	188	5	1	2.085	0.961	2	0.923	0.461
Internship Experience	188	2	1	1.638	0.482	2	0.232	0.294
AI and Automation Knowledge Level	188	4	1	2.665	0.787	3	0.62	0.295

Among the 188 samples, the AI Anxiety contained 4 levels, with an average of 2.021 and a standard deviation of 1.034, indicating that for statistics students in Ankara State, the phenomenon of AI Anxiety exists and reaches "Slight anxiety". The coefficient of variation (CV) is 0.512, indicating that there is a significant difference in AI Anxiety among students. Some students are not anxious about AI, while some students are particularly anxious about AI.

4.2 Correlation analysis

From the correlation analysis results in Table 2, it can be found that there is a correlation between Anxiety Level and AI and Automation Knowledge Level at a significance level of 1%, with a correlation coefficient of -0.168, indicating that with the improvement of AI and Automation Knowledge Level, students' anxiety level will decrease to a certain extent. In addition, it can also be found that there are significant correlations between Impact of AI on Job Opportunities, Concern Level and Anxiety Level at the 1% level.

Table2 Result of Correlation analysis

Other Variable	Anxiety Level
Gender	-0.025(0.719)
University	-0.021(0.738)
Year of Study	0.021(0.732)
GPA	0.056(0.381)

Other Variable	Anxiety Level
Internship Experience	0.128(0.062*)
AI and Automation Knowledge Level	-0.168(0.009***)
Impact of AI on Career Plans	-0.092(0.182)
Impact of AI on Job Opportunities	0.369(0.000***)
Concern Level	0.375(0.000***)
Math Courses Help Understand AI	-0.033(0.610)
Statistics Curriculum Helps Adapt	-0.077(0.239)
Satisfaction with Studying Statistics	0.075(0.251)
Education Prepares for AI Field	0.074(0.260)
Future Focus on AI and Automation	-0.019(0.780)
Research Opportunities at University	0.098(0.152)
AI Influence on Choosing Statistics	0.042(0.502)
Difficulties in Internship Interviews	-0.081(0.227)
PS: ***, **, *represent significance levels of 1%, 5%, and 10%, respectively	

4.3 Logistic Regression

Because the dependent variable Y (AI Anxiety) and the independent variable X (AI and Automation Knowledge Level) are both ordinal categorical variables, Logistic Regression was selected to analyze the correlation between the two, and "No Anxiety" was set as the control group, and other AI anxiety levels were set as the experimental group, and the results of Logistic Regression are given in Table 3 below :

Table2 Result of Logistic Regression

Slight anxiety	Regression coefficients	Std	Wald	P	OR
Constant	-0.588	0.558	1.111	0.292	0.556
No knowledge	2.054	0.849	5.849	0.016**	7.8
Little knowledge	0.805	0.605	1.771	0.183	2.236
Moderate knowledge	0.588	0.634	0.859	0.354	1.8
Moderate anxiety	Regression coefficients	Std	Wald	P	OR
Constant	-2.197	1.054	4.345	0.037**	0.111
No knowledge	2.89	1.269	5.185	0.023**	18
Little knowledge	1.534	1.096	1.96	0.161	4.636
Moderate knowledge	1.052	1.14	0.852	0.356	2.864
PS: ***, **, *represent significance levels of 1%, 5%, and 10%, respectively					

It can be found that there is a significant correlation between No knowledge and Slight anxiety at the 5% significance level, indicating that if there is no AI and Automation Knowledge Level learning, it will cause mild anxiety and moderate anxiety, while there is no significant effect on anxiety with the improvement of knowledge level.

OR value: The probability of event occurrence in the experimental group/the probability of event occurrence in the control group. The OR value of the 0-1 categorical independent variable for dummy variable is: for every unit increase

of this variable (that is, the classification level changes from 0 to 1), the probability of an event in the experimental group changes compared to the probability of an event in the control group (OR value-1)% (OR value-1)%

5. Conclusion

Through descriptive statistics, correlation analysis and logistic regression, this paper concludes that there is a certain negative correlation between AI and automation knowledge level and AI anxiety, especially the probability of Slight anxiety and Moderate anxiety can be significantly increased by no knowledge. Overly advanced AI and Automation Knowledge Level have no significant effect on alleviating AI anxiety. Based on the results of this study, the following recommendations are proposed : The government and schools should actively promote AI and Automation Knowledge Level to alleviate possible psychosocial problems.

Of course, there are some limitations in this paper, such as the selected sample has certain regional characteristics, only students from Ankara State are selected for the questionnaire survey, and the sample size of the study is limited, and the robustness of the conclusions need to be improved. Finally, because the questionnaire survey data is selected for analysis, and the collected data are mainly multi-categorical data, no standard AI Anxiety scale has been used, and the measurement criteria of the data can be improved to test the robustness of the conclusions.

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