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The Use of AI by Students at the Faculty of Communication, Universitas Muhammadiyah Surakarta

Tiara Ghoniyatul Ulya[1], Fajar Junaedi[2]*

[1,2]Department of Communication Studies, Universitas Muhammadiyah Surakarta, Indonesia
Correspondence: E-mail: l100214248@student.ums.ac.id[1], fajarjun@gmail.com[2]

ABSTRACT

The development of artificial intelligence (AI) technology has seen significant growth in recent years and had a direct impact on various sectors, one of which is higher education. Artificial intelligence technology serves as a tool to support the completion of academic tasks, the formulation of ideas, and the exploration of learning materials. This study aims to analyze the use of AI technology in an academic context, identify the motives, and determine the types of gratification students receive after using AI from the perspective of Uses and Gratification theory. The method used is a descriptive quantitative approach with data collection through a survey. The instrument will be developed based on the five main indicators of the Uses and Gratification theory (cognitive, affective, personal integrative, social integrative, and escapism.

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1. INTRODUCTION

The development of digital technology has brought significant transformation to the world of higher education. One of the most significant innovations is the presence of Artificial Intelligence (AI), which encompasses various methodologies and techniques aimed at mimicking human intelligence and solving complex problems (Oprea, 2021). Various applications such as ChatGPT, Grammarly, and QuillBot are now widely used to support academic writing, literature searches, and online learning discussions. This phenomenon marks a paradigm shift in learning that positions smart technology as an intellectual support for students in carrying out their daily academic activities.

Although AI is frequently used in higher education environments, most previous research has focused on technical aspects such as the effectiveness of AI-based learning systems, improvement in learning outcomes, and the development of adaptive models in e-learning. These results do show positive potential, but there are still few studies that highlight how students use AI based on their personal, social, and academic motives. In other words, the psychological and social dimensions of AI usage have rarely been studied in depth, even tho these factors determine the extent to which technology truly provides satisfaction and benefits to its users.

Research conducted by Vintere et al. (2025) states that artificial intelligence is becoming increasingly popular among students, facilitating the learning process, including in mathematics education. The use of artificial intelligence in education is important for personalizing the learning experience, optimizing learning pathways, and improving academic performance, thereby reducing difficulties in learning mathematics.

Research by Yongjuan (2020) emphasizes that the application of an AI-based ecological teaching model can strengthen pedagogical innovation in English language education in the era of artificial intelligence. This model encourages the creation of an interactive, adaptive, and sustainable learning ecosystem, where technology does not replace the role of teachers but serves as a facilitator to enhance teaching effectiveness.

Next, Jiali et al. (2024) state that artificial intelligence has revolutionized the learning system by creating a more adaptive, efficient, and inclusive learning experience. However, this technology must be applied wisely to function as a complement, not a replacement for the role of teachers. Educator training, data protection, and digital infrastructure development are key factors for the successful implementation of AI in education.

Research involving AI was conducted by Yavuz et al. (2025) in the implementation of an AI-supported flipped classroom, which proved to enhance AI literacy, motivation, and personalized learning experiences for students, as well as strengthen collaboration and active participation. This model is effective in creating student-centered learning in higher education. However, issues of time management and technology readiness need to be addressed in the next implementation in the university environment.

AI research within the university context was also conducted by Gutiérrez-Castillo et al. (2025). The integration of AI in higher education has proven to enhance efficiency, engagement, and academic outcomes for students. However, its effectiveness depends on the acceptance of technology and the intrinsic motivation of students.

The research aligns with the study by Nyamwange (2025), which states that the application of AI in higher education in Kenya is still in its early stages but shows great potential to enhance the quality of learning, interaction, and adaptive feedback. And the importance of faculty training, infrastructure investment, and ethical policies so that AI integration can run optimally and inclusively.

In line with several studies mentioned above, the use of AI in LMS (Learning Management Systems) during the period 2004-2023 has been widely adopted in several countries according to the research by Vergara et al. (2024) which states that publications related to this topic have experienced an annual growth of 25.42%, with a significant surge since 2019. Most of the documents were published in the form of conference proceedings (55.08%) and journal articles (35.16%), involving 819 authors from 55 countries. The countries with the largest contributions are India, Spain, the United States, and Saudi Arabia, while Spain and India have the highest number of citations by involving AI in educational approaches.

In order to understand how students actively and strategically use AI, the Uses & Gratifications Theory (UGT) becomes very relevant. This theory was first developed by Herzog (1940) in his study titled "gratification study," which examined a program called Professor Quiz. It was then further developed by Katz et al. (1974), emphasizing that media users are not passive but rather individuals who consciously choose specific types of media to fulfilll cognitive, affective, integrative, as well as social and relaxation needs. With this approach, the use of AI in the student environment is no longer seen merely as a technological impact, but as a result of personal and contextual motivations.

According to this phenomenon, the use of AI in education is closely related to the effectiveness, innovation, efficiency, and quality of education itself. However, there has been no research examining the use of AI based on the Uses & Gratification Theory (UGT) to understand the motives, needs, and satisfaction of its users.

Based on this background, the researcher sees the importance of conducting a study titled "The Use Of AI By Students In Communication Faculty Of Universitas Muhammadiyah Surakarta: A Uses and Gratifications Perspective." This research aims not only to provide a factual overview of the trend of AI usage among students but also to explain the motives, needs, and satisfaction behind such behavior from the perspective of relevant and contextual communication theory.

2. METHOD

This study employs a descriptive quantitative approach with a non-experimental survey design to measure students' perceptions and intensity of Artificial Intelligence (AI) usage in academic activities. Quantitative methods are applied to systematically examine social phenomena through numerical data and measurement procedures (Sciberras & Dingli, 2023). The research does not manipulate variables but observes existing conditions in natural settings, a common approach in education and communication studies to understand behavioral patterns toward technology (Haring et al., 2021). Primary data were collected from active Communication Science students of Universitas Muhammadiyah Surakarta (cohorts 2021–2024) who have used AI for academic purposes. A purposive sampling technique was applied, resulting in 100 respondents, exceeding the minimum sample requirement based on the formula 50 + 8m (Tabachnick et al., 2019). Data were obtained through online structured questionnaires using a five-point Likert scale, while secondary data from journals and

literature were used to strengthen theoretical grounding based on Uses and Gratification Theory (UGT).

Data analysis was conducted using descriptive and inferential statistical techniques. Instrument quality was tested through validity using Pearson Product Moment correlation (Pearson, 1948) and reliability using Cronbach's Alpha (>0.70) (Cronbach, 1951). Data distribution normality was assessed using the Lilliefors test (Lilliefors, 1967), followed by correlation analysis to determine the relationship strength between variables based on established coefficient intervals (Pearson, 1948). Furthermore, simple linear regression analysis was applied using the model Y = a + bX + e, where coefficients a and b were calculated following Galton's formulation (Galton, 1886), and significance was tested using SPSS based on a 0.05 threshold. Hypothesis testing determined whether AI usage significantly influences student satisfaction, with decision rules based on p-value interpretation (<0.05 or >0.05), thereby confirming whether the alternative hypothesis is supported within the framework of Uses and Gratification Theory.

3. RESULT AND DISCUSSION

Description of Respondent

Table 1 presents the distribution of respondents' attributes based on cohort among Communication Studies students at Universitas Muhammadiyah Surakarta.

Table 1. attributes of participants according to cohort

No	Cohort	F	%
1	2021	25	25
2	2022	25	25
3	2023	25	25
4	2024	25	25
TOTAL		100	100

One hundred active students from Universitas Muhammadiyah Surakarta's Communication Studies Program (class of 2021–2024) were selected as respondents, all of whom met the criteria of being enrolled students who had utilized artificial intelligence (AI) in their coursework. The sample represents a broad range of academic stages, from early to advanced cohorts, thereby capturing varied levels of study experience. In general, respondents use AI to support learning activities such as information retrieval, assignment preparation, and the development of academic ideas. Overall, this composition is considered sufficiently representative in illustrating the use of AI and the level of student satisfaction within the Communication Studies Program.

Results of the Respondent Questionnaire

Based on data processing results from 100 respondents, the average values indicate that the use of AI variable (X) is 4.07, while the gratification/satisfaction variable (Y) is 3.41. The examination of AI application variables is further elaborated through four main dimensions that reflect respondents' perceptions and usage patterns of AI in relation to their satisfaction levels:

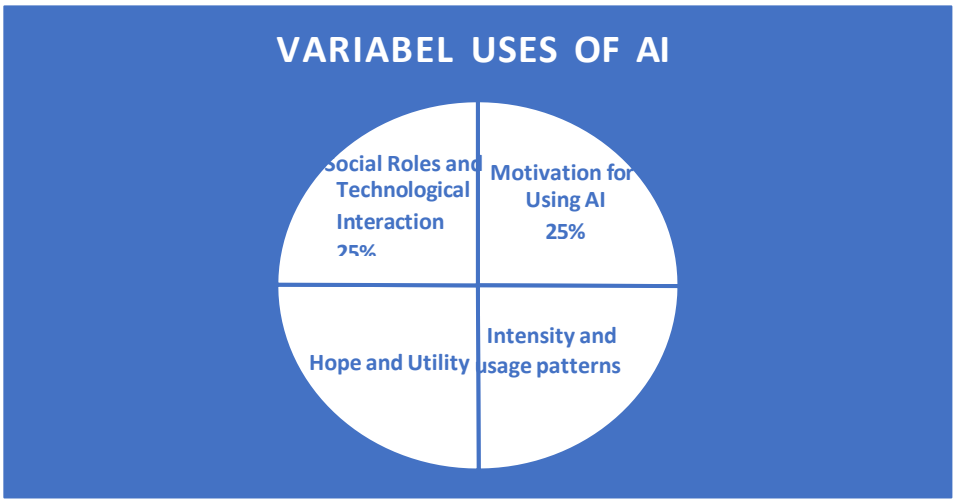

Figure 1. Dimensional Analysis of Research

Examination of the Gratification variable with five primary dimensions:

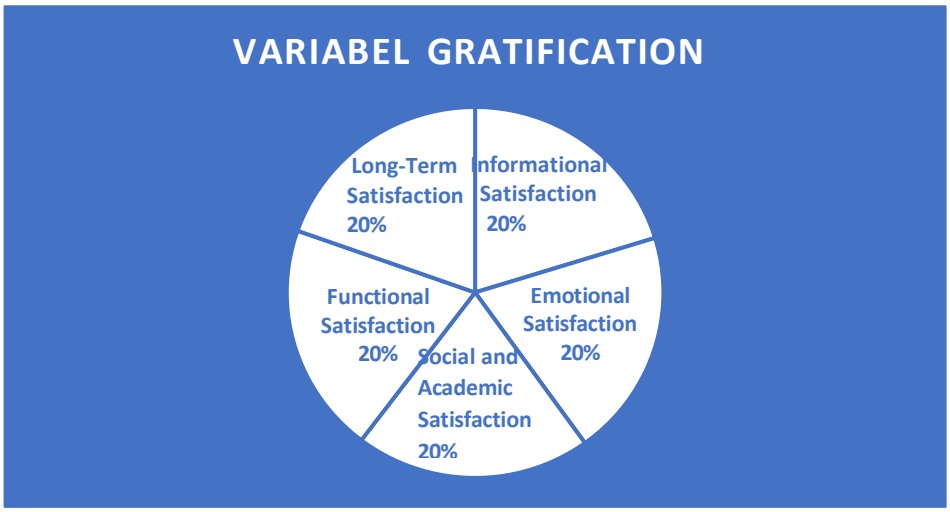

Figure 2. Dimensional Analysis of Research

The analysis's findings indicate that students' use of AI has advanced to a significant degree and is now a crucial component of their education. The degree of satisfaction attained, however, remains in the moderate range, suggesting a discrepancy between the perceived quality of benefits and the intensity of use. This suggests that even while AI has gained widespread acceptance, there is still room for improvement in terms of optimizing its application in academic settings.

Descriptive Statistics

Table 2 presents the results of the descriptive statistical analysis of the student satisfaction variable (Ytot), including measures of central tendency, dispersion, and distribution characteristics.

Table 2. Results of descriptive statistical analysis

			Statistic	Std.Error
Ytot	Mean		34.07	0.574
	95% Confidence Interval for Mean	Lower Bound	32.93	
		Upper Bound	35.21	
	5% Trimmed Mean		33.98	

Median	33.00	
Variance	32.955	
Std. Deviation	5.741	
Minimum	22	
Maximum	49	
Range	27	
Interquartile Range	9	
Skewness	0.276	0.241
Kurtosis	-0.179	0.478

The variable of student satisfaction (Ytot) has a mean value of 34.07 with a standard error of 0.574, while the 95% confidence interval indicates that the population mean lies between 32.93 and 35.21, suggesting a relatively stable estimate. The trimmed mean (33.98) and median (33.00) indicate that extreme values have minimal influence, reflecting a fairly balanced distribution. The variance (32.955) and standard deviation (5.741) show moderate variability among respondents' answers, with scores ranging from a minimum of 22 to a maximum of 49 (range = 27), indicating diverse perceptions of satisfaction. The interquartile range of 9 further suggests that most data are concentrated within a relatively narrow spread. In terms of distribution shape, the skewness value of 0.276 indicates a slight right skew but still within the acceptable normality range (-1 to +1), while the kurtosis value of -0.179 suggests a distribution that is close to mesokurtic (approximately normal). Overall, these descriptive statistics show no severe deviations from normality and indicate that student satisfaction tends to be relatively high with a reasonably normal distribution, thereby meeting the preliminary assumptions required for subsequent inferential analysis.

Research Instrument Test

Validity Test

The validity test is conducted to determine whether each questionnaire item is capable of accurately measuring the intended research variables. The assessment is based on Pearson correlation, where an item is considered valid if the correlation value is higher than the r-table value (0.197) and the significance value is below 0.05. The results of the validity test indicate that all items across both variables meet these criteria, as all Pearson correlation coefficients are greater than 0.197 and all significance values are below 0.05 (< 0.001). Therefore, all questionnaire items are declared valid and appropriate for further analysis. This table 3 presents the validity results of the AI usage variable based on Pearson correlation analysis.

Table 3. AI Usage Validity Test

Item	Pearson Correlation	Sig. (2-tailed)
X1	0.636	< 0.001
X2	0.728	< 0.001
X3	0.733	< 0.001
X4	0.730	< 0.001
X5	0.640	< 0.001
X6	0.743	< 0.001
X7	0.698	< 0.001
X8	0.738	< 0.001
X9	0.765	< 0.001
X10	0.744	< 0.001

This table 4 presents the validity results of the student gratification variable based on Pearson correlation analysis.

Table 4. Student Gratification Validity Test

Item	Pearson Correlation	Sig. (2-tailed)
X1	0.725	< 0.001
X2	0.694	< 0.001
X3	0.787	< 0.001
X4	0.699	< 0.001
X5	0.735	< 0.001
X6	0.723	< 0.001
X7	0.785	< 0.001
X8	0.744	< 0.001
X9	0.733	< 0.001
X10	0.789	< 0.001

Reliability Test

Before presenting the table, a brief explanation is provided. Reliability testing was conducted to measure the internal consistency of the research instruments used in this study, as shown in Table 5, Reliability Test Results.

Table 5. Reliability test results

Variable	Cronbach's Alpha	N of Items
AI Usage(X)	0,894	10
Student Gratification (Y)	0,911	10

Based on Table 5, the Cronbach's Alpha value for the AI Usage variable is 0.894, while Student Gratification is 0.911. Both values exceed the minimum threshold of 0.70, indicating that the instruments have a high level of internal consistency and are reliable for measuring the research variables.

Classical Assumption Test

Before presenting the table, a brief explanation is provided. The normality test was conducted using SPSS to determine whether the data are normally distributed, as shown in Table 6, Normality Test Results.

Table 6. Results of the normality test with SPSS

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Ytot	.095	100	.027	.986	100	.403

Based on Table 6, the Shapiro-Wilk test shows a significance value of 0.403 (> 0.05), indicating that the data are normally distributed. Although the Kolmogorov-Smirnov test shows a significance value of 0.027 (< 0.05), the decision is based on the Shapiro-Wilk result due to its suitability for the sample size, so it can be concluded that the data meet the assumption of normality.

Simple Linear Regression Analysis

The simple linear regression analysis shows an R^2 value of 0.204, indicating that artificial intelligence (AI) utilization explains 20.4% of the variation in student satisfaction, while the remaining 79.6% is influenced by other factors outside the model. This suggests that AI has a moderate contribution to student satisfaction.

The regression equation is Y = 12.063 + 0.541X. The constant value of 12.063 indicates the baseline level of student satisfaction when AI utilization is zero or constant. Meanwhile, the

coefficient of 0.541 shows that each one-unit increase in AI utilization leads to a 0.541 increase in student satisfaction, indicating a positive relationship between the two variables.

The coefficient of determination results are presented in Table 7, while the regression coefficients are shown in Table 8.

Table 7. Coefficient of Determination Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.451a	.204	.195	5.149

The R^2 value of 0.204 indicates that artificial intelligence (AI) utilization explains 20.4% of the variation in student satisfaction, while the remaining 79.6% is influenced by other factors outside the model. This suggests a moderate contribution of AI to student satisfaction.

Table 8. Coefficient test results

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	12.063	4.427		2.725	.008
	Xtot	.541	.108	.451	5.005	<.001

The regression equation is Y = 12.063 + 0.541X. The constant (12.063) represents the baseline level of student satisfaction when AI utilization is zero, while the coefficient of 0.541 indicates that each one-unit increase in AI utilization increases student satisfaction by 0.541 units. This shows a positive relationship between AI utilization and student satisfaction. Before presenting the table, a brief explanation is provided. The ANOVA test (*F-test*) was conducted to examine whether the independent variable has a simultaneous effect on the dependent variable, as shown in Table 9, ANOVA (*F-test*) Results.

Table 9. ANOVA (F-Test)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	664.117	1	664.117	25.048	<0.001b
	Residual	2598.393	98	26.514		
	Total	3262.510	99			

Based on Table 9, the significance value is < 0.001, which is smaller than 0.05, indicating that the independent variable has a significant simultaneous effect on the dependent variable. Thus, the regression model is considered statistically significant and suitable for explaining the relationship between variables.

Discussion

The findings of this study indicate that the use of Artificial Intelligence (AI) has a positive and significant effect on student satisfaction in the Communication Studies Program at Universitas Muhammadiyah Surakarta. This suggests that higher intensity of AI usage is associated with higher levels of student satisfaction. These results are consistent with previous studies that highlight the role of AI in improving learning effectiveness, personalization, and student engagement in higher education (Vintere et al., 2025; Gutiérrez-Castillo et al., 2025).

Empirically, AI is not only used as a technological tool but also as a learning support system that assists students in searching for references, generating ideas, organizing assignments, and improving academic writing quality. Factors such as efficiency and ease of access to information play an important role in increasing satisfaction. This is in line with findings by Jiali et al. (2024), which emphasize that AI enhances learning efficiency and creates a more adaptive and inclusive learning experience.

Although the coefficient of determination shows that AI only explains part of the variation in student satisfaction, this finding is still meaningful because student satisfaction is also influenced by other factors such as learning motivation, digital literacy, academic environment, and perceptions of technology usefulness. Similar limitations and influencing factors were also identified in previous studies, such as motivation, technological readiness, and institutional support (Yavuz et al., 2025; Nyamwange, 2025).

These results are consistent with the Uses and Gratification Theory, which explains that individuals actively choose media or technology to fulfill their needs. In this context, students use AI to meet their cognitive and academic needs, resulting in positive satisfaction. This supports the idea that AI usage is driven by user motivation and perceived usefulness, rather than passive adoption of technology (Katz et al., 1974; Haridakis & Humphries, 2019).

Overall, these findings confirm that AI usage in higher education is not only related to technological adoption but also closely connected to students' learning experiences and satisfaction. This aligns with the broader perspective that AI contributes to educational transformation when used appropriately and responsibly (Yongjuan, 2020; Vergara et al., 2024).

4. CONCLUSION

This study demonstrates that the use of Artificial Intelligence (AI) has a positive and significant effect on student satisfaction in the Communication Studies Program at Muhammadiyah University of Surakarta, where higher levels of AI utilization are associated with greater satisfaction in the learning process. AI has become an integral part of students' academic activities, not only supporting task completion but also enhancing understanding, idea development, and learning efficiency, thereby creating a more flexible and responsive learning environment. Although AI is not the sole factor influencing student satisfaction, it plays an important role alongside other determinants such as personal motivation, learning environment, and technological competence. Overall, the findings suggest that AI integration in higher education represents not only a technological trend but also a transformation in learning practices, where appropriate and responsible use of AI can improve the quality of student learning experiences. However, this study has several limitations, including its cross-sectional design which only captures data at one point in time, limiting the ability to observe changes in AI usage over time; its restricted sample limited to Communication Studies students at Universitas Muhammadiyah Surakarta, which reduces generalizability to other contexts; and the limited explanatory power of the model, indicating that other factors such as digital literacy, learning motivation, perceived usefulness, academic ethics, and learning independence were not included in the analysis.

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