



## Enhancing Accounting Learning Motivation Through Artificial Intelligence Driven Optimization Strategies for Students

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### ABSTRAK

Penelitian ini mengeksplorasi dampak AI terhadap motivasi belajar mahasiswa akuntansi, dengan menggunakan pendekatan kausalitas asosiatif kuantitatif. Penelitian yang melibatkan 31 mahasiswa akuntansi di Universitas Negeri Medan ini mengungkapkan bahwa terdapat pengaruh signifikan penggunaan AI terhadap motivasi belajar mahasiswa sebesar 61,4%. Studi ini menganjurkan pengintegrasian AI ke dalam kurikulum akuntansi untuk meningkatkan motivasi mahasiswa dan mempersiapkan mereka menghadapi tuntutan era digital. Sisanya, 38,6% faktor yang memengaruhi motivasi memerlukan penyelidikan lebih lanjut. Secara keseluruhan, temuan ini menekankan peran penting AI dalam membentuk hasil pendidikan di bidang akuntansi dan menggarisbawahi pentingnya kompetensi teknologi bagi mahasiswa dalam lanskap yang terus berkembang.

This research explores the impact of AI on accounting students' learning motivation, using a quantitative associative causality approach. This research, which involved 31 accounting students at Medan State University, revealed that there was a significant influence of the use of AI on student learning motivation of 61.4%. This study advocates integrating AI into accounting curricula to increase student motivation and prepare them for the demands of the digital era. The remaining 38.6% of factors influencing motivation require further investigation. Overall, these findings emphasize the critical role of AI in shaping educational outcomes in accounting and underscore the importance of technological competency for students in an evolving landscape.

## 1. INTRODUCTION

The development of the times demands higher quality undergraduate graduates, students are required to have more abilities (skills) and knowledge (knowledge) in the world of work. The skills and knowledge required also depend on the career or profession you choose. One career that requires more skills and knowledge is a career in accounting (Manik et al., 2022). The increasingly rapid development of technology and information requires all professional fields to continue to develop ways of working quickly and precisely so as not to be left behind by the times and to achieve goals efficiently. Likewise, the field of Accounting, a branch of economics, studies various types of financial analysis. With increasingly modern technology, it demands that accounting can make more use of technology. In the rapidly developing digital era, the development of artificial intelligence (AI) technology has changed many aspects of our lives, including education. The field of accounting, as an important element in the world of business and finance, cannot be separated from the impact of this technological revolution. The use of AI in accounting learning has become an increasingly interesting and relevant topic, especially in efforts to increase student motivation and learning outcomes. This is proven by the existence of Artificial Intelligence (AI) which is widely discussed in accounting. Artificial Intelligence (AI) is a field of study regarding intelligent thoughts that can be used as a form of carrying out calculations (Singh and Singh, 2010). However, AI still raises pros and cons in its implementation in the accounting field due to the lack of adequate information.

In the digital era that continues to develop, artificial intelligence (AI) technology has entered various aspects of our lives, including the world of education. One of the scientific disciplines that has felt a major impact from technological advances is accounting. The use of AI in accounting learning has opened the door to exciting and promising opportunities for students studying in this field. As a discipline that requires a deep understanding of sometimes complex concepts, accounting can be a challenging subject and requires strong motivation to successfully understand it. The name Artificial Intelligence was coined by John McCarthy and is an experimental branch of computer science that follows its goal of creating intelligent machines that can perform various tasks using their intelligence (Yadav A, 2017). On the one hand, AI itself has a positive impact through changes in ways of working, outlook on life and ways of learning. However, on the other hand, this technological progress also raises various concerns that at some point human work will begin to experience a decline in qualifications. Over the decades, intelligent systems will take over more and more decision-making tasks from humans. Both from an educational perspective and from a practitioner perspective. The impact of AI can include providing customized learning content, instant feedback, and more interactive learning experiences.

The integration of AI in accounting education brings transformative changes, offering personalized learning experiences tailored to individual students' understanding levels. AI analyzes student data to provide instant feedback and recommendations, enhancing comprehension of accounting concepts. It fosters interactive learning, boosting student engagement and interest. Motivation, a crucial factor in learning, is often challenging to achieve in subjects like accounting. AI addresses this complexity by optimizing learning motivation through personalized approaches. Furthermore, AI opens avenues for immersive learning experiences using technologies like AR and VR. The positive impacts of AI include personalized learning, instant feedback, abundant resources, and progress monitoring. Research aims to explore the profound influence of AI on students' learning motivation in accounting, utilizing case studies and the latest AI developments. Understanding this impact can lead to improvements in education, ultimately enhancing student success in the accounting field.

## 2. THEORETICAL FRAMEWORK

### Understanding AI

Artificial intelligence (AI) is an understanding that allows computers to imitate human intelligence to perform tasks that require thinking. AI has the ability to process large amounts of data at high speed and make predictions that are more accurate than human capabilities. The following is the definition of AI according to the views of several experts: (1) According to John McCarthy (1956), argued that Artificial Intelligence (AI) tries to imitate human thought processes by designing machines to imitate humans. (2) According to Gaskin (2008), AI is intelligence that is implanted in an artificial entity, enabling it to carry out tasks that are usually carried out by humans. From various previous definitions, artificial intelligence provides a framework and test for the concept of intelligence. These concepts can be translated into programming languages and executed on real computers. Just as humans have brains, computers can have software that acts like a brain. Humans' ability to solve problems is not only due to the ability to think and analyze, but also because they have access to databases, knowledge, and information obtained from experience and the learning process. One artificial intelligence technology that is often used for learning is ChatGPT Open AI.

### Understanding Motivation in Learning

Motivation is a factor that encourages individuals to take action to achieve certain goals. This term comes from the word "motive" which refers to the impulse or energy that spurs someone to act. The following are several definitions of motivation according to experts: (1) Mc. Donald (in Sardiman 2007:73) motivation can be explained as a change in energy within an individual which is visible through the emergence of certain feelings, which are triggered by a response to existing goals. (2) According to Mulyasa (2003:112), motivation is a force that encourages or attracts individuals to act towards a specific goal. Students' persistence in learning is influenced by their level of motivation. A student's willingness to learn depends on the driving factor known as motivation. From these various meanings and definitions, motivation is an internal state that encourages individuals to change their behavior or responses. It involves changes in energy within a person, which arise through certain feelings that arise in response to a goal. This definition emphasizes that motivation is a force that moves individuals towards certain goals with the presence of driving factors that influence individual persistence, especially in the educational context, where high motivation can play a role in encouraging students to learn and make serious efforts. A student will be active in the learning process if there is an internal drive that drives him, which is known as motivation.

### Understanding Accounting

Definition of accounting according to several experts: (1) Warren, C.S., Reeve, J.M., & Fess, P.E. (2005) accounting is an information system related to a company's economic activities, which provides information to stakeholders. (2) Munawir, S. (2005), accounting is an artistic process that involves recording, grouping and summarizing financial events immediately. This also includes interpreting the consequences of these financial events within the company. (3) Weygant, J.J., Kieso, D.E., Kimmel, P.D., Trenholm, B., Warren, V., & Novak, L. (2019), accounting includes the process of recognizing, recording, and conveying economic transactions from an entity to its stakeholders. stakeholders. They also view that reporting in accounting will be adjusted to the audience of financial reports. For example, management accounting focuses on providing financial information to internal parties, especially top management, who will make important decisions. Based on this definition, accounting can be explained as an information system related to a company's economic activities, providing information to stakeholders. More

than just recording, accounting also involves the art of recording, grouping and summarizing financial events as quickly as possible and interpreting the impact of financial events within a company. This emphasizes the importance of accounting as an instrument for providing information and understanding about a company's financial health to the various parties involved.

## **Data analysis method**

### **a. Skala Likert**

According to Siregar (2016:138), the Likert scale is a measurement tool that is useful for assessing individual views, opinions and perceptions of a particular object or phenomenon. The author specifies this phenomenon specifically as a research variable.

### **b. Validity test**

According to Siregar (2016: 162), validity, or accuracy, is a measure of the extent to which a measuring instrument is able to measure what is intended. On the other hand, Muhidin and Abdurahman (2017:30) state that a measurement instrument is considered valid if it is able to measure accurately what it wants to measure. To test validity, a comparison was used between the  $r_{count}$  and  $r_{table}$  values with a significance level of 0.05. If  $r_{count}$  is less than  $r_{table}$ , then the instrument is considered invalid; conversely, if  $r_{count}$  is greater than  $r_{table}$ , the instrument is considered valid

### **c. Reliability Test**

According to Muhidin and Abdurahman (2017:37), a measurement instrument is considered reliable if the measurements are consistent and accurate. Therefore, a reliability test is carried out to evaluate the consistency of the measuring instrument, so that the measurement results can be relied on. Reliability of measurement results can only be realized if similar results are obtained in several measurement sessions on the same subject, provided that the characteristics measured on the subject do not change. In this research, the author tested reliability using the Cronbach's Alpha formula as an evaluation method.

### **d. Normality test**

According to Priyastama (2017:117), the normality test functions to assess whether the residual values originating from regression analysis have a distribution that follows a normal distribution pattern or not.

### **e. Heteroscedasticity Test**

According to Priyastama (2017: 125), heteroscedasticity refers to a situation where the residual variation is inconsistent between one observation and another in the regression model. The ideal regression model is one that does not experience heteroscedasticity.

### **f. Simple Linear Regression Analysis**

According to Muhidin and Abdurahman (2017: 187), regression analysis is used to explore the relationship between two or more variables, especially in situations where the pattern of the relationship is not yet fully known or to understand how variations in several independent variables influence the dependent variable in a complex phenomenon. .

### **g. T Test**

According to Priyastama (2017:88), the t test is used to test the influence of each independent variable separately on the dependent variable. Apart from that, this test is used to test hypotheses related to each variable.

#### **h. Coefficient of Determination Test**

The Coefficient of Determination is a measure used to assess the extent to which the independent variable (X) contributes to variation (change) in the dependent variable (Y). In other words, how large a percentage of the variation in variable Y can be explained by variable X, while the remaining variation is explained by other factors.

Based on the problem formulation, research objectives, supporting theories, the hypotheses proposed in this research are as follows:

H0	There is no significant influence between the use of AI in accounting learning on increasing student motivation.
H1	There is a significant influence between the use of AI in accounting learning on increasing student motivation.

### **3. RESEARCH METHODS**

This research uses quantitative methods with associative causality. This research was carried out by distributing a questionnaire in the form of questions and answers with a Likert scale. The respondents were students who were studying higher education majoring in accounting at Medan State University. The type of data in this research is quantitative research which includes collecting questionnaire answer score data. The data source used in this research is classified as primary data, namely the results of questionnaire answers from respondents. The population in this study were all accounting students at Medan State University.

The sample determination method uses a nonprobability sampling method with a purposive sampling technique. The respondents included accounting students with a sample of 31 people. The method used in collecting data for this research was a survey using a questionnaire. This research uses simple linear regression analysis as a data analysis technique.

## 4. RESULTS AND DISCUSSION

### a. Validity test

Table 1 Validity Test Results for AI Use Variables (X)

		Correlations				
		Q7	Q8	Q9	Q10	TOTAL
Q1	Pearson Correlation	.368*	.634**	.331	.570**	.694**
	Sig. (2-tailed)	.042	.000	.069	.001	.000
	N	31	31	31	31	31
Q2	Pearson Correlation	.584**	.510**	.686**	.586**	.799**
	Sig. (2-tailed)	.001	.003	.000	.001	.000
	N	31	31	31	31	31
Q3	Pearson Correlation	.471**	.609**	.613**	.632**	.836**
	Sig. (2-tailed)	.008	.000	.000	.000	.000
	N	31	31	31	31	31
Q4	Pearson Correlation	.477**	.562**	.494**	.636**	.816**
	Sig. (2-tailed)	.007	.001	.005	.000	.000
	N	31	31	31	31	31
Q5	Pearson Correlation	.481**	.555**	.626**	.525**	.764**
	Sig. (2-tailed)	.006	.001	.000	.002	.000
	N	31	31	31	31	31
Q6	Pearson Correlation	.640**	.369*	.511**	.622**	.720**
	Sig. (2-tailed)	.000	.041	.003	.000	.000
	N	31	31	31	31	31
Q7	Pearson Correlation	1	.389*	.718**	.606**	.736**
	Sig. (2-tailed)		.031	.000	.000	.000
	N	31	31	31	31	31
Q8	Pearson Correlation	.389*	1	.421*	.462**	.714**
	Sig. (2-tailed)	.031		.018	.009	.000
	N	31	31	31	31	31
Q9	Pearson Correlation	.718**	.421*	1	.641**	.786**
	Sig. (2-tailed)	.000	.018		.000	.000
	N	31	31	31	31	31
Q10	Pearson Correlation	.606**	.462**	.641**	1	.821**
	Sig. (2-tailed)	.000	.009	.000		.000
	N	31	31	31	31	31
TOTAL	Pearson Correlation	.736**	.714**	.786**	.821**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	31	31	31	31	31

Table 2 Motivational Variable Validity Test Results (Y)

		Correlations				
		Q1	Q2	Q3	Q4	TOTAL
Q1	Pearson Correlation	1	.564**	.613**	.481**	.810**
	Sig. (2-tailed)		.001	.000	.006	.000
	N	31	31	31	31	31
Q2	Pearson Correlation	.564**	1	.543**	.606**	.838**
	Sig. (2-tailed)	.001		.002	.000	.000
	N	31	31	31	31	31
Q3	Pearson Correlation	.613**	.543**	1	.616**	.840**
	Sig. (2-tailed)	.000	.002		.000	.000
	N	31	31	31	31	31
Q4	Pearson Correlation	.481**	.606**	.616**	1	.804**
	Sig. (2-tailed)	.006	.000	.000		.000
	N	31	31	31	31	31
TOTAL	Pearson Correlation	.810**	.838**	.840**	.804**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	31	31	31	31	31

The validity test was processed using SPSS 26. The total value for the independent variables and independent variables using Pearson correlation showed a significance value of less than 0.05, which means the research questionnaire can be declared valid.

## b. Reliability Test

Table 3 Reliability Test Results for AI Use Variables (X)

Reliability Statistics	
Cronbach's Alpha	N of Items
.838	4

Table 4 Motivation Variable Reliability Test Results (Y)

Reliability Statistics	
Cronbach's Alpha	N of Items
.923	10

Cronbach's alpha value for the independent variable and dependent variable is greater than 0.60, which means the research questionnaire is reliable or consistent.

## c. Normality test

Table 5 Normality Test Results

**One-Sample Kolmogorov-Smirnov Test**

		Unstandardized Residual
N		31
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	1.44893387
Most Extreme Differences	Absolute	.115
	Positive	.083
	Negative	-.115
Test Statistic		.115
Asymp. Sig. (2-tailed)		.200 <sup>c,d</sup>

The Normality Test shows a significance value greater than 0.05, meaning that the residual value is normally distributed.

## d. Heteroscedasticity Test

Table 6 Heteroscedasticity Test Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	-1.071	.977	-1.096	.282
	Use of AI	.063	.028	.391	2.288

The results of the Heteroscedasticity Test show a significance value of 0.030, indicating the possibility of heterodexity or non-uniformity of variance in the data which could result in bias in the analysis.

#### e. Spearman Test

To overcome bias due to heteroscedasticity, research was carried out using the Spearman test to see whether the value of the independent variable passed the heteroscedasticity test or not. This test ensures consistency of data analysis and reduces the impact of heterodexity on research results.

Table 7 Spearman Test Results  
Correlations

		Unstandardized Residual		Use of AI	
Spearman's rho	Unstandardized Residual	Correlation Coefficient	1.000		-.017
		Say. (2-tailed)	.		.928
		N	31		31
	Use of AI	Correlation Coefficient	-.017	1.000	
		Say. (2-tailed)	.928		.
		N	31		31

The results of the Spearman test show that the significance value of variable

#### f. Simple Linear Regression Analysis

Table 8 Simple Linear Regression Results

#### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.605	1.768		.908	.371
	Penggunaan AI	.347	.050	.792	6.981	.000

a. Dependent Variable: Motivasi

The model for simple linear regression is applied as follows:

$$Y = a + bX$$

Information:

Y: dependent or motivation variable

a : constant number

b : regression coefficient

X : Independent variable or use of AI

The constant figure is 1.605, and the regression coefficient is 0.347. Every change in the value of variable X will increase the value of variable Y, if and when the value of X is zero, then the value of variable Y remains at a constant value. The regression results based on the data processing and analysis carried out are presented as follows:

$$Y = 1,605 + 0,347X$$



## g. T Test

Table 9 t test results

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.605	1.768		.908	.371
	Penggunaan AI	.347	.050	.792	6.981	.000

a. Dependent Variable: Motivasi

The results of the t test show that the calculated t value for the AI use variable is 6.981, where this value is greater than the t table value of 2.364 with a real level of 0.05 and a degree of freedom value of 9. The significance value is smaller than the probability of 0.05. On this basis, the independent variable has a significant or positive effect on the dependent variable.

## h. Coefficient of Determination Test

Table 10 Coefficient of Determination Test Results

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.792 <sup>a</sup>	.627	.614	1.474

a. Predictors: (Constant), Penggunaan AI

b. Dependent Variable: Motivasi

The coefficient of determination test describes how well the independent variable (predictor) explains the variation in the dependent variable in the model. The results of the coefficient of determination test above show that the Adjusted R-squared is 0.614 or around 61.4% of the variation in the dependent variable can be explained by the independent variables in the regression model and the remaining percentage implies that other factors outside the model can influence the dependent variable. Therefore, the higher the Adjusted R-squared value, the better the independent variable explains the variability of the dependent variable.

**5. CONCLUSION**

The study suggests that when students utilize AI in their accounting studies, there is a positive impact on their motivation to learn. Conversely, without the integration of AI, motivation to study accounting may decrease. The determinant test reveals that 61.4% of the influence on motivation for learning accounting can be attributed to the use of AI.

In summary, the analysis indicates a significant correlation between AI usage and heightened motivation in accounting education at Medan State University. This leads to the rejection of the null hypothesis (H<sub>0</sub>) and acceptance of the alternative hypothesis (H<sub>1</sub>). The study recommends reinforcing AI integration in teaching methods to further enhance learning motivation. Additionally, future research could explore additional factors influencing motivation in accounting studies for a more comprehensive strategy development.

Suggestions and Limitations: (1). In an effort to increase student motivation in studying accounting, universities should integrate more AI elements in the curriculum. This can include the use of AI technology in teaching and learning methods. (2). There needs to be training for lecturers and instructors to understand and implement AI in the teaching process. This will help in providing a better learning experience to students. (3). Further research can be conducted to explore other factors that influence student motivation in learning accounting, apart from the use of AI. With deeper understanding, universities can develop more effective strategies to increase student motivation. (4). Finally, it is important for universities to continue to monitor and evaluate the impact of the use of AI on accounting learning and encourage continued research in this field to maintain the quality of education.

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