



The Effect of Implementing Differentiated Learning on Motivation to Learn Economics: Student Perceptions

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Abstract

This study investigates the impact of employing differentiated learning and utilizing media on the learning motivation of students in Economics classes at SMA Negeri 7 Surakarta. It employs a quantitative survey approach with a population of 359 students from classes X-A to X-J. The sampling method involves proportional random sampling of 190 students, determined through the Slovin formula. Data collection utilizes a questionnaire, while data analysis employs binary logistic regression with SPSS as the analysis tool. The findings reveal that (1) Differentiated learning significantly and positively influences learning motivation, as indicated by a significance value of $0.000 < 0.05$. This is attributed to the fact that, in differentiated learning, teachers are obligated to tailor instruction to individual students based on their readiness, interests, and learning profile; (2) Media use also significantly and positively influences learning motivation, with a significance value of $0.000 < 0.05$. This is because incorporating media aids students in comprehending learning materials and mitigates boredom. This research contributes novel insights to the field of education, particularly in the context of differentiated learning. Consequently, future researchers may broaden the scope of their investigations by exploring teacher and student perspectives and incorporating additional relevant variables.

How to Cite

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INTRODUCTION

Education has an essential role in improving the quality of the country’s future generations. The quality of education in Indonesia is still in the low category. According to the results of the 2022 Program for International Student Assessment (PISA) survey, Indonesia experienced a decline in scores from the PISA 2018 results, namely Indonesia’s reading literacy score of 359, down 12 points compared to 2018, the mathematics literacy score of 366, and the science literacy score of 383 (OECD, 2023). The quality of learning created and implemented by teachers in the classroom is the starting point for the quality of education (Pangestika & Alfarisa, 2015). The learning process is an activity to achieve goals influenced by various factors (Saumi et al., 2021). Learning is achieved if students have the drive or willingness to learn. According to Taufiq et al. (2019), this inner drive causes energy changes, which manifest from the emergence of feelings and reactions to achieve goals. This stimulation is usually learning motivation (Saumi et al., 2021).

Motivation in learning is an individual’s belief regarding their abilities in the learning process, the values associated with the activity, and a student’s level of interest in learning efforts (Suminah et al., 2019). A high level of learning motivation indicates the quality of effective learning (Sardiman A.M., 2018). Even though learning motivation has a significant role in the success of the learning process, in reality, the level of student learning motivation at various levels is still relatively low, as can be seen from student dissatisfaction in the learning process, difficulty paying attention to teacher explanations, and reluctance to complete assignments (Arianti, 2019). Based on research by Nirmala (2021), low motivation in math subjects can also be seen from the lack of student participation in homework and the behavior of students who frequently enter and leave the classroom during economics lessons.

The tendency for low levels of learning motivation in Economics learning also occurs at SMA Negeri 7 Surakarta, as can be seen from the results of an initial study using the MSLQ (The Motivated Strategies for Learning Questionnaire) learning motivation component developed by Duncan & McKeachie (2005). The following is the motivation score studying class X students at SMA Negeri 7 Surakarta.

Table 1. Learning Motivation Scores for SMA Negeri 7 Surakarta Students

Indicator	Percentage
Self Efficacy	39.94%
Intrinsic Value	39.41%
Test Anxiety	37.8%

Sources: Processed Primary Data, 2023

An initial inquiry into the motivation levels for learning economics involved 359 students from classes X-A to X-J, as outlined in Table 1. As per the criteria established by Hendrayana (2014), the criteria for assessing learning motivation with a score percentage of 37% to 52% are still categorized as low. The role of the teacher is one of the key elements in increasing student motivation in the learning process, through designing learning designs that will be used in the teaching process, teachers have a vital role in organizing the learning approach (Arianti, 2019).

The initial key to effective learning design is choosing an appropriate learning approach. The differentiated learning method is one of the learning approaches used in the current independent curriculum. Tomlinson (2014 & 2017) states that differentiated learning is an approach and philosophy for dealing with student diversity. Therefore, teachers differentiate their teaching. Differentiated learning can be applied in various fields, such as content, processes, products, and learning environments (Levy, 2008). Differentiated learning must be implemented based on students’ readiness,

interests, and learning profiles (Tomlinson, 2017). Applying diverse learning strategies tailored to each student's individual learning preferences can increase student motivation and involvement in the learning process (Aprima & Sari, 2022).

Reis et al. (2011) stated that differentiated learning positively impacts student learning achievement and motivation. Similar findings were also seen in research by Tobin & Tippett (2014), which showed how diverse learning strategies can increase students' motivation and engagement from elementary school to higher education. Scott (2012) shows a different perspective from previous research, indicating that a differentiated learning approach is more likely to increase the learning motivation of students who have previously demonstrated good academic achievement rather than meeting the needs of all students in general.

This finding was also confirmed by Faber et al. (2018), who revealed that implementing differentiated learning significantly impacts students with moderate to high performance but could not be more on students with low achievement. Smit & Humpert (2012) states that differentiated learning is a complex approach involving various implementation strategies. Therefore, the use of media is added as a novelty and differentiator from the results of previous research related to differentiated learning. Learning media was chosen because using media in a classroom setting is a valuable way to create more complex and effective teaching strategies (Buckingham, 2007).

The findings presented by Harandi (2015) strengthen the view that learning media significantly influences student motivation, where a strong relationship was found in the samples tested between the use of learning media and learning motivation. The results of research by Yuliani & Winata (2017) also show a positive and significant impact on student motivation in learning by using learning media. This means that learning media that is used optimally can result in increased student motivation and vice versa. This differs from

the findings of Capuno et al. (2019), who concluded that learning motivation was significantly negatively influenced by using learning media. In other words, the more optimal the use of learning media, the lower the students' motivation to learn.

Previous studies indicate that an approach considering individual differences among students, including their readiness level, interests, and learning profiles, can enhance the motivation to learn, specifically through differentiated learning. Delivering customized content that meets the individual needs of students fosters greater engagement in the learning process. The utilization of educational media also enhances students' learning experiences, facilitating a more captivating understanding of the material, ultimately contributing to heightened motivation to learn.

Researchers emphasize the significance of effectively integrating differentiated learning and media utilization. The amalgamation of these two elements can establish a more inclusive, adaptive, and stimulating learning environment, catering to students with diverse learning styles and proficiency levels. Consequently, researchers aim to delve deeper into this subject with the study titled "The Effect of Implementing Differentiated Learning on Motivation to Learn Economics: Student Perceptions." This research introduces media use variables, concentrating on the media commonly employed by educators. The primary objective of this research is to assess the impact of implementing differentiated learning and media usage on the motivation to learn economics among students at SMA Negeri 7 Surakarta.

METHODS

The research design employed in this study is a quantitative survey, incorporating two independent variables: differentiated learning (X1) and media use (X2), alongside one dependent variable, which is learning motivation (Y). The study population comprises 359 students from classes X-A to X-J at SMA Ne-

geri 7 Surakarta. Proportional random sampling was employed as the sampling technique, resulting in a sample size of 190 students, determined using the Slovin formula.

The data collection method uses a survey with several closed statements, namely statements where respondents can choose the appropriate answer provided by the researcher. Google forms are used as a tool to design and distribute questionnaires through online surveys. The research instrument utilizes a questionnaire consisting of statements, with measurements conducted on a 1-4 Likert scale.

The data analysis technique used is binary logistic regression so that the results from the Likert scale will be changed to 1 and 0, answers on a scale of 1-2 will be changed to 0, and scales of 3-4 will be changed to 1 (Wei et al., 2021). The research instrument will first be tested for validity and reliability on 30 respondents outside the research sample. Descriptive statistical tests were carried out in this research, the analysis prerequisites were tested using the multicollinearity test, and then the goodness of fit logistic regression model and overall model fit were tested.

The stages in this research involve a series of processes that begin with problem discovery. After that, a literature study stage was carried out where researchers explored relevant literature related to the problems that had been identified in the field. Next, the third stage involves preparing research instruments based on findings from literature studies and problem identification. The fourth stage involves data collection, followed by the data processing stage. The final step involves drafting a research article that comprehensively details the findings and research process.

RESULTS AND DISCUSSION

The number of respondents in the study was unevenly distributed between male and female students, with 94 male students and 96 female students participating.

Table 2. Details of Respondent Data

Details	Information	Respondent	%
Class	X-A	19	10%
	X-B	19	10%
	X-C	19	10%
	X-D	19	10%
	X-E	19	10%
	X-F	19	10%
	X-G	19	10%
	X-H	19	10%
	X-I	19	10%
	X-J	19	10%
Gender	Male	94	49%
	Female	96	51%

Sources: Processed Primary Data, 2023

Table 3. Variable Tendency Level

Variabel	Category	Frequency
Differentiated Learning	High	22
	Medium	95
	Low	73
Use of Media	High	24
	Medium	92
	Low	74
Motivation to Learn	High	16
	Medium	133
	Low	41

Sources: Processed Primary Data, 2023

The tendency of the data for differentiated learning variables, the use of media, and motivation to learn as seen from students' perceptions in this research, is included in the medium category.

In this study, the examination of multicollinearity in the regression model was conducted through the assessment of tolerance and Variance Inflation Factor (VIF) values. It is crucial to avoid a strong correlation between independent variables in a regression model, and these diagnostic tests help ensure the reliability of the model by detecting and addressing multicollinearity issues.

The tolerance values for differentiated learning and media use are both 0.999 exceeding the threshold of 0.10 ($0.999 > 0.10$). Additionally, the VIF values for both variables are 1.001, which is less than 10.000 ($1.001 < 10.000$). Consequently, it can be concluded that these two variables do not exhibit multicollinearity problems, as they meet the standard criteria.

Model feasibility testing aims to determine whether the proposed model is accurate or whether the model and observational data are identical. Hosmer and Lemeshow test were used to test the feasibility of this research model.

Table 5. Hosmer and Lemeshow Test

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	3.842	2	0.146

Sources: Processed Primary Data, 2023

Table 4. Multicollinearity Test Results

Model	Coefficients ^a			Collinearity Statistics	
	Std. Coefficients	t	Sig.	Tolerance	VIF
	Beta				
1 (Constant)		6.098	0.000		
Differentiated Learning	0.484	7.943	0.000	0.999	1.001
Media	0.278	4.560	0.000	0.999	1.001

a. Dependent Variable: Motivation to learn

Sources: Processed Primary Data, 2023

The calculated chi-square value is 3.842, which is smaller than the chi-square value of the table in df 2 of 5.991, and the Hosmer and Lemeshow test significance value is 0.146, significant than the research significance level used namely 0.05. This means the model can predict observational data well and is acceptable because it matches it. Based on this description, the model is fit for use in further analysis stages.

The overall model fit aims to evaluate the general regression model and determine whether the model can be significantly improved by including independent variables. The overall model fit in this study was examined by looking at the decrease in the -2 Log likelihood value in blocks 0 and 1.

Table 6. Overall Model Fit

Block	-2 Log likelihood
Block 0	223.018
Block 1	159.716

Sources: Processed Primary Data, 2023

The -2 Log likelihood value for block number 0, representing the model before the addition of the independent variable, is higher than the -2 Log likelihood value for block number 1, which represents the model after the inclusion of the independent variable.

Table 7. Variables in the Equation

		Variables in the Equation					
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Differentiated Learning	2.692	0.437	37.930	1	0.000	14.764
	Media	1.812	0.440	16.947	1	0.000	6.122
	Constant	-1.190	0.366	10.552	1	0.001	0.304

a. Variable(s) entered on step 1: Differentiated Learning, Media.

Sources: Processed Primary Data, 2023

Specifically, the -2 Log likelihood value has decreased from 223.018 in block number 0 to 159.716 in block number 1, reflecting a decrease of 63.302. This reduction suggests that the addition of independent variables (differentiated learning and media use) to the model has led to an improvement in the research model. The determination of the influence of independent variables on the dependent variable is assessed through the Wald test in the equation. The Wald test evaluates the significance of each individual independent variable by comparing the estimated coefficient of the variable to its standard error. If the Wald statistic is significant, it indicates that the variable has a significant influence on the dependent variable.

The data processing results for the differentiated learning variable in the equation reveal a significance value of 0.000. Given that the significance value is less than 0.05, H1 is accepted, H0 is rejected, and the Exp(B) value is 14.764 (positive value). This signifies that the differentiated learning variable has a positive and significant impact on learning motivation.

The odds ratio or Exp(B) value for the differentiated learning variable is 14.764, this indicates that teachers who implement differentiated learning are estimated to have the opportunity to increase learning motivation 14.764 times more likely than teachers who do not.

The media use variable yields a significance value of 0.000, which is less than 0.05. Therefore, H2 is accepted, H0 is rejected, and

the Exp(B) value is 6.122 (positive value). This indicates that the media use variable significantly and positively influences learning motivation.

The odds ratio value for the media use variable is 6.122, this indicates that teachers who use media are estimated to be 6.122 times more likely to increase learning motivation than teachers who do not use learning media.

The effect of implementing differentiated learning on students' learning motivation in Economics subjects

The outcomes of the binary logistic analysis indicate that the differentiated learning variable exerts a significant and positive influence on learning motivation in economics at SMA Negeri 7 Surakarta. These findings align with previous research conducted by Reis et al. (2011), Tobin & Tippett (2014), Taylor (2015), Demir (2021), and Khasanah & Alfiandra (2023), all of which concluded that the differentiated learning approach has a positive and significant impact on student learning motivation.

According to students' perceptions, the implementation of differentiated learning at SMA Negeri 7 Surakarta is included in the medium category. This shows that the level of implementation of differentiated learning at SMA Negeri 7 Surakarta has not yet reached the optimal stage. This is due to the complexity of the differentiated learning approach, which requires a lot of time for teachers to prepare appropriate teaching strategies to meet the various needs of students based on

their interests, readiness and learning profiles. Apart from that, teachers must show creativity and be proactive in every lesson. However, information regarding this differentiated learning approach is still relatively difficult to obtain, so teachers experience a lot of confusion in its application.

This observation is reinforced by the findings of Tobin & Tippett (2014), classroom teachers acknowledge that addressing the needs of diverse students poses a significant challenge. This challenge primarily stems from a lack of knowledge and skills related to adapting curriculum materials and employing learning strategies efficiently and effectively throughout the learning process. Furthermore, Setiaji et al. (2022), emphasize that the application of differentiated learning, particularly at the high school level, needs to be more familiar. The limited availability of information and knowledge causes teachers to doubt its application, resulting in suboptimal outcomes in enhancing students' learning motivation.

Suprihatin (2015) research states that students will only be motivated to learn if teachers provide opportunities to be involved in the learning process. However, teachers at SMA Negeri 7 Surakarta still often provide material in the form of lectures without involving students, causing students to become sleepy and unmotivated to learn quickly. Teachers also cannot meet the diverse needs of students because teachers still generalize teaching between students who have not mastered the material and students who have understood the material.

The most striking characteristic of the differentiated learning approach is its ability to provide various approaches in terms of material content, learning processes, and learning products. This aims to increase students' self-confidence and motivate them to learn. However, teachers at SMA Negeri 7 Surakarta tend to use content strategies and sometimes product strategies because teachers still need help in varying appropriate and efficient learning process strategies in implementing a differentiated approach.

These findings align with the research conducted by Sulistyosari et al. (2022), revealing that teachers encounter challenges in comprehending and effectively applying the concept of process differentiation when implementing a differentiated learning approach. This difficulty, in turn, hampers teachers from proficiently employing the three differentiation strategies (content, process, product) to enhance student learning motivation. Recognizing these challenges becomes crucial in improving teachers' competencies in implementing differentiated approaches and fostering increased motivation among students.

The effect of media use on students' learning motivation in Economics subjects

The media use variable demonstrates a positive and significant impact on students' motivation to study Economics at SMA Negeri 7 Surakarta. When teachers incorporate media into their teaching methods, it becomes easier for them to plan diverse learning strategies. These research findings align with a previous study conducted by Harandi (2015), Yuliani & Winata (2017), Widiyanti & Ansori (2020), Widiasih et al. (2018), and Sartono et al. (2022), all of which concluded that there is a positive and significant influence of media use on student learning motivation.

The use of media at SMA Negeri 7 Surakarta, as seen through students' perceptions of the distribution of data, is in the medium category, meaning that the use of media at SMA Negeri 7 Surakarta has yet to be carried out optimally. This situation arises from a deficiency in teacher skills regarding the utilization of a variety of available media tailored to students' learning needs. Teachers tend to rely on basic PowerPoint presentations and monotonous learning videos, leading to student boredom and drowsiness. These findings are consistent with the research conducted by Puspitarini & Hanif (2019), emphasized that using learning media facilitates comprehension and stimulates students' learning motivation. However, it is observed that numerous teachers have yet to optimize the use of such media.

Teachers at SMA Negeri 7 Surakarta also need to improve in utilizing media to address the requirements of students with a kinesthetic learning style. Consequently, numerous students exhibit low intrinsic value, lacking more internal interest and encouragement to actively engage in the teaching and learning process, leading to diminished motivation.

According to Pratiwi & Nugraheni (2022), certain teachers need more support in employing learning media as they tend to rely solely on readily available options. While learning media can be crafted from diverse sources and through various methods based on specific instructional requirements and content, older teachers, in particular, may need more skills and knowledge to utilize learning media effectively.

Teachers' inadequate utilization of learning media is partly attributed to deficient classroom facilities that need to adequately support teachers in incorporating learning media. Furthermore, the deficiency is exacerbated by teachers' limited understanding of the myriad creative and innovative learning media options available, which could otherwise enhance student learning motivation.

As Putri & Citra (2019) noted, the availability of facilities and infrastructure plays a crucial role in using learning media. More facilities and infrastructure must be needed to ensure the effective use of learning media. Conversely, integrating learning media can proceed more seamlessly with adequate facilities, contributing positively to student learning motivation.

CONCLUSION

The findings of this research reveal that the implementation of differentiated learning and the utilization of media have a positive and significant impact on students' learning motivation in Economics subjects at SMA Negeri 7 Surakarta. Nevertheless, it is observed that many students still exhibit low levels of learning motivation, indicating that teach-

ers have yet to effectively implement differentiated learning and fully optimize the use of media, particularly in terms of their skills in utilizing media resources.

Schools can offer training sessions or seminars for teachers focusing on strategies for the effective and efficient implementation of differentiated learning based on students' interests, needs, and learning profiles. Additionally, schools can invite resource persons from the field of information technology to provide guidance and support, helping teachers enhance their skills in utilizing a more diverse range of media to boost students' learning motivation. These initiatives can contribute to a more effective and engaging learning environment for students.

This research has limitations in the research subject, namely only through the perceptions of students in one school and the variables used. Therefore, future researchers can expand the research subject, for example, by looking at the perceptions of teachers and students from several schools, and further researchers can also add control variables or relevant variables, for example teacher education level, age, teaching experience, etc.

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