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The Influence of Learning Styles, Parental Income Levels, and Student Learning Motivation on Student Learning Achievement

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ABSTRACT

Purpose of the study: This study aims to determine: (1) the influence of learning styles on learning achievement; (2) the effect of parents' income level on learning achievement; ((3) the effect of Learning Motivation on Learning Achievement, (4) the influence of Learning Style, Parental Income Level, and Learning Motivation together on Learning Achievement.

Methodology: This study was an ex post facto study. The population used in this study were students majoring in economics education with a total of 84 students. The instrument validity test used the product moment correlation formula and the reliability test used the internal consistency formula. The data prerequisite test was carried out by normality, linearity and multicollinearity test. The data analysis technique used is multiple regression analysis.

Main Findings: Based on the results of this study it is known: (1) there is a positive and significant effect of Learning Style on Learning Achievement, with a tcount of 4.354 and a significance of 0.000; (2) there is a positive and significant effect of parents' income level on learning achievement with a tcount of 4.266 and a significance of 0.000; (3) there is a positive and significant effect of Learning Motivation on Learning Achievement with a tcount of 5.665 and a significance of 0.000; (4) there is a positive and significant effect of Learning Style, Parental Income level, and Learning Motivation together on Learning Achievement with Fcount of 115.623 and a significance of 5% and a coefficient of determination (R2y(1,2,3)) of 0.807.

Novelty/Originality of this study: The novelty of this research is combining three main variables: learning style, parental income level, and student learning motivation, this research expands our understanding of the complex interactions between internal and external factors that influence academic achievement.

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1. INTRODUCTION

Education for human life is an absolute necessity that must be met throughout life [1]–[3]. Without education it is impossible for a group of people to develop in line with aspirations (aspirations) to progress, prosper and be happy according to their concept of outlook on life[4]–[6]. The higher the human ideals, the more demanding it is to improve the quality of education as a means of achieving these ideals.Education is a process that consists of several components[7], [8]. The smooth running of the components will bring smoothness to the educational process[9], [10]. However, it is not uncommon for problems to arise in education.

The problem that arises in the world of education, especially in the formal education pathway or in learning activities at school is that the achievements of students or students are still not good[11], [12]. The existence of a remedial program held at tertiary institutions is the main benchmark for student learning achievement[13], [14]. However, we cannot only blame students for their poor learning achievement. comes from within the student itself and can also come from outside the student.

Factors that affect learning achievement in general can be divided into two, namely internal and external factors[15], [16]. Internal factors are factors that come from within students, such as health, intelligence, attention, talents, interests, motivation, learning styles and so on[17]. External factors are factors that come from outside the student's self, such as the school environment, family environment, community and so on.

One of the internal factors that influence learning achievement is learning style. Learning Style is a combination of a person's way of absorbing knowledge and how to organize and process the information or knowledge obtained [18], [19]. Learning Style is the way humans begin to concentrate, absorb, process and accommodate new and difficult information [20], [21]. Learning styles are considered to have an important role in the process of teaching and learning activities because they are related to learning achievement which is not as optimal as expected.

Learning achievement obtained optimally is estimated to also be supported by one factor, namely Learning Motivation, because it can provide stimulation in learning for someone. Motivation to learn plays a role in growing enthusiasm, passion, fun and passion for learning [22]–[24]. Motivation has a strategic role in one's learning activities [25], [26]. The higher the motivation to learn the higher the increase in learning outcomes [27], [28]. Learning motivation possessed by students arises due to two factors from within themselves which are called intrinsic, or factors from outside themselves which are called extrinsic factors.

External factors that are considered to have a significant effect on increasing learning achievement are parents' income. Parents' income is a number of funds generated by parents in a certain period from various sources such as salary, rent or self-employment. Parents' income can be seen from family economic factors. The economic situation is the most basic element in terms of education, where the economic situation of each student's family is definitely different [29]. In addition, with the inappropriate management of children with limited facilities, children do not have a high enthusiasm for learning and are not creative. This is what causes children's performance to be less good.

Although many studies have explored the influence of factors such as learning style, parental income level, and learning motivation on student achievement, there is still a lack of literature that covers a holistic and integrated relationship between these three factors. Previous studies may have examined the influence of each factor separately, but rarely evaluated how the interaction between the three can influence student achievement as a whole. Additionally, little research has focused on more specific contexts, such as different school environments or groups of students with different characteristics, leaving gaps in the understanding of how these factors interact in different contexts. Therefore, there is a need for more in-depth and holistic research that explores the relationship between learning styles, parental income level, learning motivation, and student learning achievement in diverse contexts, to provide more comprehensive and applicable insights for educational practitioners.

This research presents a significant contribution to understanding the factors that influence student achievement. Involving key aspects such as learning styles, parental income levels, and students' learning motivation, this research highlights the complexity of the interactions between these factors. The research findings provide in-depth insight into how student learning styles, parental income levels, and learning motivation influence each other, shaping patterns of student learning achievement. The results are expected to provide a strong basis for more effective and inclusive learning development strategies, which can be adapted to meet the needs of diverse students by considering the important role of these variables.This study aims to determine: (1) the influence of learning styles on learning achievement; (2) the effect of parents' income level on learning achievement; (3) the effect of Learning Motivation on Learning Achievement, (4) the influence of Learning Style, Parental Income Level, and Learning Motivation together on Learning Achievement.

2. RESEARCH METHOD

This research is an ex post facto research because it reveals facts based on measuring the symptoms that were present in the respondents before the research was conducted. The approach used in analyzing the research data used a quantitative approach. A quantitative approach is used to measure the independent variable and the dependent variable using numbers processed through statistical analysis[30]–[32].

This research was conducted on a lecture campus majoring in Economics Education, Yogyakarta State University with the address in the village of Karangmalang, Yogyakarta. The population in this study were all students majoring in Economics Education class of 2023, totaling 84 students as details of class A students of 2023 totaling 41 students and class B totaling 43.

This research was conducted using data collection instruments. The instruments were used to measure the value of the variables studied [33], [34]. The research instrument that will be used in this study is a questionnaire that is used to measure the learning style and learning motivation variables. The questionnaire grid for student learning style variables is shown in the table below.

Table 1. Learning Style Research Instrument Grid

Variable	Indicator	Score/Item	Total
Visual learning style	a. Neatness and order	1, 2, 3	3
	b. Speed in speech	4, 5, 6	3
	c. Planning and arrangement	7, 8, 9	3
	d. Accuracy and how to remember	10, 11, 12	3
Auditory learning style	a. The level of concentration while studying	13, 14	2
	b. Writing difficulties	15, 16	2
	c. pleasure to read	17, 18, 19	3
	d. A pleasure to listen to	20, 21	2
Textual learning styles	a. Speed of speaking	22, 23	2
	b. Learn by practice	24, 25	2

Furthermore, the questionnaire lattice variables of student learning motivation are shown in the table below.

Table 2. Learning Motivation Variable Questionnaire Grid

Indicator	Score/Item	Total
Persevere with the task	1, 2, 3	3
Tenacious in the face of adversity (not easily discouraged)	4, 5, 6	3
Interest in learning problems	7, 8, 9	3
Prefer to work independently	10, 11, 12	3
Get bored quickly on routine tasks	13, 14, 15	2
Can defend his opinion	16, 17, 18	2
Happy to find and solve questions	19, 20	2

Data analysis techniques in this study were divided into two, namely analysis prerequisite testing and hypothesis testing. Analysis prerequisite testing was carried out through normality tests, linearity tests, multicollinearity tests, and heteroscedasticity tests. , F test, and find the amount of Relative Contribution.

3. RESULTS AND DISCUSSION

The data from this study contained 3 independent variables, namely Learning Style (X1), Parental Income Level (X2), and Student Learning Motivation (X3). As well as one dependent variable, namely Learning Achievement (Y).

Data on the variable Student Learning Achievement was obtained from the learning outcomes (GPA) of a total of 84 students. The distribution of student achievement can be observed in the table below.

Table 3. Distribution of Learning Achievement

Class Intervals	f	(%)	Mean	Me	Mo	Min	Max
0 –0.54	2	2.38					
0.55 – 1.09	0	0					
1.10 – 1.64	0	0					
1.65 – 2.19	0	0	3.2	3.32	3.42	0	3.84
2.20 – 2.74	2	2.38					
2.75 – 3.29	27	32.14					
3.30 – 3.84	53	63.10					

The table above shows that as many as 2 students (2.38%) are in class intervals 0 –0.54. A total of 2 students (2.38%) were in class intervals 2.20 – 2.74. A total of 27 students (32.14%) were in class intervals 2.75 – 3.29. A total of 53 students (63.10%) were in class intervals 3.30 – 3.84. Thus, the most students (53 students) were at class intervals of 3.30 – 3.84. Then, the mean was 3.2, the median was 3.32, the mode was 3.42, the minimum value was 0, and the maximum value was 3.84.Learning Style data was obtained from a valid item

questionnaire consisting of 18 statement items with a total of 84 students. The frequency distribution of Learning Style variables can be seen in the following table:

Tabel 4.Distribusi FrekuensiKecenderungan Gaya Belajar

Learning Style	f	(%)	Mean	Me	Mo
Visual	40	45.97			
Auditorial	027	31.03	56.88	57	61
Taktual	17	23			

Based on the table above, it can be seen that 45.97% of students choose a visual learning style, 31.03% of an auditory learning style, and 23% of a tactual learning style. By looking at the percentage of each student style, the visual learning style is the learning style most chosen by students of economic education class of 2023.

The frequency distribution of parents' income variables can be seen in the following table:

Table 5. Frequency Distribution of Parents' Income Variables

Score Intervals	Rp	f	(%)
High income	> 2.500.000	25	30
Middle income	1.500.000 - 2.499.999	22	26
Low income	< 1.499.999	37	44

The table above shows that there are 25 students (30%) in the upper class category, 22 students (26%) in the middle class category, and 37 students (37%) in the lower class category.

Based on the data of the Learning Motivation variable obtained from a questionnaire with 18 statement items and the number of respondents was 84 students. The frequency distribution of the Learning Motivation variable can be seen in the following table:

Table 6. Frequency Distribution of Learning Motivation Variables

Score Intervals	f	Mean	Me	Mo
44 – 46	7			
47 – 49	9			
50 – 52	15			
53 – 55	18	52.70	55.00	56
57 – 59	20			
61 – 63	11			
64 – 66	4			

The table above shows the variable learning motivation to get a mean of 52.70, a median of 55.00, and a mode of 56. The highest frequency is at intervals of 57 – 59 with a frequency of 20 students, while the lowest frequency is at intervals of 64 – 66 with a frequency of 4 student. Furthermore, analysis prerequisite tests were carried out which consisted of normality tests, linearity tests, multicollinearity tests, and heteroscedasticity tests. The normality test results are summarized in the following table:

Table 7. Summary of Normality Test Results

N	Skewness	Kurtosis
84	0.133	0.511

The normality test was carried out to find out whether the data is normally distributed or not normally distributed[35], [36].The table above shows that the data population is normally distributed. A linearity test is then carried out with the results shown in the table below.

Table 8. Summary of Linearity Test Results

Variable		Df	F_{hitung}	F_{tabel}	Inference
X	Y				
X1	Y	1 : 82	2,465	3,96	Linier
X2	Y	10 : 72	1,145	1,96	Linier
X3	Y	13 : 69	1,699	1,86	Linier

Based on data analysis, it was found that the results of the linearity test which showed the relationship between the independent variables Learning Style (X1), Parental Income (X2), and Learning Motivation (X3) with the dependent variable Learning Achievement (Y) showed linear results. Table above shows that the Fcount value is smaller than Ftable at a significance level of 5%. Based on these results it can be concluded that each independent variable with the dependent variable has a linear relationship. A multicollinearity test was then performed with the results shown in the table below.

Table 9.Multicollinearity Test Results

Independent Variable	Collinearity Statistic		Description
	Tolerance	VIF	
X1	0,614	1,628	Multicollinearity does not occur
X2	0,438	2,284	
X3	0,346	2,888	

The multicollinearity test is a form of testing for assumptions in multiple regression analysis. The multicollinearity assumption states that the independent variables must be free from high correlations between independent variables. If there is a high correlation between the independent variables, then the relationship between the independent variables and the dependent variable is disrupted so that The regression model obtained is invalid. From the results of the multicollinearity test conducted it is known that each independent variable has a VIF value of less than 5. So it can be concluded that there is no multicollinearity. The heteroscedasticity test was then carried out with the results shown in the table below.

Table 10. Summary of Heteroscedasticity Test Results

Independent Variable	Sig.	Description
X1	0.742	Heteroscedasticitydoes not occur
X2	0.672	
X3	0.689	

The heteroscedasticity test is used to determine whether there are deviations from the classical assumption of heteroscedasticity, namely the variance of the residuals for all observations in the regression model. The prerequisite that must be met in the regression model is the absence of symptoms of heteroscedasticity. Researchers in the heteroscedasticity test used the Spearman correlation coefficient test, where the results what is obtained is the value of the three independent variables with Unstandardized Residual having a significance value of more than 0.05. Thus it can be concluded that there is no heteroscedasticity problem in the regression model. Furthermore, testing the research hypothesis can be carried out.

Data analysis technique used to test the hypothesis with multiple regression analysis. The value of the learning style coefficient (X1) is 0.429, parental income (X2) is 1.581, and learning motivation (X3) is 0.479 and a constant number is 21.560. Based on these figures, one predictor equation can be arranged as follows:

$$Y = 0.429\ X1 + 1.581\ X2 + 0.479\ X3 + 21.560$$

This equation shows that the X1 coefficient value is 0.429 meaning that if the Learning Style value (X1) increases by 1 point, the Learning Achievement value (Y) will increase by 0.429 assuming X2 and X3 remain the same. Likewise for the Learning Motivation and Learning Style variables, the X2 coefficient value is 1.581, meaning that if the parental income value (X2) increases by 1 point, the learning achievement value (Y) will increase by 1.581 assuming X1 and X3 are fixed, and the X3 coefficient value is 0.479 means that if the value of Learning Motivation (X3) increases by 1 point, the value of Economic Learning Achievement (Y) will increase by 0.479 assuming X1 and X2 are fixed.

The correlation coefficient (Ry(1,2,3)) shows a positive result of 0.898 so the results of this study indicate that there is a positive influence of Learning Style, Parental Income and Learning Motivation on Learning Achievement. The coefficient of determination (R2y(1,2,3)) is 0.807. This value means that 80.7% of the change in the Economic Learning Achievement variable can be explained by Learning Style, Parental Income, and Learning Motivation while 19.3% is explained by other variables not examined in this study.

The Double Regression Significance Test was carried out by the F test. Based on the analysis results, the Fcount value was 115.623 with a sig of 0.000 which corresponds to the sig requirement of less than 0.050. When compared with Ftable 2.71 at a significance level of 5%, Fcount is greater than Ftable. This means that the effect of Learning Style, Parental Income Level and Learning Motivation together on Economic Learning Achievement is significant.

To test the effect of the independent variables on the dependent variable, the T test is used. The results of the T test are shown in the table below.

Table 11. T-Test Summary Results

Model	T	Sig.
Learning Style	4.356	0.000
Parents Income	4.266	0.000
Motivation to learn	5.665	0.000

Based on the results of the analysis in the table above, the tcount value of the Learning Style variable on Learning Achievement is 4.356 and a significance of 0.000 so that it can be concluded that the effect of Learning Style on Learning Achievement is significant; so that hypothesis 1 in this study is accepted. Meanwhile, the influence of parents' income variable on learning achievement with a tcount of 4.266 and a significance of 0.000; so it can be concluded that the effect of parents' income level on learning achievement is significant.so that the second hypothesis in this study is accepted. While the effect of the variable Learning Motivation on Learning Achievement with a tcount of 5.665 and a significance of 0.000. So it can be concluded that the effect of Motivation on Learning Achievement is significant.

Furthermore, the results of relative contributions and effective contributions can be shown in the table below.

Table 12. Relative and Effective Contribution of Independent Variables to Dependent Variables

Independent Variable	Contribution(%)	
	Relatively *	Effective *
Learning Style	38,31	30,92
Parents Income	25,67	20,72
Motivation to learn	36,02	29,06

Based on the results of the analysis listed in the table above, it can be seen that Learning Styles make a Relative Contribution of 38.31%, Parents' Income makes a Relative Contribution of 25.67%, and Learning Motivation makes a Relative Contribution of 36.02%. While the Effective Contribution of each Learning Style variable is 30.92%, Parents' Income is 20.72%, and Learning Motivation is 29.06%. The total effective contribution is 80.7%, which means that the variable Learning Style, Parental Income Level and Learning Motivation make an Effective Contribution of 80.7% to Learning Achievement, while 19.3% is given by other variables not discussed in this study.

A summary of the results of the research analysis can be summarized in the following figure:

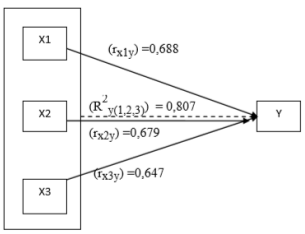

Figure 1. Summary of Research Results

Information:

X1 = Learning Style
X2 = Parents Income
X3 = MotivasiBelajar
r^2_{x1y} = The coefficient of the determinant of the Learning Style variable on Learning Achievement
r^2_{x2y} = The coefficient of determinant of parental income variable on learning achievement
r^2_{x3y} = The coefficient of the determinant of the variable Utilization of Learning Motivation on Learning Achievement
$R^2_{y(1,2,3)}$ = Coefficient of determinants of Learning Style, Parental Income and Learning Motivation together on Learning Achievement

Coefficient of determinants of Learning Style, Parental Income and Learning Motivation together on Learning Achievement

The results of the four calculations in this study indicate that there is a positive and significant effect of Learning Style, Parental Income and Learning Motivation jointly on Learning Achievement of Economics Education Students Class of 2023. From the results of the analysis using multiple regression, the price of the correlation coefficient is obtained (Ry(1) ,2,3)) of 0.898 and the price of the coefficient of determination (R2y(1,2,3)) of 0.807. After the F test was carried out, Fcount was 115.623 and Ftable was 2.71 at a significance level of 5%. This shows that Fcount>Ftable at a significance level of 5% so that it can be concluded that there is a positive and significant effect of Learning Styles, Parental Income and Learning Motivation on Learning Achievement of Economics Education Students Class of 2023. Through multiple regression analysis it can be seen that the Effective Contribution of Learning Styles, Parental Income and Learning Motivation on Learning Achievement by 80.7% while the rest comes from other variables not examined in this study.

Studies on the influence of learning styles, parental income and learning motivation on learning achievement have been carried out by previous researchers.Irawati research examines the influence of learning styles on science learning outcomes[37]. The results showed that there was a significant effect of learning styles on learning outcomes in science class IV at SDN 9 Mataram where learning styles contributed to learning outcomes by 21.2%. Furthermore,[38]examine the influence of parents' socioeconomic status on student achievement. Where it was found that the socio-economic status of parents had an effect of 77.3% on the learning achievement of class VIII students of SMP Negeri 1 JemberJember Regency for the 2016/2017 academic year, namely 77.3%.

Furthermore,Kamaluddinexamines the effect of learning motivation on mathematics learning achievement and states that high learning motivation is able to increase student enthusiasm so that it encourages students to be diligent in learning which indirectly affects their learning achievement[30]. Nugroho & Sudarmaexamines the influence of learning styles, learning motivation, and parents' socioeconomic conditions on learning outcomes [31]. Where it was found that there was a positive and significant influence between Learning Style, Learning Motivation, and Socio-Economic Conditions of Parents on Learning Outcomes of Class X Office Administration Students in Archives Training Subject at SMK N 9 Semarang Academic Year 2015/2016.Previous studies have been well carried out and obtained results that add to knowledge. However, this study complements previous studies by examining the effect of learning styles, parental income, and learning motivation on learning achievement studied in economics education students.

In this research, the novelty lies in a comprehensive analytical approach to the factors that influence student learning achievement. Through combining three main variables: learning style, parental income level, and student learning motivation, this research expands our understanding of the complex interactions between internal and external factors that influence academic achievement. By presenting new findings that enrich the literature on factors influencing student achievement, this research makes an important contribution to the development of more effective and inclusive educational strategies.

The implication of this research is as a means of information for educators to be able to find out what influences student achievement, so that the results of this research can be taken into consideration for educators to be able to take action in teaching. This research has been carried out according to scientific procedures, but still has limitations, namely there are still many factors that influence economic learning achievement that can be examined. So the researchers provide recommendations to future researchers to conduct research on other variables related to learning achievement.

4. CONCLUSION

Based on the results of the research, the conclusions that can be put forward in this study are: 1) There is a positive and significant influence of Learning Styles on the Learning Achievement of Economics Education Students Class of 2023; 2) There is a positive and significant effect of parents' income levels on the learning achievement of students of economic education class of 2023; 3) There is a positive and significant effect of the use of learning motivation on the learning achievement of students of economic education class of 2023; and 4)

There is a positive and significant influence on Learning Style, Parental Income Level and Learning Motivation together on the Learning Achievement of Economics Education Students Class of 2023.So the researchers provide recommendations to future researchers to conduct research on other variables related to learning achievement.

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