

The Impact of Student Psychological Factors on Self-Regulation in Learning in Primary Schools

Ratnawati Susanto^{✉1}, Evi Syafrida Nasution², Henny Sanulita³ & Jitu Halomoan Lumbantoruan⁴

¹ Primary School Teacher Education, Universitas Esa Unggul, Jakarta, Indonesia

² Psychology Study Program, Universitas Persada Indonesia Y.A.I., Jakarta, Indonesia

³ Indonesian Education Study Program, Universitas Tanjungpura Pontianak, Kalimantan Barat, Indonesia

⁴ Mathematics Education Study Program, Universitas Kristen Indonesia, Jakarta, Indonesia

✉ ratnawati@esaunggul.ac.id

Abstract. Regulation in effective learning can achieve knowledge and understanding of the material. However, in reality in the field, student self-regulation is still low. This is urgent to research because there are differences in theory, expectations, and reality in the field, so the research aims to analyze the influence of psychological factors on elementary school students' regulatory learning. The psychological factors studied are self-efficacy, orientation, and beliefs about intelligence. Quantitative research methods. The subjects were elementary school students with a sample of 639. The data collection technique used an instrument with the Beliefs of Intelligence Scale. Analysis techniques using Statistics version 25.0 with the Pearson correlation r test and Stepwise Multiple Regression analysis were used to analyze the research data. The results and findings show that the Regression Model of intrinsic goal orientation, self-efficacy, and entity trust contributes 31.3% in the good category. Change variance in self-regulated learning. The influence of intrinsic goal orientation is the highest, followed by self-efficacy and entity trust. This self-psychology model contributes to elementary school students' self-regulation learning. In conclusion, self-psychological factors must be considered to produce students who are more independent in independent learning. This research means that schools can shape student psychology independently.

Keywords: Confidence, Efficacy, Learning, Orientation

1. Introduction

Self-regulated learning is a psychological construct that is receiving increasing attention from educators because this skill supports active learning and can produce high academic achievement (Martínez-López et al., 2023; Xu et al., 2023). Children's learning behavior begins to form at the elementary school level. The age level of 7 to 12 years is a suitable and motivating period for children to become more independent in the learning process. This is by the aim of education, which is to form children who are capable and skilled in independent learning (Iivari et al., 2020; Murshidi et al., 2023). Self-regulated learning not only goes beyond the cognitive skills emphasized by metacognitive experts but also describes self-managed internal motivation and control of resources and the environment to optimize learning outcomes (Vosniadou et al., 2020; Van den Beemt et al., 2020). Anthony Samy et al., (2020) suggests that self-regulation learning strategies are divided into cognitive, metacognitive, and learning resource management strategies. Cognitive and metacognitive components include strategies of repetition, description, organizing, critical thinking, and metacognitive strategies, while resource management strategies include management of time, environment, effort, and help from others. For self-regulated learning to be efficient, elementary school students not only need to master the skills to manage their learning activities but also need to have high motivation (willingness) to do so. This is supported by Social Cognitive Theory which emphasizes the interaction between psychological factors of activity and the learning environment (Schunk & DiBenedetto, 2021). Social Cognitive Theory introduced by Ateş, (2020) assumes that the way humans function is influenced by personal, behavioral, and environmental factors. Therefore, these three factors also influence self-regulation learning. Specifically, self-regulated

learning is driven by self-psychological factors that direct learning behavior to optimize the learning environment and outcomes. The role of psychological factors in the learning process is also supported by Expectancy Value Theory, Goal Achievement Theory and Implicit Theory of Intelligence (Li et al., 2023). The Expectancy-Value Theory emphasizes the influence of self-ability in the independent learning process. Achievement Goal Theory and Implicit Intelligence Theory each highlight the influence of goal orientation and beliefs on intelligence in students' independent learning processes.

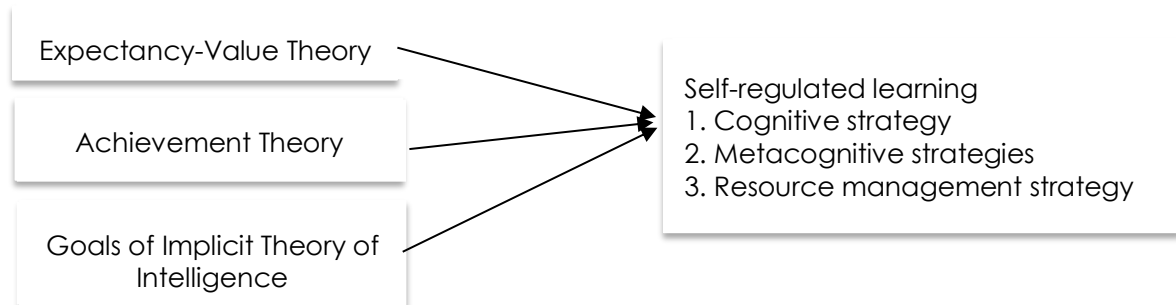


Figure 1. Relationship between psychological factors and self-regulated learning Source

1.1. Problem Statement

Although much research on self-regulated learning has been conducted abroad, local research, especially in the context of elementary school students, is still very limited. Research on this aspect is important considering that most schools in Malaysia practice an exam-oriented learning culture (Wahono et al., 2020; Akbar & Picard, 2020). Students usually do not have high skills in carrying out independent learning effectively. As a result, students, especially at the elementary school level, are very dependent on teachers in the learning process. Teacher-centered learning is a learning practice that has been going on for a long time in both primary and secondary schools (Woods & Copur-Gencturk, 2024). However, the transformation of education in Malaysia is now increasingly emphasizing student-centered learning (Katawazai, 2021; Ballesteros et al., 2021). Students are expected to master independent learning skills and be able to involve themselves actively in the learning process; in line with the philosophy of lifelong learning (Savkov et al., 2020; De Martino et al., 2020). To help students master self-regulatory learning skills, psychological factors cannot be ignored, in line with previous research findings (Wilkins et al., 2022). Research findings in this aspect have the potential to contribute to the development of interventions and strategies to improve self-regulated learning skills from elementary school onward. Additionally, studies on the psychological attributes of primary school students are still lacking in the Malaysian context (Bakar & Mahmud, 2020). Based on research points, psychological factors that need to be considered are self-efficacy, goal orientation, and students' beliefs about intelligence (Buenconsejo & Alfonso D. Datu, 2020).

1.2. Related Research

Research highlights Shi et al., (2022) show that self-psychological factors play an important role in learning self-regulation. The psychological factors emphasized in previous research are self-efficacy, goal orientation, and students' beliefs about intelligence. For example, in the research of Sedrakyan et al., (2020) emphasize the importance of self-psychological factors to improve self-quality regulation learning. These two types of goal orientation can encourage students towards independent learning, as supported by previous research (Tuominen et al., 2020). Studies by Burić & Kim, (2020) show that students who have intrinsic goals will show more positive and efficient behavior in managing time. Parallel findings were also obtained in van Lent & Souverijn, (2020) research which found that students with intrinsic goal orientation were more likely to use learning strategies ($r = 0.49$). Smit et al., (2017) found that students with intrinsic goals were more active in using cognitive strategies, compared to individuals with extrinsic goals. This is because intrinsic goal orientation recorded a higher correlation with the level of use of self-regulatory learning strategies ($r = 0.46$, $p < .05$) compared to extrinsic goal orientation ($r = 0.38$, $p < .05$). Buenconsejo & Alfonso D. Datu, (2020) argues that when children reach the age of 10

to 12 years, their beliefs about intelligence will influence their performance whether they succeed or fail. This shows that children's theories about the characteristics of intelligence have significant educational implications for their motivation and learning behavior (Xia et al., 2022). In summary, most research believes that intelligence is something that can be improved through efforts that have a positive impact on behavior and academic achievement (Yang et al., 2020). This is because beliefs about intelligence encourage students to be diligent and strategic in improving their self-achievement.

1.3. Research Objectives

Based on the research problems above, this research aims to determine the relationship between psychological factors of self-efficacy, goal orientation, and beliefs about intelligence and self-regulation in the learning process of students in elementary schools and to analyze the psychological influence of students in the learning process in self-regulating school students. base.

2. Theoretical Framework

2.1. Self-Efficacy

Self-efficacy refers to a person's beliefs about his or her ability to successfully learn an academic subject (Omari et al., 2020). The relationship between self-efficacy and academic achievement and learning behavior is supported by the Expectancy-Value Theory proposed by (Shang et al., 2023). This theory emphasizes that psychological factors, especially self-efficacy, can influence learning because a person's expectations of success influence their learning behavior. This is in line with the view of researchers (Alshurideh et al., 2020) that self-efficacy is the main source of motivation in the independent learning process. Thus, students who expect themselves to be able to achieve the learning goals that have been set will be more likely to use learning strategies. In other words, positive efficacy expectations encourage strategic behavior to achieve learning goals. Tusianah et al., (2021) research proves that students with high self-efficacy tend to organize strategies to optimize their learning. This finding is also supported by previous research which found that self-efficacy has a positive impact on self-regulation of learning and academic achievement (De Backer et al., 2022).

2.2. Goal Orientation

Goals are standards that individuals want to achieve in the learning process (Burbules et al., 2020). Goal setting is one of the important elements in determining a person's success as proposed by the Goal Achievement Theory. Goal orientation is important in mobilizing efforts, increasing persistence, and influencing a person's efficiency through the commitment process (Bates et al., 2023). Goal orientation can be divided into intrinsic and extrinsic orientation. Students with intrinsic goal orientation prioritize mastering new knowledge and skills in the learning process, while students with extrinsic goal orientation prioritize achieving grades and tend to compare their abilities with others (Buenconsejo & Alfonso D. Datu, 2020).

2.3. Beliefs about Intelligence

Beliefs about intelligence are one of the psychological factors that can influence self-regulation learning (Vosniadou et al., 2020; Hertel et al., 2024). According to Implicit Intelligence Theory, each individual has certain beliefs about the variability of intelligence (Scherer & Campos, 2022). According to (Chen et al., 2020), some students believe that effort can increase their level of intelligence because intelligence is soft. They are said to have business beliefs and believe that business can increase intelligence thereby ensuring high academic achievement. Such beliefs are common in Asian societies because effort is a prerequisite for academic success. Parents and teachers who are important individuals in a student's life can color his or her beliefs about the variability of a person's intelligence. Meanwhile, some individuals believe that intelligence is something that cannot be changed with just effort (Dwivedi et al., 2020; Krupiy, 2020).

2.4. Psychological Factors

Educational theory is a well-debated area of psychology (Fraser et al., 2018). Application of psychological principles and methods in developmental learning, learning, and motivation (Salikhova et al., 2020). Teaching, assessment, and other related issues that affect teaching relationships. Educational psychology is very important to support the achievement of student learning processes. Psychology in teaching and learning strategies is needed (Duque et al., 2020). By understanding educational psychology for students and teachers through psychological processes, learning can be carried out objectively and effectively. Educational psychology really helps students achieve their goals (Chiu, 2021). Learning psychology is used to help teachers understand student characteristics and understanding (Hwang et al., 2020). The student's learning process, selection, and use of psychology in different strategies have a positive impact. Educational psychology provides references for planning, implementing, and evaluating training based on abilities, level of development, needs, conditions, abilities, and speed of student learning according to type, level, standards, and objectives

3. Method

3.1. Research Design

This research uses a quantitative approach with the Pearson correlation r test and Stepwise Multiple Regression analysis used to analyze research data (dos Santos, 2020; Corte et al., 2020).

3.2. Respondent

The population of this research is all students spread across West Jakarta. The research sample consisted of 639 fourth and fourth-grade students from 10 schools. The reason this sample was chosen for second-grade students was because their classmates and fifth-graders were able to master self-regulation learning skills. In addition, these students also have a stronger command of the language than higher grade levels. Of the 639 consisting of 330 men and 309 women.

3.3. Data Collection

Data collection techniques by providing questionnaires. The questionnaire given is more authentic because language constraints can be minimized. A cluster sampling technique is used to select research respondents. Motivated Strategies for Learning Questionnaire (MSLQ) indicators are developed into instruments and are used to measure student self-regulation learning skills, while psychological factors indicators are used to see the effect of children's self-efficacy scale, the orientation scale of objectives, and intelligence belief scales. These indicators are developed into instruments and have been modified for use in the Indonesian context. The trial was carried out to ensure the administrative and data collection process ran smoothly during testing. The permit was also obtained from the Educational Planning and Research Section, the Ministry of Education of the Republic of Indonesia, the Ministry of Education, and the Educational Study Center.

3.4. Data Analysis

The analysis technique used in this research is Statistics Version 25.0 (Freedberg et al., 2020) and inference analysis namely Pearson's Correlation r and Stepwise Multiple Regression are used to analyze the study data. The Stepwise Multiple Regression analysis technique is used to examine the influence of psychological factors on the self-regulation learning of elementary school students because it has many advantages. This technique has strength compared to other multiple regression because it is more economical and can avoid multicollinearity problems caused by strong correlation between predictor variables (Shafiee et al., 2021). Future settlement procedures have been implemented. Screening of the research data including normality tests was carried out before the inferential statistical analysis was carried out.

3.5. Validity

From the results of the instrument validation test, the number of respondents who met was $n = 639$ and was declared valid with a value of $\alpha = 0.05$ (one side), effect size = 0.15 (medium),

and the actual strength of the instrument (medium). actual power or $1 - \beta$) inferential statistical test value 0.95. The instrument used in this research was declared valid, normal homogeneous, and suitable for use as research measuring tool and suitable for distribution to be assessed by respondents.

4. Findings

4.1. Relationship between Psychological Variables and Self-Regulation of Learning

The results contained in Table 1 show that the results of the analysis of the relationship between students' psychological factors and students' self-regulation when learning are positive and significant. The results of the Pearson correlation coefficient r show that all psychological factors studied have a significant positive relationship with self-regulated learning, except for entity beliefs ($r = 0.01$, $p > 0.05$) and extrinsic goal orientation ($r = 0.08$, $p < 0.05$). Intrinsic goal orientation ($r = 0.52$, $p < 0.01$) was found to have a strong relationship with self-directed learning, while self-efficacy recorded a moderate correlation ($r = 0.39$, $p < 0.01$). The psychological factor that has a weak but significant relationship to the self-regulation learning process is business confidence ($r = 0.27$, $p < 0.01$).

Table 1. Correlation analysis of psychological factors with self-regulation learning

Psychological factors	Correlation value (r)
Self-efficacy	.39**
Goal orientation	
Intrinsic goal orientation	.52**
Extrinsic goal orientation	.08*
Belief in intelligence	.27**
Business beliefs (effort beliefs)	.01
Note: ** $p < .01$; * $p < .05$	

4.2. Psychological Factors That Influence Self-Regulated Learning

Table 2 shows that intrinsic goal orientation, self-efficacy and entity trust have significant beta (β) values. This means that each of these variables explains the variance in self-regulation learning significantly after the influence of other variables is controlled statistically through multiple regression analysis. Extrinsic goal orientation and business beliefs were not included in the regression model because these variables had β values that were too small and were not significant after the influence of other variables was controlled (P et al., 2020).

Table 2. β values for psychological variables

Variable	β value
Intrinsic goal orientation	$\beta = 0,473^*$
Self-efficacy	$\beta = 0,128^*$
Entity trust	$\beta = 0,081^*$
Extrinsic goal orientation	$\beta = 0,007$
Extrinsic goal orientation	$\beta = 0,037$
Business confidence	$B = 0,473^*$
Note: * $p < 0.05$	

The results of the Multiple Regression analysis in Tables 3 and 4 show that the three psychological variables were included in the regression model in order of their \hat{y} values. the important one. Intrinsic goal orientation ($\beta = .546$, $p < .05$) alone made a significant contribution of 29.9% ($R^2 = .299$) to changes in self-regulation learning variance [$F(1,585) = 249.095$, $p < .05$]. The combination of the two variables intrinsic goal orientation ($\beta = 0.472$, $p < 0.05$) and self-efficacy ($\beta \hat{y} = 0.116$, $p < 0.05$) contributed 30.7% ($R^2 = 0.307$) to the change in variance in self-regulation learning [$F(2,584) = 129.098$, $p < 0.05$]. Furthermore, the combination of the three intrinsic goal orientation variables ($\hat{y} = 0.473$, $p < 0.05$) and self-efficacy ($\hat{y} = 0.128$, $p < 0.05$) and entity trust ($\beta = 0.081$, $p < 0.05$). 05) increased the contribution of changes in self-regulation learning variance to 31.3% ($R^2 = 0.313$) [$F(3,583) = 88.559$, $p < 0.05$]. The regression equation can

be written as follows: $Y = 1.509 + 0.4041 + 0.1032 + 0.0483$. The results of multiple regression analysis show that the P3 Regression Model in intrinsic goal orientation, self-efficacy, and entity beliefs makes a positive and significant contribution of 31.3% in the good category and $R^2 = 0.313$ to the variance of the self-regulation learning process [$F(3,583) = 88.559, p < .05$]. Meanwhile, intrinsic goal orientation was obtained with $\beta = 0.473, p < .05$, and dominant, followed by self-efficacy with $\beta = 0.128, p < .05$, and organizational trust $\beta = 0.081, p < .05$. These self-regulation strategies help in predicting the self-regulation learning of elementary school students.

Table 3. Formulation of Linear Regression Predictors for Psychological Factors

Model	R	R ²	Δ R ²	df.	F	Sig.
P1	.546	.299	.297	1	249.095	.000
				585		
P2	.554	.307	.304	2	129.098	.000
				584		
				586		
P3	.560	.313	.310	3	88.559	.000
				583		
				586		

Note: * $p < .05$ Predictor (P1): (Constant); Predictor intrinsic goal orientation (P2): (Constant); intrinsic goal orientation, Predictor of self-efficacy (P3): (Constant); intrinsic goal orientation, self-efficacy, and entity beliefs. Dependent variable: Self-Regulated Learning

Table 4. Predictor coefficient values for psychological factors

Model	Variable	B	Std. Error	Beta	t
1	Forager	1.811	.131	.546	13.829
	Intrinsic goal orientation	.466	.030		15.783*
2	Forager	1.682	.140	.472	12.045*
	Intrinsic goal orientation	.403	.038		10.513*
3	Kendir efficacy	.094	.036	.116	2.585*
	Forager	1.509	.157		9.581
	Intrinsic goal orientation	.404	.038		10.584*
	Kendir efficacy	.103	.036	.081	2.839*
	Entity trust	.048	.020		2.344*

Dependent variable: Self-Regulated Learning (PRK), significant level $p < 0.05$

5. Discussion

The findings in this research as a whole research found that psychological factors are very important in the formation of students' learning skills in elementary school as well as in self-regulation from an early age. This is because students who are efficient in self-regulated learning not only master the skills to manage their learning activities but also have psychological factors that encourage them to do good things and have positive value for the child. The findings in this study are in line with previous research which argues that students who have intrinsic goals tend to use strategies to optimize their learning outcomes. Students are also more motivated in organizing their learning activities to achieve the learning goals that have been set (Thiermann & Sheate, 2020; Jeno et al., 2020; Kim & Beier, 2020). This is in line with research by Ilishkina et al., (2022) which found that students with intrinsic goals were more active in using cognitive strategies than students with extrinsic goals. In addition, this research found that self-efficacy plays an important role in elementary school students' self-regulation learning. These results are consistent with previous research (Rodríguez et al., 2022; Miao & Ma, 2023).

This finding is also supported by Expectancy-Value Theory which states that individual factors in relation to self-efficacy can influence learning based on expectations of success (Li et al., 2023; Shang et al., 2023; Kryshko et al., 2022). This means that students who expect themselves to be academically successful will be more likely to use learning strategies. This is because students are confident and have positive self-efficacy to improve learning and achieve academic success. In terms of belief in intelligence, this research found interesting findings. Students' beliefs that intelligence is something fixed (entity) can predict self-regulatory behavior. The results of this study indicate that students who believe that intelligence is determined from childhood and is something that is not easily changed through effort will be more likely to learn self-regulation. These findings are in line with previous research (Vosniadou et al., 2020; Zheng et al., 2020; Hertel et al., 2024b).

6. Conclusion

The conclusion is that students' psychological factors have a significant relationship with elementary school students' self-regulation. This psychological factor is an important factor that cannot be ignored because the combination of three psychological variables, namely intrinsic goal orientation, self-efficacy, and self-confidence can predict approximately one-third of the variance in changes in self-regulation learning. Other factors that can influence self-regulation learning at the elementary school level include the teaching and learning process, teacher and student interactions, technological support, parental care, and so on. Further research can be conducted to produce a holistic model to predict elementary school students' self-regulation learning. This model needs to pay attention to students' psychological factors as well as the social and physical environment in the context of self-regulation learning. In terms of educational implications, the findings of this study indicate that learning self-regulation is the key to lifelong learning. Early disclosure learning strategies need to be implemented in preschool and elementary school. This is because, at this early stage, students can be guided and supported to be actively involved in self-regulation of learning to control their learning activities. The findings of this research contribute to the development of interventions and strategies to improve independent learning skills at the elementary school level. Every planned intervention and program should include initiatives to strengthen students' psychological attributes considering that this factor influences 31.3% in the good category of variations in self-regulation learning. In addition, educators should take positive steps to encourage self-regulated learning in elementary school students. The world of education needs to realize that student preparation from psychological aspects is important in encouraging learning independence and a conducive learning environment cannot be ignored. Comprehensive action is needed from various parties.

Limitation

This research has a weakness, namely that this research does not describe and reveal in detail the psychological abilities of teachers in teaching and guiding students during the learning process. Research only finds students' psychological factors that have an impact on self-regulation when learning takes place in elementary school. In implementing education at the basic level, teachers and students must be psychologically stable. This research has limitations, namely that the research was not carried out until the milestone stage. Therefore, all parties need to ensure that teachers are able to carry out education in schools with good psychology even though it is taught across the curriculum. Teachers should always think positively about all curriculum innovations related to elementary school education. The application of environmental values cannot be considered only a burden on the curriculum. Moreover, psychological attitudes produce positive actions, whereas negative attitudes produce negative actions. A teacher's positive attitude towards the basics of education will produce positive behavior regarding learning and this can be seen in teaching through actions and words inside and outside the classroom. The teacher's attitude can only be changed if a deep awareness arises within the teacher himself. As a teacher, the attitudes or actions that emerge become followers of his students. In this regard, teachers can be given motivation, exposure and knowledge about the importance of protecting and preserving the environment. This aims

to enable teachers to change their attitudes by implementing environmentally friendly practices and becoming role models for students. Environmentally friendly practices that teachers can do include turning off lights and fans when not in use, using tissue to reduce the use of paper tissue and save energy, using ordinary paper clips instead of colored clips because they can cause cadmium poisoning, reuse and recycle, refill paper and reduce waste energy generation by using refillable pens and mechanical pencils and keep the school environment clean by using trash cans. However, with heavy teaching loads and administrative duties, there are times when teachers are forced to focus on more pressing responsibilities and postpone educational outreach programs.

Recommendation

Schools must ensure that students and teachers are psychologically stable and in control. Schools are also advised to ensure that the latest information regarding boarding education is published from time to time so that information continues to be disseminated. School administrators should encourage students to exchange information with other teachers in the school. For this reason, internal discussions or internal training can be held so that the information can be disseminated to all teachers and be useful for students. In the learning process, teachers should choose appropriate teaching and learning methods, and should also implement teaching and learning strategies periodically so that teachers can obtain information about the teaching and learning process, especially in efforts to integrate education with students and society. This is necessary so that teachers know the timing and psychology of students as well as the appropriate depth of content so that students can make optimal use of the knowledge provided. Planning also includes relevant teaching methods and materials as well as assessment aspects. Spontaneous application can occur especially when teachers can include things related to the environment if there is space around the particular topic or topic being discussed. Teachers also need to make time to participate in every environmental education program or activity at school, such as debates, exhibitions, forums or life-related essay competitions. The success of implementing education in schools is very dependent on the willingness and seriousness of teachers as implementers. Therefore, teacher attitudes and behavior will influence student learning.

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Conflict of Interest

We have no conflict of interest with each other in the authorship of the research report and publication of this paper

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