

# The influences of self-regulated learning on Academic Achievement In Early childhood

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**Abstract.** This study is aimed to determine the effect of self-regulated learning on children's academic achievement in grade 2 elementary school. This research is a quantitative study with a total of 50 research participants. Data collection methods used were the scale of self-regulated learning and academic achievement. Academic achievement data was obtained from odd semester academic reports while data collection was taken in the even semester. The data analysis technique used was regression analysis. The results of the regression analysis showed the significance of self-regulated learning on the academic achievement of  $0.153 > 0.05$  and the results of data analysis showed that there was no influence of self-regulated learning on children's academic achievement. Besides, the result of data analysis showed that children's academic achievement is influenced by other factors which are not examined in this study, both intrinsic factors and extrinsic factors.

**Keywords:** Self regulated learning, Academic Achievement

## 1 Introduction

Academic achievement becomes a benchmark of the students' level of understanding in the teaching materials that have been given after the students have experienced the learning process at a certain period and stated in the form of grades. Furthermore, academic achievements that have been achieved by the children can be known through the final grades of the learning activities. Then the learning outcomes can be known by students' guardians through the academic reports that are given at the end of the learning period. The academic achievement seen from the school report is a benchmark for children's academic achievements to show what they have achieved at certain stages of their development.

Many parents think that when a child has not performed well in their early period of learning in elementary school, it means the child has not been successful. As a result, many parents assume that children should be more disciplined in terms of their learning so that they can catch up with what they have left behind by adding extra hours of learning and assignments after the children have finished their school.

The additional assignments the children do daily make them feel tired and burdened because it consumes their playing time. As a result, the children still have to think about school tasks every day continuously outside of their learning time. Homework or school assignments that are brought every day should be able to help the children to deepen their understanding of the lesson. The assignment also should be able to develop a child's sense of responsibility and can enhance the child's learning independence. Although the children should be responsible for their assignment, at such a young age the children are still at the stage where they need to play instead of studying properly. As a result, the children feel the learning is less interesting to do thus making the children are still dependent on their parents so that the parents who complete the school works.

The children's academic achievement will improve if they are independent in their learning. Conversely, if the children are unable to demonstrate their independence of learning, their academic achievement will deteriorate. The child's learning independence is influenced by several factors namely internal factors coming from inside of themselves and external factors that come from outside. Thus, if the children are independent then they must have the responsibility to do everything without having to depend on others.

The results of the following studies indicate that children's independence in learning has positively impacted their academic achievement. Based on the results of research from Sadi & Uyar, (2013) with the title "The Relationship Between Self-Efficacy, Self-Regulated Learning Strategies and Achievement: A Path Model " shows the results that self-regulated learning influences the person's achievement [1]. Aregu, (2013) concluded that there is a positive relationship between learning independence and academic achievement[2]. In their research with the title "Self-regulated learning strategies predict learner behavior and attainment goals in Massive Open Online Courses", Kizilcec, Pérez-Sanagustín, & Maldonado, (2017) stated that individuals with strong independent learning abilities (SRL) are characterized by the ability to plan, manage and control their learning processes, and also can have better learning outcomes. Learning independence possessed by children will show the seriousness of the children in doing their work to get maximum learning outcomes[3]. Thus it can be concluded that children will get a better academic achievement if they have the independence of learning in themselves. Based on the research by Artino, 2008, strong Self-regulated learning skills will predict high efficiency and self-satisfaction and can produce better learning outcomes [3]. Pintrich&DeGroot, 1990; VanZile-Tamsen& Livingston,1999, revealed that people who have high achievements use more self-regulated learning, compared to students who have low achievements [4]. According to Wang (2011) more and more research indicates that SRL strongly influences student performance and academic achievement [6].

Even though the studies above reveal the positive influence of self-regulated learning on students' academic achievement, the facts show that there are still many children in their early years of schooling depend on their parents when doing their work both at home and at school. Also, some children like to procrastinate their home works. Moreover, awareness and independence of children to prioritize learning tasks are still low. For example, some children still depend on the teacher at school and children do not directly work on the tasks given during school hours. Instead, they joke with their friends. From that explanation and example, it can be seen that there are still many children who do not have the independence of learning, which likely affect the low academic achievement of children in their early years of school. Thus, the purpose of this study was to determine the effect of self-regulated learning on children's academic achievement.

## 2 Theoretical background

### 2.1 Self-Regulated Learning

Pintrich (1999) defines Self-regulated learning as a strategy used by students to regulate their cognition [1]. Self-regulated learning refers to thoughts and actions that can be used to control the learning process both directly and indirectly, and consciously used by someone to optimize their learning experience [7]. Zimmerman & Schunk (2011) defines Self-regulated learning as a systematic effort by students to manage the learning process to achieve goals[7].

Zimmerman (1990) divides learning independence into several aspects namely self-study self-evaluation, organizing and transforming, setting goals and planning, finding information, taking notes, self-monitoring, structuring the environment, giving self consequences, practicing, memorizing, seeking social assistance, and reviewing [5]. Wiener (1948) stated the term independent learning involves three important elements including learning, self-regulation, and self-study related to involvement in activities to gain knowledge and skills while the rules describe a process of a person's current state with the state after for example learning objectives and perceived differences to motivate further action [6]. Pintrich (2004) identified three categories of learning independence strategies that participants can use to manage learning, namely: (1) cognitive strategies, (2) metacognitive, and (3) resource management strategies. Students utilize cognitive strategies in the acquisition, storage, and retrieval of information (eg, exercises, critical thinking, organization, translation) [8]. Pintrich (2004) synthesizes four assumptions of learning independence. The first assumption is constructive active which emphasizes that students are considered to build their meanings, goals, and strategies from information available in the external environment and information in their minds. The second assumption is the potential to control assumptions [4]. In accordance with the statements of Pintrich (2004) and Schunk (2005) Self-regulated learning is an active and constructive process of students to set learning goals and try to monitor, regulate, and control cognition, motivation, and behavior, guided and limited by their adjusting features contextual in the environment[9]. This assumption emphasizes that students can potentially monitor, control, and regulate certain aspects of their knowledge, motivation, and behavior as well as some of their environmental features. The idea behind this assumption is that self-monitoring, control, and regulation is possible. The third is about objectives, criteria, or standard assumptions.

Learning independence is an activity where children can be independent or stand-alone, to regulate their learning including being able to control the mind, being able to control themselves, and being able to control the environment.

### 2.2 Academic Achievement

Learning and learning achievement are two concepts that cannot be separated from each other. Learning refers to something that must be done by someone as a subject who receives a lesson while learning achievement or academic achievement is the final goal to be achieved from a learning process. Learning is a change in behavior that is eternal, or in the capacity to behave in certain ways, which results from practice or other forms of experience[10]. According to Scott

(2011), learning outcomes are a description of what learners will learn at the end of the learning period [11]. Meanwhile, according to Biggs & Tang (2011) learning outcomes are skills, knowledge or attitudes that students must develop as a result of their learning [2]. Watson (2002) defines learning achievement as something that can be done by students at this time that previously not done yet, these changes as a result of the learning experience [12]. Elliot (2005) defines academic achievement as the basis for achieving the final goal of learning tasks [13]. Dweck, 1986; Nicholls, 1984, argued two types of learning task achievement are mastery goals, where students focus on developing their academic competencies, and performance goals, where students focus on showing their competencies to others [13].

According to Ward al (1996) academic achievement is the result of education to the extent that a student, teacher or institution has achieved their educational goals [14]. while according to Steinmayret al (2017) academic achievement is the result of instructional performance that indicates the extent to which a person has achieved specific goals in their learning activity in educational settings, for example in schools, colleges, and universities [15]. According to Heckhausen, Wrosch, & Schulz, (2010) academic achievement is very important to master several educational developmental goals in all life spans, especially during school years and young adults [16].

Academic achievement is a term to indicate an achievement level of success i.e. the goal of learning has been achieved because a learning effort has been done by someone optimally. Standards of academic achievement itself include the KKM grade standards or (Minimum Value Completion Criteria) which are determined in each subject in the school and added to the final results of the average KKM grade or (Minimum Value Completion Criteria) class in all subjects.

### 2.3 Hypotheses

Based on the literature review from the results of previous studies as described above, the researchers propose a hypothesis that there is an influence between learning independence on academic achievement.

## 3 Method

This research uses a quantitative approach, with a simple regression analysis.

### 3.1 Participants

The participants of this study were children in early years of school at grade 2 at SDN Munjul 1 in Cirebon, West Java with a total of 50 children.

### 3.2 Data collection

Data collection instruments in this study used a self-regulated learning scale while for academic achievement data was obtained through secondary data / document of their academic reports in the first semester.

Data analysis measures the effect of self-regulated variables on academic achievement, as well as interpreting comparisons between research results and those predicted before the research. The implementation of statistical data analysis used the Statistical Package for the Social Sciences (SPSS) 16.0 program to conduct descriptive analysis, test assumptions and hypotheses meanwhile testing of hypothesis used correlation and regression analysis methods, where this analysis was

used to determine the effect of the independent variable on the dependent variable, to know whether the independent variable has a positive or negative effect.

#### 4 Results and discussion

Based on the results of the study, the learning independence test instrument only affects 0.42% of the Summary data. Based on the significance value from the coefficient table, it is obtained a significance value of  $0,153 > 0,05$ , and based on the calculation of the value of  $t$  arithmetic, it is known that the value of  $t$  arithmetic obtained data is  $1,451 < t$  table  $2,011$  which means that the value of  $t$  arithmetic research results are smaller than the  $t$  table of  $2,011$ . Based on the results of this study there may be other factors that affect academic achievement. This is as stated by Montavalo & Torres (2008) that the education system, materials, and teachers can influence student behavior and learning goals[17]. The description of this research can be described as follows.

**Table 1.** Descriptive Model Summary analysis results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.205 <sup>a</sup>	.042	.022	235.583

The results of descriptive analysis using SPSS 16.0 model summary in table 1: shows the correlation value (R) that is equal to 0.205. R Square's determination coefficient is 0.42, the results of data analysis indicate that there is an effect of self-regulated learning on achievement of 0.42%.

**Table 2.** Residuals descriptive analysis results

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	711.653	731.108	722.800	.48829	50
Residual	-648.079	709.857	.00000	233.167	50
Std. Predicted Value	-2.283	1.701	.000	1.000	50
Std. Residual	-2.751	3.013	.000	.990	50

Descriptive analysis in table 2 shows the minimum score, the highest score, the mean, and the standard deviation of the variables. The self-regulated learning data in table 3 is obtained a minimum score of 711,653 and a maximum score of 731,108.

**Table 3.** ANOVA descriptive analysis results

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	11.683	1	11.683	2.105	.153 <sup>a</sup>
1 Residual	266.397	48	5.550		
Total	278.080	49			

Analysis of the output from calculating  $f$  value = 2.105 with a significance level of  $0.153 > 0.05$ , it can be concluded that there is no effect of self regulated learning on children academic achievement in their early years of school.

**Table 4.** The result of descriptive analysis coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	70.009	1.601		43.739	.000
	Self Regulated Learning	.053	.036	.205	1.451	.153

In the descriptive analysis in table 2 shows constant value (a) of 70.009 while b value of regressive coefficient is 0,53, similarity is obtained.

$$Y=a+bX$$

$$Y=70.009+0,053X$$

The participant variable consistency value of 70,009, and the regression coefficient X of 0.53 stated the direction of the influence of self-regulated learning on academic achievement is positive based on the value of the number.

Based on the significance value from the coefficient table, a significance value of  $0,153 > 0.05$  is obtained so it can be concluded that self-regulated learning has no effect on children's academic achievement in the early years of schooling. Based on the t value, it can be known the counting value of  $1,451 < t$  table 2,011, so that it can be concluded that self-regulated learning has no effect on academic achievement. As a result  $H_a$  is rejected.

Based on the results of the study, the learning independence test instrument only affects 0.42% of the Summary data. Based on the significance value from the coefficient table, it is obtained a significance value of  $0,153 > 0.05$ , and based on the calculation of the value of t arithmetic, it is known that the value of t arithmetic obtained data is  $1,451 < t$  table 2,011 which means that the value of t arithmetic research results are smaller than the t table of 2,011. Furthermore, it means that instrument tested might not have a significant impact on improving children's learning achievement. The findings are not consistent with previous studies. For example, Zimmerman and Martinez-Pons (1990) determined that the results of their research had a correlation between self-regulated learning and academic achievement [18]. Pintrich & DeGroot, 1990; VanZile-Tamsen & Livingston, 1999 revealed that people who had high achievement used more self-regulated learning, compared to students who had low achievement [4]. Wang (2011) another statement that is in contrast with the result of this study is more research indicating that SRL greatly influenced student performance and academic achievement [5]. Aregu (2013) concluded the results of his research there was a positive relationship between learning independence and academic achievement [8]. The results of Cho, kim & choi's (2019) study concluded that students who had high learning independence could achieve higher affective outcomes, compared to students who had low independence [7]. Yusuf (2011) the above findings were similar to the existing literature on The impact of self-efficacy, achievement motivation, and selfregulated learning strategies on students' academic achievement, Self-efficacy beliefs were

significantly enhanced learning attainment [19]. Panadero (2017) self-regulated learning has become one of the most common educational theories to explain students' academic achievement because it includes a large number of variables related to learning, such as goal orientation, task specific strategies, metacognitive strategies, attribution theory[20]. Labuhn, Zimmerman, and Hasselhorn. (2010) found that learners who were taught SRL skills through monitoring and imitation were more likely to perform higher on measures of academic achievement compared to students who did not receive SRL instruction. Ruban and Reis (2006) indicated that self-regulated learners have high probability of success in their academic and professional life[9].

Despite the result of the previous studies that were in contrary of this study, the results of Mahmoodi's, Kalantari and Ghaslani's (2019) is in accordance with the result of this study that revealed a different result that there was no significant relationship between SLR and L2 achievement[9]. There are other factors that can influence students academic achievements as it is stated by Montavalo&Torres (2008) that educational system, materials, and teachers can influence students' learning behaviours and goals[17].

## 5 Conclusion

Based on the findings of the research, it can be seen that self-regulated learning of young children in grade 2 has been well developed, however there is no significance influence of self-regulated learning on academic achievement of early childhood. This study is also in accordance with research conducted by Mahmoodi, Kalantari and Ghaslani (2019) that revealed different results from previous research i.e. that there is no significant relationship between SLR and L2 achievement [9].

Thus it is likely that there are several factors that can affect children's academic achievement, both intrinsic factors and extrinsic factors. Internal factors are the role of physical and emotional maturity, IQ, children's interest while extrinsic factors are learning strategies, learning media, learning methods and learning models used by teachers. Those might be able to influence children's academic achievement.

The findings imply that children's ability to understand learning process requires a high IQ because it is needed to understand different content of learning material. The role of maturity and learning also influences how children can understand the concepts taught through various kinds of developmental stimulation. In addition, emotional maturity of the children also plays important role to prepare them mentally when facing school demands every day. Preschoolers are experiential, learning by doing rather than figuring things out only by thinking about them. This makes shared activities with educators and peers potent opportunities for cognitive growth [21]. Children's interests also become one of the triggers for them to stimulate a sense of curiosity about learning materials that will be studied. While the previous factors mentioned are from the children i.e. intrinsic factors, the external factors also influence children's academic achievement. One of the extrinsic factor is the teacher. Appropriate learning strategies in accordance with the stage of growth and development that are provided by the teacher will facilitate the teacher in delivering learning materials. For example, playing games can be strategies that can foster children's

enthusiasm when learning. The learning media used by the teacher also influences children's learning interest so that it will create a sense of curiosity about the material conveyed by the teacher such as four-dimensional media that can be seen from various sides. Additionally, the learning method used by the teacher can be an option to bring up the child's curiosity about the material such as the use of an experimental method that will stimulate children's curiosity of a simple experiment. Preschoolers are more competent in deliberate approaches to learning, such as trial and error or informal experimentation[21]. The last extrinsic factor is a suitable learning model for children (Beyond Centers And Circle Time), the central model or BCCT, that was coined by Pamela. Using the learning model, the children will be invited to learn through a variety of fun play, this model further develops a center of interest in all materials in the box at various centers of children's play [22].

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