

## THE CORRELATION BETWEEN STUDENTS' METACOGNITION AND THEIR ACADEMIC ACHIEVEMENT IN ENGLISH SUBJECT AT SMAN 8 KENDARI

Amrin<sup>1</sup> Amri Tanduklangi<sup>2</sup>Mursalim<sup>3</sup>

<sup>1</sup>Halu Oleo University, Indonesia.

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### ABSTRACT

The study aimed at investigating the correlation between students' metacognition and their academic achievement at the eleventh grade of SMAN 8 Kendari. The objective of the study is to answer the following research question: is there any significant correlation between student's metacognition and their academic achievement in English subject at SMAN 8 Kendari?. The study was correlation research study, which employed quantitative research methods. The data was collected from 46 participants who are from SMA N 8 Kendari class XI IPA I and IPS II. The data collection was carried out by using a Metacognition questionnaire and English achievement students from report card. Researcher used cluster random sampling technique in taking the sample. The data of the study was analyzed through Spearman correlation analysis of SPSS 16. The result shows that the coefficient correlation that obtained from the computation is 0,443 and categorized as moderate correlation. The result shows that there is a significant correlation between students' metacognition and their academic achievement in English subject. This conclusion of this study was drawn through the result of computation which showed that the value of coefficient correlation (r) between two variables, that was students' metacognition as the variable X and academic achievement as the variable Y, is as moderate as that of the Spearman correlation table with 0,05 level significant. Further, the data showed that there was a moderate correlation. Therefore, it means that the alternative hypothesis was accepted and the null hypothesis was rejected.

## 1. Introduction

Metacognition is a profound way of thinking by focusing on awareness and control on cognitive processes. Livingston (1997) defines metacognition as thinking about thinking. Metacognition leads to high-level thinking that involves active control of the cognitive processes during learning activities. Dawson (2008) explains that Metacognitive success in helping students learn cannot be separated from the four keys in metacognitive skill, namely planning (planning), monitoring (monitoring), evaluating (evaluation), and revising (revision). Schraw (2006) the planning stage includes selecting the most appropriate strategies for learning as well as the allocation of resources. Planning phase also helps students in predicting difficulties to be faced, so that students try to arrange the way or step in learning in order to obtain optimal learning outcomes. Livingston (1997) explains that the monitoring stage leads to moderate activity on learning progress. Monitoring activities are monitoring during learning activities, such as being able to ask themselves. Evaluating is an evaluation of self-learning process that includes progress assessment of learning activities. The systematic method of evaluating can help by developing skills and strategies. After evaluating the learning process, students will then revise the learning process. Livingston (1997) states that while revising the learning process students modify previous objectives, strategies, and other learning approaches. Based on the exposure, during the evaluation of the learning process allows students to find the best alternative based on previous learning experience. Students are also learning success.

According to Anderson (2002) metacognition has important role in second language teaching and learning. Here is how metacognition implemented in language teaching: *Planning*, the teacher might set a goal for the students of mastering the vocabulary from a particular chapter in text book. A student might set a goal for himself of being able to answer the comprehension at the end of the chapter. *Monitoring*, students may be taught that an effective writing strategy involves thinking about their audience and their purpose in writing (e.g., to explain, to persuade). Students can be taught that to monitor their use of this strategy, they should pause occasionally while writing to ask themselves questions about what they are doing, such as whether or not they are skilled at finding out what is not appropriate in their learning so that they can also use their goals, strategies, and other learning approaches to their providing the right amount of background information for their intended audience and whether the examples they are using are effective in supporting their purpose. *Evaluating*, For example, while teaching the specific reading skill of main idea comprehension, the teacher can help students evaluate their strategy use by using the four questions: (1) *what am I trying to accomplish?* The teacher wants students to be able to articulate that they are trying to identify the main idea in the text they are reading and that they are doing so because understanding the main idea is key to understanding the rest of the text. (2) *What strategies am I using?* The teacher wants the readers to know which strategies are available to them and to recognize which one(s) they are using to identify the main

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idea. (3) *How well am I using the strategies?* The teacher wants the students to be able to judge how well they are using the strategies they have chosen, that is, whether they are implementing them as intended and whether the strategies are helping them achieve their goal (4) *What else could I do?* If the strategies that students are using are not helping them to accomplish their goal (i.e., identifying the main idea), the teacher wants them to be able to identify and use alternate strategies. Teachers need to make students aware of the full range of strategies available to them.

Looking at the reality of English learning that is in SMAN 8 Kendari, it is known that students of class XI have low metacognitive ability, evidenced by the facts as follows. 1) Students are often late in collecting tasks assigned by teachers (self low planning). 2) Students do not prepare textbooks related to the material to be studied in the classroom (low self planning). 3) Students often crowded and joked in the classroom when the teacher explained the subject matter (low self monitoring). 4) There are still many students who cheat each other during repetition; this proves that the student does not have good self-regulation (low self monitoring). 5) Many students get low score when pretest (self evaluating low). Consequently, the average value of English midterm test is 63, where the value is below the mean grade of the class, which is 72. Based on the problem above the researcher is interested to conduct a research about "the correlation between student's metacognition and their academic achievement in English subject".

Based on the background described above, the research question of this study was there any significant correlation between students' metacognition and their academic achievement in English subject?

## **2. Research method**

The research design of this study was quantitative correlation research. The population of this study was the second grade students of Senior High School 8 Kendari in 2018/2019 academic year. It consisted of 203 students that had 9 classes. The sample was taken using cluster random sampling.

Survey method was used to conduct the study. The participants were debriefed regarding focus of the study. The participants consisted 46 students completed the questionnaire of students' metacognition (*Metacognitive Awareness Inventory*) which consist of 52 items. After validating the questionnaire was left 33 items. The five point Likert scale was used for this purpose. To measure students' academic achievement, study documentation (report card) was used.

## **3. Literature review**

### ***Metaconition***

The term metacognition in English is expressed by metacognition derived from two words that are strung together the meta and cognition (cognition). According to Wikipedia, Free Encyclopedia, (2008) The term meta derives from the Greek *μετά* which is translated in English with ( after, beyond, with, adjacent), is a

prefiguration used in English to show an abstraction of a concept. While cognition, according to Ensklopedia is derived from the Latin *cognoscere*, which means knowing (to know) and recognize (to recognize). Meanwhile, Huitt (2005) states "cognition refers to the process of coming to know and understand; the process of encoding, storing, processing, retrieving information."

Metacognition is a term introduced by Flavell in 1976. According to Flavell, as quoted by Livingston (1997), metacognition consists of metacognitive knowledge and metacognitive experiences or regulation. Metacognitive knowledge refers to the acquisition of knowledge of cognitive processes, knowledge that can be used to control cognitive processes. While metacognitive experience is the processes that can be applied to control cognitive activities and achieve cognitive goals. While Livingstone (1997) defines metacognition as thinking about thinking. Metacognition, according to the figure is the ability to think where the object of thinking is the process of thinking that happens to you.

Meanwhile, Margaret, Matlin (1998) in his book entitled *Cognition*, states: "Metacognition is our knowledge, awareness, and control of our cognitive process". Metacognition, according to Matlin, is knowledge, awareness, and control of the cognitive processes that happen to oneself. Wellman (1985) as his opinion quoted by Usman Mulbar (2008) states that: Metacognition is a form of cognition, a second or higher order thinking process which involves active control over cognitive processes. "Metacognition, according to Wellman, as a form of cognition, or a two-tiered or more thought process involving control of cognitive activity. Therefore, metacognition can be said to be a person's thinking about his own thinking or someone's cognition about his own cognition. William Peirce defines metacognition in general and in particular. According to Peirce (2003) in general metacognition is thinking about thinking. While specifically, he cites the definition of metacognition made by Taylor, namely "an appreciation of what one already knows, together with a correct apprehension of the learning task and what knowledge and skills it requires, combined with the ability to make correct inferences about how to apply one's strategic knowledge to a particular situation, and to do so efficiently and reliably.

The following figure also defines metacognition among others Hamzah B. Uno. According to Uno (2007) metacognition is a person's skills in managing and controlling the thinking process. Taccasu Project (2008) describes the notion of metacognition as follows:

1. Metacognition is the part of planning, monitoring and evaluating the learning process.
2. Metacognition is knowledge about one's own cognitive system; thinking about one's own thinking; essential skill for learning.
3. Metacognition includes thoughts about what we know or regulate how we go about learning.

4. Metacognition involves both the conscious awareness and the conscious control of one's learning
5. Metacognition is learning how to learn in situ learning learner's encounters.

Metacognition, as described by the Taccasu Project, is essentially a person's ability to learn, which includes how best to learn to do, what is and is not known, consisting of three stages: planning on what to learn, how, when to study, monitoring the learning process that he is doing, as well as an evaluation of what has been planned, done, and the results of the process

Based on several definitions those have been put forward in the above description can be identified the main ideas about metacognition as follows.

1. Metacognition is the ability of the soul that belongs to the cognition group.
2. Metacognition is the ability to realize, know, the process of cognition that happens to yourself.
3. Metacognition is the ability to direct the process of cognition that occurs in yourself.
4. Metacognition is the ability to learn how to learn should be done which includes the process of planning, monitoring, and evaluation.
5. Metacognition is a high-level thinking activity.

### ***Component of Metacognition***

Scraw (1998), mentioned that There are two components of metacognition namely knowledge of cognition and regulation of cognition, each having sub-components as mentioned below:

1. Knowledge of cognition consists of sub-species as follows:
  - a) Declarative knowledge
  - b) Procedural knowledge
  - c) Conditional knowledge
2. Regulation of cognition consists of sub-capabilities as follows:
  - a) planning,
  - b) information management strategies,
  - c) Comprehension monitoring
  - d) debugging strategies,
  - e) evaluation.

### ***Academic Achievement***

Academic achievement is the amount of knowledge derived from learning. The child gains knowledge of the set of core activities in which a teacher assigns the tasks to pupils and evaluates and the quality of their work. The school provides a variety of achievements. According to Levy (1942), academic performance is based on the number of factors, such as children's attitudes, interests, personality characteristics and social classes in addition to learning.

According to Winkel (1996), academic achievement is a learning process experienced by students to produce a change in the field of knowledge, comprehension, application, power analysis, and evaluation.

Based on explanation above, it can be concluded that academic achievement is a term to show an achievement achieved by students in the level of success about a goal, because a learning effort has been done by the student optimally.

### ***Assessment of Academic Achievement***

According to Saifuddin (1998), there are some functions of assessment in education namely:

a. Assessment as selective function ( summative function)

This function is a measurement on reaching end of a program and the result are used to determine whether students pass or not (can be stated in such educational programs). In other words, the assessment functions to assist teacher hold selection of some students, for example:

1. Selecting students who will be accepted at the school
2. Selecting students to be advanced to the next grade
3. Selecting students who would receive scholarship

b. Assessment as placement function

Every student has different abilities compared to each other. Assessment is performed to determine where the students should be placed according to their ability that has been shown in academic achievement they have been achieved.

c. Assessment as a measurement functions of success (formative function)

Assessment is used to determine to that extent to which a program can be implemented. An example is the report card of students in school for each semester can be used to determine whether educational programs that have been applied have successfully implemented or not

### ***Metacognition and Student's Academic Achievement***

In the view of Winne and Perry (2006), 'metacognition is the knowledge that learners have concerning their general academic strengths and weaknesses and of the cognitive resources they can apply to meet the demands of particular tasks, as well as their knowledge and skills relating to how to regulate their engagement in tasks so as to maximize learning process and outcomes'.

According to Pearson Education (2003) The Thought of Metacognition has been defined in several ways. It can be regarded as a derivative of two words- "meta" meaning "beyond or at a higher level" and "cognition" meaning "the process of knowing, understanding and learning something. Metacognition, therefore, is the higher intellectual ability of an individual to plan, reflect, monitor, understand and control his/her learning. It is a process involving ones awareness and regulation or control of herself (as a learner), the learning style and study habit as well as several other activities involved in his/her own learning so as to attain the set goal.

According to young and Fry (2008) Metacognition has been reported to have influence on academic achievement. Some researchers contend that metacognition correlates significantly with students' academic performance or achievement while others Darling-Hammond, Austin, Cheung and Martin (2008) view that explicit metacognitive training can enhance students' metacognition and as well promote students' academic achievement. They believe that students, who possess metacognitive knowledge and demonstrate a wide range of metacognitive skills tend to be more successful as they can self-regulate their learning, retain information longer, and perform better.

Based on the description above, metacognition plays an important role in enhancing students' academic achievement because it helps learner to be aware as a learner and capable of develop a plan, monitor and evaluate how much it's effective, that means metacognition helps the learner to be more involved in learning process.

#### **4. Result and Data Analysis**

Descriptive statistics is first and prime step for quantitative analysis because they provide information about the distribution of scores (i.e., average and mean scores) thus helping to discover any inconsistency in data.

##### ***Table***

**Table 1. Mean, Standard Deviations, minimum and maximum of students metaconition**

	N	Minimum	Maximum	Mean	Std. Deviation
metacognition					
	46	95	149	121.37	11.691
Valid N (listwise)	46				

**Table 2. Mean, Standard Deviations, minimum and maximum of students academic achievement**

	N	Minimum	Maximum	Mean	Std. Deviation
academic achievement	46	72	80	76.28	2.382

Valid N (listwise) 46

At the second step the correlation was applied to find out the relationship between metacognition, the two components of metacognition and academic achievement.

**Table 3. Correlation between metacognition and academic achievement**

			academic_ach ievement	Metacogniti on
Spearman's rho	academic_achieve ment	Correlation Coefficient	1.000	.443
		Sig. (2-tailed)	.	.002
		N	46	46
	Metacognition	Correlation Coefficient	.443	1.000
		Sig. (2-tailed)	.002	.
		N	46	46

As it is shown in the table above the correlation coefficient or  $r$  count is 0.443. It is significant at 0.05 ( $r = 0.443$ ,  $p = 0.002$ ). Moreover, by consulting to the criterion for the evaluation of a coefficient as shown in the table 4.10, the point of 0.443 is categorized as moderate correlation. Since there is no negative symbol on the  $r$  value, it shows a positive correlation. Hence, the null hypothesis is rejected. It infers that there is a significant positive correlation between students' metacognition and their academic achievement in English subject.

**Table 4. Correlation between the component of metacognition and academic achievement**

			academic _achieve ment	knowled ge_cogni tion	regulati on_cog nition
Spearman's rho	academic_achiev ement	Correlation Coefficient	1.000	.550**	.345*
		Sig. (2-tailed)	.	.000	.019
		N	46	46	46

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knowledge_cognition	Correlation Coefficient	.550**	1.000	.494**
	Sig. (2-tailed)	.000	.	.000
	N	46	46	46
regulation_cognition	Correlation Coefficient	.345*	.494**	1.000
	Sig. (2-tailed)	.019	.000	.
	N	46	46	46

Table 4 shows that the correlation coefficient or  $r$  count between knowledge of cognition and academic achievement is 0.550, it's categorized as high correlation. The result also shown that there is a significant correlation because the probability value (sig.2-tailed)  $0.000 \leq 0.05$ . Hence,  $H_0$  rejected and  $H_1$  accepted;

The correlation coefficient between regulation of cognition and academic achievement is 0.345, it's categorized as moderate correlation. The result also show that there is a significant correlation because the probability value (sig.2-tailed)  $0.019 \leq 0.05$ . Hence,  $H_0$  rejected and  $H_1$  accepted.

## 5. Discussion and Conclusion

### *Students' metacognition in Academic Achievement.*

Metacognition is a learning strategy lead the students to be aware of their cognition and regulate or control over their cognitive process. Brown (1987) states that learning that actively regulates and improves their actions will improve their learning outcomes. In addition Miranda (2010) states that "students learning outcomes can be said to have a quality if students are consciously able to control their cognitive process". The ability on regulating cognitive such as planning, information management strategies, comprehension monitoring, debugging strategy and evaluation will help the students do the task. Furthermore, Sternberg (1984) claimed that metacomponents are responsible for "figuring out how to do a particular task or set of tasks, and then making sure that the task or set of tasks are done correctly.

Many studies report that Metacognition is important in learning and is a strong predictor of academic success. (Dunning, 2003; Kruger and Dunning, 1999). Students with good metacognition demonstrate good academic performance compared to students with poor metacognition. Students with poor metacognition may benefit from metacognitive training to improve their metacognition and academic performance. Metacognition enables students to be strategic in their

learning by, for instance, learning new information rather than focusing on studying information already learned (Everson and Tobias, 1998).

The finding of the study supports the theory and previous studies above. The finding of this research showed that there is a significant correlation between students' metacognition and students' academic achievement in English subject with the correlation coefficient or  $r$  count is 0.443 categorized moderate correlation. Besides that, there are different criteria of correlation of interpretation in every component of metacognition and academic achievement, correlation coefficient item knowledge of cognition is 0.550 categorized high correlations and correlation coefficient item regulation of cognition is 0.345 categorized moderate correlations.

Based on the result, we can conclude that the knowledge of cognition is strong predictor of academic achievement. In the context of this research, Knowledge of cognition shows that one's ability to understand his cognition, the ability to make use of successful strategies that have proved to be useful for successful learning and the ability to use situation specific language learning strategy and one's intellectual strengths to compensate for weaknesses in handling language learning tasks can have an impact on successful learning. This knowledge brings the students to achieve the learning objective and obtain good achievement.

These current findings were inconsistent with the previous study in Oz (2013), clearly shows Regulation of cognition was stronger predictive of achievement especially for Hacettepe University students.

The other important thing is the result of post-questionnaire, which also indicates that the majority of students have moderate level in metacognition. For students' metacognition the researcher used statistical computation. Based on the statistical computation result, table 4.2 shows that 34 students have moderate metacognition (74%), 6 students have high metacognition (13%) and 6 students have low metacognition (13%).

It indicates that students are aware and capable in regulating their self in the learning process in order to obtain the learning objective and good academic achievement. Students with well-developed metacognition skills mean they are most likely to succeed in the learning process and life.

In addition, there are eight students with low metacognition. It means that unlike the students with high metacognition level who have deep awareness in their cognition and can regulate their self in the learning process, the students with low metacognition haven't been aware of their cognition so that they were also difficult to regulate their self in the learning process.

### ***Students' Academic Achievement***

According to Muliani (2015) academic achievement is not separated in learning teaching process, because academic achievement itself could be obtained through the process of learning. In this research, all of the students in class two of IPA

I and IPS II as the sample who learn in English subject which they have obtained the value of English language learning process. From the result, it indicates that, most of the students were categorized as a moderate level in English subject since the range level 73 until 78. It was supported by 32 students (69%) have moderate level in English achievement. While 8 students (18%) were having high English achievement and 6 students (13%) have low English achievement.

The various level of students' academic achievement has a relation with the first objective of the study, where high, moderate, and low metacognition to the role of learning achievement is influenced by many factors that effect at learning achievement itself. Academic achievement is a process that done systematically to obtain quantitative quantity from a certain object with using standard measuring instrument (Sridadi, 2007). In Indonesia, activities to asses' academic achievement in schools are recorder in a book called the report card. In the report card, it can be seen on how far students learning achievement are, whether students are success or fails in a subject. Learning achievement is also influenced by the behaviour of students, crafts and skill or students have a certain attitude, which can be measured with the standard specified by the teacher concerned in order to approach the average value.

### ***The Correlation between Students' metacognition and Their Academic Achievement***

In this part, the results are discussed under relevant sub-headings according to the research questions of the current study to investigate what is the correlation between students' metacognition and their academic achievement in English subject. Here, student's metacognition questionnaire and score of rapports card of student was administrated to know students' metacognition and student's academic achievement. The metacognition questionnaire administrated first and after that the researcher take data of students reports card of the second semester. The data were analyzed using SPSS as helping tools to investigate those variables and the researcher used statistical computation.

As it shown in table 4.9, the Spearman's rho Correlation is 0.443 It is significant at 0.05 ( $r = 0.443$ ,  $p = 0.002$ ). The criteria of the result of the finding based on table 4.10 the correlation coefficient interpretation indicates moderate correlation. This result also indicates there is no negative symbol on the  $r$  value but it shows a positive correlation between student's metacognition and their English achievement. The student who has high metacognition actually did high academic achievement too.

The findings were similar with those; research conducted by young and Fry's (2008) examined the relationship between metacognition and academic achievement in 178 undergraduate and graduate students demonstrate that metacognition significantly correlated with broad measure of academic achievement and that there were also significant correlation between knowledge of cognition, regulation of cognition and GPA.

Based on these findings, it can be concluded that the coefficient was positive which means that metacognition and academic achievement in English subject are in  
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line. Individuals who have high levels of metacognition is better, have a deep awareness about their cognition and they are more skilled in regulating their learning activity such as planning, manage information, debugging strategy, monitoring and evaluate it. In addition, through metacognition the students will retain information longer in their mind. So if the students who has high metacognition actually did high academic achievement too.

Finally, since the metacognition gives contributions to students' achievement, then it should be in the part of attention to be paid in order to build space where metacognition will be the one to be considered to get it involves in the part of teaching and learning.

Based on the data analysis, the researcher conclude that there is positive correlation between students' metacognition and students' academic achievement in English subject of the second grade at SMA N 8 Kendari at 2018/2019. This conclusion is drawn through the result of computation which shows that the value of coefficient of correlation ( $r$ ) between two variables, that is students' metacognition as the variable X and academic achievement as the variable Y, is 0.443 as moderate as that of the Spearman correlation table with 0.05 level significant. Further, the data shows that there is a moderate correlation. Therefore, it means that the  $H_1$  is accepted and  $H_0$  is rejected. The last, from the two main elements of metacognition, each element has correlation with students' academic achievement in english subject where, knowledge of cognition has high correlation ( $r = 0,550$   $p = 0.000$ ). While regulation of cognition has moderate correlation ( $r = 0,345$   $p = 0.019$ ).

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