*Journal of Foreign Language and Educational Research*
Volume 4, Number 2, July 2021 ISSN: 2620-8474

# A CORRELATION STUDY EXAMINING THE RELATIONSHIP BETWEEN METACOGNITIVE KNOWLEDGE AND READING COMPREHENSION ABILITY

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## Abstract

This study was aimed at finding the relationship between metacognitive knowledge and reading comprehension ability. Six students who attended the Critical Reading course at Muhammadiyah Palu University participated as the research sample. A Metacognitive Awareness Inventory (MAI) and reading tests were administered. Therefore, the correlational design was applied to find out the levels of correlation between the two variables based on statistical quantitative coefficient correlation. The result showed that there was an average significant relationship between metacognitive knowledge and reading comprehension ability.

Keywords: *Metacognitive Knowledge, Reading Comprehension Ability*.

## BACKGROUND

Having a literacy habit is required in this development of the science and technology era. Literacy development is becoming increasingly crucial as a foundational comprehension aim at preparing information for the future. (Hunt et al., 2013). Therefore, literacy has to be introduced in early childhood in order to get a strong foundation of literacy. Reading literacy is one of the skills that need improvement as it plays an important role in a person's life.

Society is urged to be involved in this situation, particularly people in an educational environment. Students at universities, for instance, have to improve their knowledge with the latest information, whether it is from journals, articles, or books. Improving knowledge by reading can provide a wealth of information about the subject they will be studying later.

### Reading Comprehension

Reading has become a crucial bridge for students who want to have comprehensive interactive skills (Springer, Harris, & Dole, 2017). In reading, readers tend to build a meaningful representation of a passage using several strategies. The strategies lead the readers to comprehend the text by getting information or messages from it more clearly.

Understanding skills are not only a necessary condition for success during school, because they form the basis of all subsequent subjects, and it is undeniable that they are also essential for success in life (Snow, Burns, and Griffin, 1998). In reading, a reader needs to use several abilities to comprehend a text. As an intuitive cycle that tries to obtain information utilizing a variety of knowledge, namely, linguistic or systemic knowledge as well as schematic knowledge (Alyousef, 2006; Cain & Oakhill, 2007). Thus, reading is also known as an activity that involves getting messages or information that is presented in a written language. Furthermore, the ability to read comes from the way someone wants to learn and practice reading some texts.

There are several stages to comprehending the content of the reading text. In the first stage, students need to recognize material that is mentioned in the text in order to demonstrate literal comprehension (Duncan et al., 2016). After passing through this stage, they can later move to the next level, which is inferential comprehension. It underlines the students' understanding of implicit information that may be stated. Inferential comprehension is a type of reading comprehension that focuses on understanding information that is implicitly presented in the text (Kocaarslan, 2016). Therefore, students need strategies in order to gather information from the text. Students tend to use information that is stated explicitly in the text, prior knowledge, and their experience to create a hypothesis. Critical comprehension is the next stage of comprehending text. At this level, the ability to assess text material is required. Evaluative understanding is comparable to critical understanding (Bogan, King-Mckenzie, & Bantwini, 2012). Students begin to analyze information from the text with certain norms, knowledge, and experience to assess the text. Furthermore, the highest comprehension stage is creative comprehension. Readers need to employ their imagination to obtain new ideas from the services of writers, Yavuz Mumcu and Aktürk (2017); Karamalak and Pesina (2017). It will be related to the psychological and aesthetic impact of the text on the readers, particularly students because it engages in reading cognitive elements.

Reading comprehension is a remarkable accomplishment of balancing and organizing a wide variety of skills and fast routines, which makes comprehension seem effortless and enjoyable for fluent readers (Grabe, W., and Stoller, F, L., 2020). When reading a text, readers do the decoding process. They tend to acquire new knowledge as well as the new information discussed in the text. Thus, reading is one of the most important things to be done in order to improve one's knowledge. Otherwise, some readers have difficulties in reading, such as a lack of awareness during reading activities. As a result, they only understand some of the information from the text. There was a study that shows reading comprehension is a complex process and students usually have difficulties in constructing meaning from the written text" (Grabe, W. & Stoller, F, L., 2002). Students need some effort to understand or comprehend the text they read, particularly if the text consists of some new vocabulary that can distract their attention while reading.

**Metacognition**

Students who have problems with reading comprehension need to develop their metacognition. This statement is supported by Alexander & Jetton (2000); Pressley (2000); "reading comprehension has led to an increasing emphasis on the role of metacognitive awareness of one’s cognitive and motivational processes while reading." John Flavell (1979) is credited with introducing the term "metacognition" in educational sciences and language teaching. He states that metacognition is "one’s knowledge concerning one’s own cognitive processes and products or anything related to them." Metacognition comprises all the activities of cognition during the learning process.

**Metacognitive Knowledge**

Metacognitive knowledge and metacognitive experience or regulation are two types of metacognitive knowledge. Metacognitive knowledge includes information about an individual's memory and learning strengths and shortcomings, as well as information about task cognitive needs and methods for achieving cognitive learning and achievement goals (Händel et al., 2013). It involves the general knowledge someone has as well as engaging in the task during reading. Metacognitive knowledge

involves person knowledge (declarative), task knowledge (procedural), and strategic knowledge (conditional). Person knowledge is concerned with how people learn and process information in general, as well as how they learn and process information in their specific learning processes. Task knowledge refers to the nature of the task that belongs to every individual as the type of processing demanded when they read a certain kind of text. Finally, there is strategic knowledge, which encompasses both a broad understanding of the types and utility of strategies as well as a detailed understanding of their learning effectiveness (Yanyan, 2010).

**Metacognitive Experience**

The active monitoring of cognitive processes as they occur, as well as the employment of control strategies to maximize cognitive function, is referred to as "metacognitive experience" or "regulation" (Baker & Brown, 1984; Schraw & Moshman, 1995). It comprises both monitoring and control. Metacognitive monitoring refers to one's online awareness of comprehension and task completion, as well as the ability to self-test frequently while learning. The term "control" refers to the conscious and unconscious decisions made in response to the monitoring process's output (Pressley & Ghatala: 1990).

One kind of metacognitive research was done by Zhang Yanyan in 2010. Yanyan's research looked at the role of metacognitive knowledge in Chinese EFL students' English writing. In a prior study, 120 non-English major freshmen in China participated in an English writing assignment and a self-designed metacognitive knowledge questionnaire. The study's findings revealed that demonstrating a strong command of metacognitive knowledge can help EFL learners improve their English writing skills and foster their learning autonomy.

Another study conducted by Cubucku (2008) investigated the efficacy of systematic direct training of several metacognitive methods to aid students in text comprehension. An experimental study employing 130 students (15 males and 115 females) from the English Language Department at Dokuz Eylul University, who joined the study voluntarily, has been conducted. A total of 65 of the participants were exposed to the metacognitive instruction for five weeks. The findings revealed that systematic education in metacognitive language learning strategies could improve reading comprehension.

Regarding some previous studies, in this present study, the researcher focused her study on one aspect of metacognitive only, that is, metacognitive knowledge. It is believed that in successful learning, especially in reading comprehension, it becomes the role of metacognitive knowledge.

Students who attended Creative Reading were in the last stage of the Reading course, most of the students had moderate ability in reading. The environment of conducting this research, as the sample involving this study, was in Indonesia, in which the English language became the foreign language, therefore it would be different from some previous studies conducted which involved the sample or subject of English as a Second Language (ESL) students. Lastly, the instruments used to collect the data were questionnaires and reading tests. By employing correlational studies, it could hopefully prove whether there was a relationship between metacognitive knowledge and reading comprehension ability or not.

This study aims at investigating the relationship between metacognitive knowledge and reading comprehension ability of the 4th semester English Department students at Muhammadiyah University Palu.

**Correlational Study**

Correlational Study is well known in educational research. Previously, there are some correlational studies have been conducted in Universitas Universitas Muhammadiyah Palu, such as a study conducted by Omolu (2017) entittled Correlation of Employment Status, Motivation And Achievement In Learning, also a study by Manangkari (2019) about the correlation between Motivation and English Achievement. According to Creswell (2012), a correlational study is "a statistical test to determine the tendency or pattern for two (or more) variables or two sets of data to vary consistently." This is a correlation study examining the relationship between metacognitive knowledge and reading comprehension ability.

## METHOD OF THE RESEARCH

This research requires a group of data to find out the levels of correlation between the two variables based on statistical quantitative coefficient correlation, thus the correlational design was applied.

The population was less than 100 people. It was better to involve all of the population, yet if there are more than 100 people, it is better to take 10-15%, 25%, or more (Arikunto, 2006). Concerning the total number of the population, there were 6 students from the only class. Therefore, the researcher took all of the population as a sample.

The researcher used a convenience sampling technique in this study because she only enrolled the most accessible sample. Six students participated in the data collection process during the first and second rounds.

To collect the data, the researcher employed questionnaires and tests as the instruments. The Metacognitive Awareness Inventory (MAI), which was developed by Schraw, G. & Dennison, R.S. (1994), was adopted by the researcher in order to get information about students' metacognitive knowledge (person knowledge, task knowledge, and strategic knowledge) as a questionnaire form on a dichotomous scale with two options, which were true and false. The questionnaire consisted of 17 items of statements.

In addition, the test was administered in order to know the students' reading comprehension ability. The reading test was in the form of summarizing and responding to questions. The reading test consists of 17 questions and 3 passages. Each passage was followed by five to seven questions.

In this study, the researcher used two formulations. Rating scales and product-moment correlation were used. Data from surveys, particularly the Metacognitive Awareness Inventory, was calculated using a rating scale, whereas data from students' reading comprehension abilities were calculated using a rating scale.

$$NA = \frac{(BS)}{\left(\sum s\right)\left(\sum p\right)} \times 100$$

where:

NA : Final Score

$\sum s$ : Obtained Score

$\sum p$ : Number of Items

BS : Maximal Score

100 : Equivalent Criteria

*Basuki and Hariyanto (2014)*

The formula was employed in order to determine students' metacognitive knowledge. Furthermore, it can be grouped as high, moderate, or low.

The researcher employed Pearson's product-moment correlation to determine the degree of correlation.

$$r_{xy} = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{\left\{n\sum x^2 - (x^2)\right\}\left\{n\sum y^2 - (y^2)\right\}}}$$

Where:

$\sum x$ : Sum of the $x$ score

$\sum y$ : Sum of the $y$ score

$\sum x^2$ : Sum of the squared $x$ score

$\sum y^2$ : Sum of the squared $y$ score

$\sum xy$ : Sum of the product of paired $x$ and $y$ score

$n$ : Number of paired score

*Best (1981)*

## FINDING AND DISCUSSION

The researcher computed the data from the Metacognitive Awareness Inventory (MAI) and the Reading Test with a total of 6 students from the 4th semester English Language and Education students.

### 1) Students' Metacognitive Knowledge Data

The Metacognitive Awareness Inventory, which consisted of 17 statements, was used to collect students' metacognitive knowledge data, as mentioned in the previous chapter. The result of the data can be seen in the following table.

Table 1. Students' Metacognitive Knowledge

| No. | Initials | Obtained Score | Criteria | | |
|---|---|---|---|---|---|
| | | | High | Medium | Low |
| | | | 66-100 | 36-65 | 0-35 |
| 1. | SSN | 58 | | ✔ | |
| 2. | MIK | 56 | | ✔ | |
| 3. | S | 52 | | ✔ | |
| 4. | SAS | 52 | | ✔ | |
| 5. | D | 54 | | ✔ | |
| 6. | DAP | 68 | ✔ | | |

From the previous table, it was revealed that one of the students was in high criteria while the rest of the students' Metacognitive Knowledge was in medium criteria. Further, the students' frequency can be seen in the following table:

Table 2. The Frequency of Students' Metacognitive Knowledge.

| No. | Criteria | Frequencies |
|---|---|---|
| 1. | High | 1 |
| 2. | Medium | 5 |
| 3. | Low | - |
| | Total | 6 |

### 2) Students' Reading Comprehension Ability

Students' Reading Comprehension Ability data were collected by employing the reading test, which consisted of 17 multiple-choice questions. The result is shown in the table below:

Table 3. Students' Reading Comprehension Ability

| No. | Initials | Reading Comprehension |
|---|---|---|
| 1. | SSN | 80 |
| 2. | MIK | 61 |
| 3. | S | 68 |
| 4. | SAS | 78 |
| 5. | D | 61 |
| 6. | DAP | 80 |

The researcher computed the data and found that three students got 80 and the rest of the students got under 75. Further, the students' frequency of Reading Comprehension may be shown in the following table:

Table 4. The Frequency of Students' Reading Comprehension

| No. | Scores | Frequencies |
|---|---|---|
| 1. | 85-100 | - |
| 2. | 84-75 | 3 |
| 3. | 74-0 | 3 |
| | Total | 6 |

### 3) Correlation between Metacognitive Knowledge & Reading Comprehension Ability

After determining the students' Metacognitive Knowledge and Reading Comprehension, further, the researcher computed the result into a formula in order

to examine the correlation between these two variables by using Pearson Product Moment Formula as follows:

$$r_{xy} = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{\left\{n\sum x^2 - (x^2)\right\}\left\{n\sum y^2 - (y^2)\right\}}}$$

$$= \frac{6(24382) - (340)(428)}{\sqrt{\{6(19448) - (340)^2\}\{6(30950) - (428)^2\}}}$$

$$= \frac{6(24382) - (340)(428)}{6(19448) - (340)^2.6(30950) - (428)^2}$$

$$= \frac{772}{(1088)(2516)}$$

$$= \frac{772}{\sqrt{2737408}}$$

$$= \frac{772}{1654}$$

$$= 0.46$$

From the computation, it was found that the r value is 0.46. This score was then consultated to the Interval Coorelation table (Sugiono: 2007). This value is ranged between 0.40 – 0.599 that classified as moderate. It is revealed that the relationship between Metacognitive Knowledge and Reading Comprehension Ability of the 4th-semester students of the English Language Education Study Program FKIP UM Palu is moderate.

## CONCLUSION AND SUGGESTION

Regarding the research findings and the discussion from the previous chapter, the conclusion of the current study showed that first there was an average positive significant relationship between metacognitive knowledge and reading comprehension ability of the 4th-semester students of the English Language Education Study Program FKIP Universitas Muhammadiyah Palu.

Considering the results of this study, the researcher suggested that it is better if teachers and lecturers understand the concept of metacognition and its application in teaching. Therefore, teachers and lecturers can develop their knowledge related to teaching materials, methods, and strategies, particularly in teaching reading comprehension. Furthermore, reading becomes something fascinating for students to do, and finally, it becomes a habit that can lead to the development of knowledge.

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