THE EFFECT OF METACOGNITIVE READING STRATEGY TRAINING AND LEARNING STYLE ON THE STUDENTS' ABILITY TO ANSWER HOTS QUESTIONS OF BIOGRAPHY TEXTS

(A Thesis)

By:

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MASTER DEGREE IN ENGLISH EDUCATION STUDY PROGRAM
LANGUAGE AND ARTS EDUCATION DEPARTMENT
TEACHER TRAINING AND EDUCATION FACULTY
LAMPUNG UNIVERSITY
BANDAR LAMPUNG
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Submitted in a partial fulfillment of
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ABSTRACT

THE EFFECT OF METACOGNITIVE READING STRATEGY TRAINING AND LEARNING STYLE ON THE STUDENTS' ABILITY TO ANSWER HOTS QUESTIONS OF BIOGRAPHY TEXTS

Silvilia Harjono

The current study aimed to find out whether i) there was a statistically significant effect of metacognitive reading strategy training on students' ability to answer higher-order thinking skill questions of biography text, ii) there was a statistically significant effect of learning styles on the students' ability to answer higher-order thinking skills questions of biography texts. The subjects of the research were 21 students in the second-grade at SMPN in Pesawaran. The reading tests and questionnaires were used to quantitative the data. The design of the study was a quasi-experimental design. The data were analyzed using SPSS 21.0

The results showed that i) there was a statistically significant effect of metacognitive reading strategy training on students' ability to answer higher-order thinking skill questions of biography text ii) there was a statistically significant effect of metacognitive reading strategy training on students' ability to answer higher-order thinking skill questions of biography text with the significant level 0.05. This suggests that the metacognitive reading strategy training plays role in improving students' capability of metacognitive reading strategy training on ability to answer HOTS. Learning styles were also found to have contributed to learners' achievement in sorting out questions of high-order thinking skills. This suggests that the two aspects, mastery of metacognitive reading strategies and learning styles facilitate students to improve their HOTS.

***Keywords**: Metacognitive, Metacognitive Reading Strategy, Learning Style, Higher-order thinking skill, biography text.*

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CURRICULUM VITAE

The writer’s name is Silvilia H. She was born on December, 4th 1984, in Bandar Lampung. She is the first daughter of Harjono and Susanti Hendrawati.

She studied her elementary school at SD Kartika II-5 Tanjung Karang (SD Persit) and graduated in 1996. Then, she continued her junior high school at SMP Al Kautsar Bandar Lampung and graduated in 1999. Furthermore, she continued her senior high school at SMU YP Unila Bandar Lampung and graduated in 2002. The next year, she was registered as a bachelor's degree student of STBA Teknokrat in English Literature and now renamed become Universitas Teknokrat Indonesia, and graduated in 2006.

In 2006, she worked at Universitas Teknokrat Indonesia until 2016. And then in 2019, she taught in elementary school at SD Negeri 3 Keteguhan until 2021.

DEDICATION

By offering my praise and gratitude to Allah SWT for the abundant blessing to me, I would proudly dedicate this paper to:

- My beloved parents, Harjono and Susanti Hendrawati
- My beloved younger sister, Febri Haryanti, and Oktaviani Panintya Putri
- My beloved aunt, Hj. Hernaini, S.S., M.Pd. Thank you for all of your supports for me
- My beloved husband, S. Samsugi, S.Kom., M.Eng. Thank you for your supports
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- My fabulous friends of Master of English Education 2018
- My Almamater, Lampung University

MOTTO

“Don’t be afraid to try new things in your life”.

(Anonymous)

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Bandar Lampung, March 2022

Silvilia Harjono

CONTENTS

APPENDICES

I. INTRODUCTION

This chapter describes the background of the problem, formulation of the problem, objectives of the research, uses of the research, scope of the research, and definition of terms.

1.1. Background

Reading is one of the processes of looking at written symbols and their meaning. Reading is a language skill that should be mastered by the students. Reading is an extraordinary achievement when one considers the number of levels and components that must be mastered. Generally, reading is not only important for language learners but it is also important for all learners and students because they can get more information and knowledge. Reading is essentially considered as a mechanical decoding process. At this process, a reader is assumed to decode or translate the printed symbol in the text by moving his eyes, recognizing letters, combining them to form words, then combining the words to form phrases, clauses, and sentences of the text.

Goodman (1971) views reading as a "psycholinguistic guessing game" in which the reader reconstructs a message that has been encoded by a writer as a graphic display. Reading is important because reading is the most frequently mentioned "flow" activity. (Csikszentmihalyi 1993, p.117). Lee and Krashen (1997) propose that those who read more have less "writing apprehension" because of their superior command of the written language. They report a modest but negative correlation between the amount of reading done and scores on a writing apprehension questionnaire for Taiwanese high school students. The modest size of the correlation (r=-.21) perhaps because other factors affect writing apprehension, such as mastery of the composing process. However, it is consistent with reports that those with less writing apprehension enjoy reading more (Daly and Wilson 1983).

According to Arthur C. Graesser (2007), "reading is an extraordinary achievement when one considers the number of levels and components that must be mastered.

Consider what it takes to read a simple story. The words contain graphemes, phonemes, and morphemes." From that statement, reading is a skill that can be achieved by the levels and the components of reading that must be mastered by learners and students. One of the examples is reading a simple story such as short biography. Skilled reading is a highly complex capability involving many component processes and extensive knowledge (Gagne, Yekovich & Yekovich 1993, p. 269). From that statement, reading is a skill that is complex and difficult in the component of processes, it should have extensive knowledge to comprehend the skill of reading. So, the conclusion is that face-to-face reading with a teacher is not necessarily efficient. In fact, reading consistently will be more efficient than direct instruction through the teacher. Other studies confirm that direct instruction has little or no effect.

In a conclusion, these findings state that reading is a powerful means of developing reading comprehension, writing skills, vocabulary, grammar, and spelling. The addition evidence shows that it is good because it can promote cognitive development, and lower writing worries. The other conclusion from the researchers in early reading development is that we "learn to read by reading", that we learn to read by attempting to make sense of what we see on the page (Goodman 1982; see also Flurkey and Xu 2003; Smith 1997). In this study, the researcher discusses reading because, in Junior High School (SMP), the English subject focuses on types of texts as regulated in curriculum 2013.

Besides, to master reading skills, learners and students should have more knowledge. The goal of reading is comprehension or an overall understanding of the text. Reading comprehension assessments determine at which grade level students successfully comprehend text. These assessments are useful for providing leveled practice materials and serve as a starting point for instruction as teachers move struggling students to grade-level proficiency. The modern study of reading comprehension is propelled by two complementary ideas, one concerning an enriched level comprehension beyond the literal meaning of a text, the reader's situation model (Van Dijk & Kintsch, 1983), and one about the cognitive

dynamics of text comprehension, the construction-integration (C-I) model (Kintsch, 1988). The important value of the C-I is demonstrated by the text comprehension that can be explained by the combination of interactive of top-down and bottom-up processes. Reading comprehension is a serious skill that is needed for attainment in school and beyond, yet many students are reading below grade level. Reading comprehension has been described as a complex intellectual process involving some abilities (Rubin 2000, p.171). In reading comprehension, learners, students or readers must use information already acquired to filter, organize, interpret, and establish relationships with the new information. To understand the text, learners, students, or readers must be able to identify the words, know the meaning of the text and all of the words, and also be able to combine the units of the text and meaning into a good message. According to Torgesen (2000), reading comprehension is thus a cognitive, motivational, and effective activity. From that statement, it means that reading comprehension is an activity that has affective, motivational, and also cognitive aspects in it.

When Danielle S. McNamara and Panayiota Kendeou conduct the research, they identify five critical findings in the research on reading comprehension and discuss applications of these findings for educational practice. The research findings and applications the authors discussed are in the general areas of the uniqueness of decoding and comprehension skills early in children's lives, the relations between processes and products in comprehension research and instruction, the importance of the development and fostering of inference skills, the multifaceted nature of comprehension, and the need to be aware of limitations of standardized tests of reading comprehension. Reading comprehension, much like comprehension of situations and comprehension of oral language, is embodied. Besides, reading comprehension involves a set of multifaceted and interconnected skills allowing students to accurately process and understand text information during reading (Zimmerman, Gerson, Monroe, & Kearney, 2007). From this statement, it can be concluded that when students or learners are doing reading comprehension, it needs skills to understand it and also needs a process accurately to understand the text. The processes involved in reading

comprehension include, in part, focusing on relevant and important information from a passage and making connections between that information and prior knowledge. Reading with understanding involves the smooth coordination of higher-order cognitive processes (thinking, reasoning, analyzing, connecting, reflecting) and lower-order processes (word recognition, decoding) (Pressley 1998).

Metacognition has a significant impact on improving reading comprehension in L1 and FL (Baker & Brown, 1984; Flavell, 1979; Mokhtari & Reichard, 2002), and metacognition is the core of reading appropriately in the interactive reading model (Macaro & Erler, 2008). Through strategy schema (Casaneve, 1988), readers monitor their understanding and select appropriate strategies by being aware of the reading process before deciding on them. Metacognition is important for reading comprehension. Many studies also show that there is a positive relationship between students' metacognitive awareness of reading processes and their ability to read, instructional methods that generate high levels of student involvement and require substantial cognitive and metacognitive activity during reading can have positive effects on reading comprehension (Cited in Emisari from William and Atkins, 2009: 39). Baker and Brown (1984) cited by McKeown and Back (2009: 7-8) have investigated that there is a relationship between metacognitive ability and effective reading. They reveal that there are two dimensions of metacognitive ability; knowledge of cognition or metacognitive awareness and regulation of cognition which is stated includes the reader's knowledge about his or her cognitive resources, and the compatibility between the reader and the reading situation.

Several studies (See e.g. Ay, Sila, 2009: 7; Mokhtari and Reichard, 2002: 249; Lian and Seepho, 2012: 941; and Magogwe, 2013: 21-29) have been done to investigate the effects of training of metacognitive reading strategy towards students' reading comprehension. The findings showed that the MRST (Metacognitive Reading Strategy Training) was effective in enhancing the students' academic reading comprehension, and the students generally had

positive attitudes toward it. In this study, the researcher provided training to students in using their metacognitive reading strategy with higher-order thinking skill methods. Students applied their metacognition to answer the question of reading. Flavell (1979) explains metacognitive knowledge as what an individual knows; metacognitive skills as what an individual is doing; and metacognitive experience as an individual's available affective or cognitive state. Bishop et al. indicate that strategic readers operate metacognitive by thinking about their thinking.

Metacognitive knowledge is the knowledge that an individual has about their cognition, which can be used to consider and control their cognitive processes. To work metacognitive is to consider and take active control of the processes involved in learning and thinking as they are happening. The term metacognition is most closely associated with the psychologist John Flavell (1976; 1977). He tells us that metacognition consists of metacognitive knowledge and metacognitive experiences or regulation. Metacognitive knowledge is knowledge about cognitive processes. Metacognition refers to one's knowledge concerning one's cognitive processes and products or anything related to them. Metacognition refers, among other things, to the active monitoring, regulation, and orchestration of these processes (Flavell 1976). Brown (1987) offers a simpler version of this when he says that metacognition refers loosely to one's knowledge and control of (one's) own cognitive system.

Some researchers who have conducted research find several weaknesses of metacognitive reading strategies. In the first study, the researcher has examined the metacognitive awareness of reading strategies of the public elementary school teachers in Lal-lo. This study deemed an important issue to be dealt with to enable teachers to improve the reading skills of their pupils. If this strategy is used in Indonesia, it cannot be suitable with the condition because public elementary school teachers and also the pupils do not study English, some of the public elementary schools provide English courses but some of them do not. This research is suitable for junior or senior high school. The second research talks

about developing reading comprehension through metacognitive strategy training. The research investigates the effectiveness of implementing a metacognitive strategy training approach in second language reading instruction. This research aims to promote greater awareness and use of metacognitive reading strategies and to improve reading comprehension ability in time and untimed tasks. The research is not suitable if students of junior or senior high school are practicing it, because the given treatments are only conducted three times with the timed and untimed tasks. And it happens in female workers in Japan. If all of the students of junior or senior high school have good motivation and also study hard to study English, it is undeniably they will speak fluent English.

Learning styles for reading was involved in this study because the teacher has problems in teaching their students. Teachers are confused about seeing the students' learning styles when they conduct teaching-learning activities in the classroom especially reading comprehension skills. In this study, the researchers discuss the learning styles in answering the reading comprehension questions of various types of texts as regulated in curriculum 2013 for English. Reading as one of the important educational goals in foreign language teaching has been investigated in the present study. The idea that successful readers use more strategies in reading comprehension and poor readers are little aware of reading strategies (Chamot & Kupper, 1989), leads the study to find the relationship between EFL learners' metacognitive reading strategies and their learning styles to raise EFL learners' awareness of the ways by which they can improve their metacognitive strategy in reading and overcome their weakness in using it.

Furthermore, although professors' teaching styles may differ, each tends to teach in one unique pattern with only infrequent variations (Dunn & Stevenson, 1997). To find an effective and good learning style for teaching-learning, teachers should be creative in finding the method of teaching which is unique and varied although teachers have been creative in creating the method of teaching for a student is still failed because the strategies were not integrated with conventional instructional approaches. The other example happened in Indonesia, especially in Lampung

province. Teachers are still confused to see the learning style which is suitable for their students, especially in teaching reading comprehension skills. The teachers have been using some of the methods to match their students' learning styles. The purpose of finding the learning styles is to support the students in studying reading comprehension skills. It is believed that every person has a different ability in reading comprehension. This stands to reason for some people who are good while others are not too good or even bad. For this reason, some factors that make a difference in reading ability and learning styles were assumed as one of the factors.

In this case, Wang in Bagus Sugeng Riyadi journal (2007: 409) defines learning styles as an individual's preferred or habitual way of processing knowledge and transforming the knowledge into personal knowledge. From that statement, learning styles can be seen as the way of the individual habit in the activity or the process of learning to get knowledge. So, in doing the activity of the teaching process in the classroom, teachers should be creative to create a method that is unique and varied. There is a general belief that such a focus helps students become more effective learners and facilitates the activation of a learner-centered philosophy (Nunan, 1988, 1995a,b). From that statement, the researcher suggests that more focus helps students to study effectively and facilitates students to become effective learners. It is also believed that learners who have developed skills in learning how to learn will be able to exploit classroom learning opportunities more effectively, and will be more adequately equipped to continue with language learning outside of the classroom. There is another opinion from the researcher who says that learning is not about cramming in the information. It is learning by doing. It is about looking at issues in various ways and developing capacities, especially the ability to dig below the surface to reach the truth. That is why our goal is to teach students to learn how to learn rather than merely passing information to them (Tsui, 2006:1).

In this study, learning styles towards the ability of students in answering the reading comprehension questions of various types of texts regulated in curriculum

2013 have been described. Styles are the more general term, being "an individual's natural, habitual, and preferred way of absorbing, processing, and retaining new information and skills" (Kinsella, 1995, p.171). Christison (2003) distinguishes between cognitive style (field-dependent versus field independent, analytic versus global, reflective versus impulsive); sensory style (visual versus auditory versus tactile versus kinesthetic), and personality styles (tolerance of ambiguity, right-brain versus left-brain dominance). Concerning language learning styles, Willing (1994) identify four major styles: communicative, analytical, authority-oriented, and concrete. These styles are derived from learner strategy preferences, which, in Willing's data, clustered in the following ways. Learning styles are general approaches to language learning, while learning strategies are specific ways to deal with language tasks in particular contexts (Cohen, 2003; Oxford, 2003).

The research perhaps was most closely related to the links between learning styles and strategies is Oxford's (1993) study on the five learning styles contrasts identified in her Style Analysis Survey (SAS): visual versus auditory (the use of physical senses for study and work), extroversion versus introversion (dealing with other people), intuitive-random versus concrete-sequential (handling possibilities), closure-oriented versus open (approaching tasks), global versus analytic (dealing with ideas). Learners need to identify these learning styles and recognize their strengths and thus expand their learning potential. Oxford (1993) notes that once learners are aware of their learning styles it enables them to adapt their learning strategies to suit different learning tasks in particular contexts. Learners can take advantage of their learning styles by matching learning strategies with their styles; similarly, learners can compensate for the disadvantages of their learning styles to balance their learning by adjusting learning strategies.

A major investigation into learning strategy preferences by adult immigrants is carried out by Willing (1994). Willing set out to test the hypothesis that there is a relationship between strategy preferences and biographical characteristics such as

first language background and level of education. The research fails to establish any such relationship, and Willing concludes that learning style differences are due to personality and cognitive style rather than factors such as ethnicity and educational attainment.

Some researchers who have conducted research found several weaknesses of learning style. The first study discusses the effects of learning style activities on students reading comprehension skills with self-efficacy perceptions in EFL classes. In the first study, the researcher has done research on learning style activity on students' reading comprehension skills and self-efficacy. The researcher finds the weakness in the treatment of learning style based on the activities in implemented the research is a different treatment. When the researcher gives the treatment, it should be the same as the treatment, between the experimental and control group because the sample of the research comes from the same students, freshmen university students majoring in Elementary Mathematics Education. Although the result is different, the treatment should be the same. It can measure the ability of both of those groups. In the second study, the researcher discussed reading strategies, learning styles, and reading comprehension, it consists of a correlation study.

In the second study, the researcher has done research on reading comprehension, learning styles, and reading strategies, which is included in a correlation study. The researcher finds the weaknesses among others, there is no result which is answering the research question. The other weakness is that there is no discussion about the correlation between reading comprehension, learning style, and reading strategies. The third research discusses the influence of learning style (VARK) on reading comprehension. The study is to find the best learning style in reading comprehension. The samples of the data are based on the respondents' answers to the questionnaire and the result of the reading comprehension test. The students are categorized based on their learning style, and then the researcher compares the mean score of their reading comprehension. The research question is not answered clearly. The influence of learning styles on reading comprehension is not clear.

The explanation for the research is not specific. From that example, in this research, the researcher discussed the effect of reading strategy training and learning style on students' ability to answer higher-order thinking skills questions in biography text, whether it has significant effects on the reading strategy training given.

Willing (1988) further identify four types of learners: concrete, analytical, communicative, and authority-oriented learners. Nunan (1999) briefly summarizes the definition of these four types of learners:

1. Concrete learners are those who employ very direct means of taking in and processing information;

2. Analytical learners are those whose cognitive strengths lead them not only to analyze carefully and demonstrate great interest in structure but to put a great deal of value on revealing their independence by performing these things themselves, autonomously. In other words, they prefer to study grammar (from specific to general), study English books and reading newspapers, study individually, find their own mistakes, and work on task problems assigned by their teachers;

3. Authority-oriented learners are those who are probably not predisposed to actively organize information; they would like their teacher to explain everything to them, tend to have their textbooks, to write everything in a notebook, to study grammatical rules, learn by reading, and learn new words by looking at them; and

4. Communicative learners are those who have a desire for a communicative and social learning approach, probably because they feel that this would be most helpful to their needs concerning language learning. In other words, they like to learn by watching, listening to native speakers, talking to friends in English and watching television in English, using English out of class, learning new words by hearing them, and learning by conversation (Willing, 1998; Nunan, 1999,

p.57). Learning style is defined variously as a particular way in which an individual learns, a mode of learning – an individual's preferred or best manner(s) in which to think, process information and demonstrate learning, an individual's preferred means of acquiring knowledge and skills, habits, strategies, or regular mental behaviors concerning learning, particularly deliberate educational learning, that an individual display. There is one view of what we do about individual learning styles is summed up by a set of notes found in the psychology department website at Glasgow University:

Should teachers adapt to learners or learners to teachers? The answer is 'both', and the concept to think of is those learning communities. All (institutional) learning can be thought of from a wholly social perspective, as one of the learners joining a community, and becoming enculturated. From that point of view, the learner needs to do the adapting, and the more they do so, the more they gain access to that subculture and its knowledge.

The complementary viewpoint is that teachers should adapt, not so much to individuals, as to the broadest audience possible; to make their material accessible to most people (Draper 2004). To identify learning styles in the school, there are formal tests and quizzes which is designed by the school itself. Some examples are available online and are simple. Naturally, every learning style of quiz or inventory will be designed to categorize learners or students, according to the theoretical position on learning style which is designed by the creators. Maybe, it is to find the formal ways to identify the learning style which is suitable for the descriptions of the learning style itself. Some of the schools or individual teachers are encouraging their students to follow the online quizzes are helping us to consider their learning styles. Besides that, in this research, the researcher discussed students' metacognition in answering reading comprehension questions based on biographical texts.

From the research above, the research followed up on the learning styles and reading comprehension skills for Junior High School students. In this research, the researcher also asked the students in the experimental class (B class) to fill out a

questionnaire about learning styles. The questionnaire was created by Willing, Willing is the first person who makes the learning style students questionnaire and the key survey of learning style students among ESL individuals (Cite in Moharrer Zahra, et.al, 2019, in City University e-Journal of Academic Research, cite in Murray & Hinkel, 2005). And then students of trial class (A-class) did reading comprehension test of biography text. The researcher chose the biography text with the use of a higher-order thinking skill (HOTS) questions on reading comprehension. The reason of the researcher takes that topic is that on the curriculum 2013 the topic for the students focus on the reading comprehension skill, especially in the higher-order thinking skill. But in this study, the researcher focused on Junior High School students in the VIII class. After getting the data, the researcher gave the treatments for students to focus on the biography texts reading. The purpose of treatment is to help students face HOTS reading questions. The treatment is the strategies in studying and explaining the reading topic questions which have higher-order thinking skills types. The researcher taught the students who haven't got the test reading and they got the treatment before they got the test of reading (post-test). The last is the researcher gave the post-test after students have got the treatment.

But there is another problem with the research, the problem is the students' motivation to read is low, students' comprehension ability about reading is poor, and students' comprehension ability in vocabulary is also low. So, to help students' ability in answering the questions which consist of higher-order thinking skill questions, it should solve the problem about reading skills. Based on the researches from several experts, they show that the effect between metacognitive reading strategy training and learning style has a fairly good effect. It can happen if the strategies and training provided can be given in detail and simple but easy for students to understand. However, there are some experts who said that the effect of training on metacognitive reading strategies and learning style still does not have a good effect. It is because of some experts provide questions that have not been reached by the minds of students or readers, besides that the strategies and training provided is not easy to follow by us.

1.2. Research Questions

The research questions of this research are:

1. Was there a statistically significant effect of metacognitive reading strategy training on the students' ability to answer higher-order thinking skills questions of biography texts?
2. Was there a statistically significant effect of learning styles on the students' ability to answer higher-order thinking skills questions of biography text?

1.3. Objectives of the Study

The objectives of this research are:

1. To find out whether there was any statistically significant effect of metacognitive reading strategy training on students' ability to answer higher-order thinking skills questions of biography texts.
2. To find out whether there was any statistically significant effect of learning style on students' ability to answer higher-order thinking skills questions of biography texts.

1.4. Significance of the Study

The significances of the study are:

1. This study describes whether there was a statistically significant effect of metacognitive reading strategy training on students' ability to answer higher-order thinking skills questions of biography texts.
2. This study describes whether there was a statistically significant effect of learning style on students' ability to answer higher-order thinking skills questions of biography texts.
3. To invite the students to get used to thinking critically, logically, and creatively in solving the problem or answering questions that have higher-order thinking skill level.

1.5. The Scope of the Study

This research focuses on the significant effect of metacognitive reading strategy training and also learning style on students' ability to answer higher-order thinking skills questions of biography texts.

1.6. Definition of the terms

The terms applied by this research are explained as follow:

1. Metacognition is knowledge and cognition about cognitive phenomena (Flavell, 1979, p. 906). In other words, metacognition refers to knowledge of cognitive processes and products and includes reflecting on one's thoughts or cognition about cognition. Besides, Anderson (2002) believed that metacognition is closely related to critical reflection and evaluation of one's thinking which can bring about specific changes in how to learn. Further, Wenden (1998) defined metacognitive strategies as the general skills through which learners manage, direct, regulate, guide their learning which comprises planning, evaluating, and monitoring (p.519).
2. Metacognitive strategies increase readers' meaning construction, monitoring of text and reading comprehension, and their ability to evaluate the text they are reading. This metacognitive reading framework should be familiar to teachers who integrate before, during, and after reading processes when teaching students effective comprehension strategies (Pressley, 2006: 564).
3. Reading is a constant process of guessing, and what brings to the text is often more important than what finds in it. This is why, from the very beginning, the students should be taught to use what they know to understand unknown elements, whether these are ideas or simple words. This is best achieved through a global approach to the text.
4. Higher-order thinking skills (HOTS) lead to the ability to apply knowledge, skills, and values in reasoning, reflection, problem solving, decision making, innovating, and creating new things (Kusuma et al., 2017; Sulaiman et al., 2017; Abdullah, Abdul Halim; Mokhtar, Maharani; Halim, Noor Dayana Abd; Ali, Dayana Farzeeha; Tahir, Lokman Mohd; Kohar, 2017; Hugerat & Kortam, 2014).

5. According to Dunn and Dunn (1993), learning style is the way students begin to concentrate on, process, internalize and remember new and difficult academic information. Restak (1979), Thies (1979, 1999 / 2000), and Dunns (1992, 1993) theorizes that learning style is comprised of both biological and developmental characteristics that make the identical instructional environments, methods, and resources effective for some learners and ineffective for others.
6. Biography text is a detailed description or account of a person's life and written by someone else, it is non-fiction text.

II. FRAME OF THEORY

This chapter describes the theory and concepts which are related to the research, such as a review of previous research, metacognitive theory, concepts of reading strategies training, concepts of higher-order thinking skills, concepts of learning style, and theoretical assumption.

2.1. Review of Previous Research

Several studies have been carried out concerning the topic under discussion from different perspectives. In the current studies, some of them are discussed including Jafarpanah. Zohreh and Farahian Majid (2016), Pedone. Francesca (2014), Petrescu, Maria-Ana and Stancescu, Ioana (2008), and Shannon V. Steven (2008).

Jafarpanah. Zohreh and Farahian Majid (2016) is investigated that the relationship between learning style and metacognitive reading strategy of Iranian EFL (English as Foreign Language) learners. It has also made an attempt to discover which learning style has the strongest correlation with metacognitive reading strategy. The students who studied EFL at university are asked to answer a proficiency test. The data analysis indicates that thirteen learning styles out of twenty-three ones have a significant, positive correlation with metacognitive strategy. Moreover, there is a significant correlation between visual, auditory, introvert, intuitive, concrete, closure-oriented, synthesizing, analytic, sharpener, deductive, field independent, metaphoric, and reflective styles with metacognitive reading strategy. In addition, among 23 learning styles, visuals, closure-oriented and synthesizing styles have the strongest correlation with metacognitive strategy. The findings reveal that Iranian EFL learners with these three learning styles use more metacognitive reading strategy.

Pedone. Francesca (2014) investigates how students perceive learning and their learning styles preferences and the call for teaching metacognitive skills is considered one of main implications for instruction that emerge from over three decades of research about how people learn. This study is aimed to compare how students think what they learn to their learning styles preferences. The

metacognitive model is used to describe how fundamental concepts of experiential learning theory can guide metacognitive monitoring and control of learning. Metacognitive strategies to help pupils to improve their learning effectiveness are outlined. They analyze the relationship between learning styles and teaching methods, highlighting how one of the teacher's educational role is helping each student to find the right balance between intellectual abilities and learning style.

The other researcher, Petrescu, Maria-Ana and Stancescu, Ioana (2008) investigate about the study to the impact of the students learning styles to the quality of the higher education, which requires the necessity of organizing a stimulating learning environment where the students participate to the process of their own education. Metacognition, as a "learning to learn" technique, has to habilitate the students with the important skills and capacities. To be able to practice autonomous quality learning, the students have to benefit by a continuous feedback from the teacher, beginning from a systematic knowledge of the learning styles and adapting the didactic strategies.

The last researcher, Shannon V. Steven (2008) investigates in their research project is to help students become self-directed learners by determining what metacognitive strategies would be the most effective for a students' specific learning styles. Students are then introduced to a new metacognitive strategy each week and asked to apply the strategy to their daily learning processes. Students are then asked to reflect on which metacognitive strategies best fit their learning styles. The results are then tallied to determine which strategies are preferred within the seven learning style groups.

Based on the previous research above, many important things that we found especially on the students' activity in learning English with learning style. However, none of the studies above see the students' learning styles by using metacognitive in answering competency-based national exam questions with question types of higher-order thinking skills for reading comprehension skills. Therefore, this research is intended to find the learning style of the students by

using their metacognitive inability to answer competency-based national exam questions with question types of higher-order thinking skills for reading comprehension skills. In addition, the research mentioned above discussed metacognitive and learning styles, but the explanations were not detailed. The strength of the research that the researcher is doing at this time is that no one has used this research, namely about the effect of reading strategy training and student learning styles in answering biographical text questions that require skills in higher-order thinking. And the object of the research taken is junior high school students who are still said to not really understand about it.

2.2. Metacognitive Theory

Having adopted Flavell's (1979) and O'Malley and Chamot's (1990) framework, Wenden (1998) argued that metacognitive strategies are the skills through which learners manage, direct, regulate, guide their learning, i.e., planning, monitoring, and evaluating (p.519). Phakiti (2006) stated that metacognitive strategies are conscious processes that regulate cognitive strategies, action, and other processing which consist of planning, monitoring, and evaluating strategies.

Metacognitive strategies are essential for successful language learning. Language learners are often overwhelmed by too much "newness" unfamiliar vocabulary, confusing rules, different writing systems, seemingly inexplicable social customs, and (in enlightened language classes) nontraditional instructional approaches. With all this novelty, many learners lose their focus, which can only be regained by the conscious use of metacognitive strategies such as paying attention and overviewing/linking with already familiar material. Other metacognitive strategies, like organizing, setting goals and objectives, considering the purpose, and planning for a language task, help learners to arrange and plan their language learning in an efficient, effective way (Oxford).

A learner's ability to reflect on their own learning is an essential component of most recent models of learning, this is called metacognition (Flavell 1976). To give a more exact definition 'metacognition' refers to one's knowledge

concerning one's own cognitive processes and products or anything related to them. However, Flavell and Wellman (1977) place metacognition in a broader framework as follows:

- Basic operations (the memory hardware of the brain). The most basic processes of cognition are unconscious and are effectively the hardware of the cognitive system.
- Knowledge component (representing the effects of attainment). At an unconscious and automatic level, a knowledge component influences cognition.
- Strategies, on the other hand, are conscious behaviors, which allow the learner to 'know how to know'. These may involve strategies such as consciously rehearsing or memorizing an action before carrying it out.
- Metacognition involves 'knowing about knowing'.

At the highest level, this is the knowledge a learner has of the process of learning itself: of the possibilities and constraints of the system, and of potentially effective templates for problem resolution, which have been learned from previous experience.

What is basic to the concept of metacognition is the notion of thinking about one's thoughts. Thinking can be of what one knows (i.e., metacognitive knowledge), what one is currently doing (i.e., metacognitive skill), or what one's current cognitive or affective state is (i.e., metacognitive experience). To differentiate metacognitive thinking from other kinds of thinking, it is necessary to consider the source of metacognitive thoughts: metacognitive thoughts do not spring from a person's immediate external reality; rather, their source is tied to the person's own internal mental representations of that reality, which can include what one knows about that internal representation, how it works, and how one feels about it. Therefore, metacognition sometimes has been defined simply as thinking about thinking, cognition of cognition, or using Flavell's (1979) words, "knowledge and cognition about cognitive phenomena" (p.906). Metacognition is an awareness of oneself as "an actor in his environment, that is, a heightened sense of the ego as an active, deliberate storer and retriever of information" (p.275). Flavell's (1979)

model of metacognition and cognitive monitoring developed from answers to many of those questions. According to his model, a person's ability to control "a wide variety of cognitive enterprises occurs through the actions and interactions among four classes of phenomena:

(a) Metacognitive knowledge

(b) Metacognitive experiences

(c) Goals (or tasks) and

(d) Actions (or strategies) (p.906).

Metacognitive knowledge refers to one's stored world knowledge that "has to do with people as cognitive creatures and with their diverse cognitive tasks, goals, actions, and experiences" (p.906). It consists of one's knowledge or beliefs about three general factors: his or her nature or the nature of another as a cognitive processor; a task, its demands, and how those demands can be met under varying conditions; and strategies for accomplishing the task (i.e., cognitive strategies that are invoked to make progress toward goals, and metacognitive strategies that are invoked to monitor the progress of cognitive strategies). Metacognitive knowledge may influence the course of cognitive enterprises through a deliberate and conscious memory search or no conscious and automatic cognitive processes.

Building on Flavell's contributions to metacognition, Kluwe (1982) brought further definition to the concept by identifying two general attributes common to "activities referred to as 'metacognitive': (a) the thinking subject has some knowledge about his own thinking and that of other persons; (b) the thinking subject may monitor and regulate the course of his own thinking, i.e., may act as the causal agent of his own thinking" (p.202).

More recently, the fourth category of metacognitive research has appeared. The strong focus on theoretical aspects of metacognition which has dominated much of the metacognitive research since the 1960s has recently produced an equally strong focus on educational application. Many researchers, convinced of the educational relevance that metacognitive theory has for teachers and students, are

shifting their attention from the theoretical to the practical, from the laboratory to the classroom. For example, Borkowski and Muthukrishna (1992) argued that metacognitive theory has "considerable potential for aiding teachers as they strive to construct classroom environments that focus on strategic learning that is both flexible and creative" (p.479); and Paris and Winograd (1990) argued that "students can enhance their learning by becoming aware of their thinking as they read, write, and solve problems in school. In general, the metacognitive theory focuses on (a) the role of awareness and executive management of one's thinking; (b) individual differences in self-appraisal and management of cognitive development and learning; (c) knowledge and executive abilities that develop through experience; and (d) constructive and strategic thinking (Paris & Winograd, 1990).

In this research, the concepts of metacognitive were used for the second-grade year students. Before, students learn about reading especially higher-order thinking skills the teacher gave an explanation about higher-order thinking skills, the strategy of metacognitive reading strategy and the explanation about learning style. And then students learnt the examples of reading comprehension biographical text and they done the task that was given by the researcher.

2.3. Theory of Metacognitive Reading Strategy

Metacognitive reading strategies create active learners as students predict, construct outcomes, and question the text. Boulware-Gooden et al. (2007) finds that multiple metacognitive strategies, which focused on vocabulary acquisition, significantly increased third grade students' understanding during reading. Metacognitive strategies address each of these issues as students interact with the text and take ownership of their learning. In the metacognitive strategies in reading comprehension, there are many scholars who have demonstrated how they identify the specific strategies within metacognitive strategies. Besides that, metacognition has a significant impact on improving reading comprehension in L1 and FL (Baker & Brown, 1984; Flavell, 1979; Mokhtari & Reichard, 2002)

and metacognition is the core of reading appropriately in the interactive reading model (Macaro & Erler, 2008).

Firstly, metacognitive strategies, as suggested by O'Malley and Chamot (2001), are one of the learning strategies. It involves seven types of specific reading strategies: the first is planning, which refers to previewing the main ideas or concept of the task, proposing strategies that will be employed, and generating a plan for learning; second is directed attention, means to decide which parts of task to pay attention to and which parts to ignore; third one is selective attention which refers to decide to pay attention to certain perspectives of the input information by scanning for key words or linguistic markers; fourth, self-management: it refers to be aware of the learning condition and managing the connection between new learning task and the existing knowledge related to it; the fifth is self-monitoring, checking one's understanding and comprehension of the task continuously, and finding out the appropriate strategies to employ; the sixth step is problem-identification, identifying the points needed to find resolution; the last step is self-evaluation which means evaluating and checking one's learning results.

Other scholars such as Anderson (2008), Israel (2007), Pressley and Afflerbach (1995) suggest that the most widely accepted components of metacognitive strategies are planning strategies, monitoring strategies and evaluating strategies. Planning strategies means a group of approaches are used before reading. It also includes activating learners' existing background knowledge which is relevant to the reading task for them to prepare for new reading materials (Israel, 2007). The frequently used planning strategies include examining the title of the task, looking at pictures, illustrations, headings and subheadings to preview the task in order to get a general idea of the reading task. Readers may also preview the structure of the reading materials and check the questions that need to be answered after the reading is done. More importantly, setting the purposes for reading is recognized as essential in the planning strategies. (Paris, Wasik & Turner, 1991).

Meanwhile, monitoring strategies usually take place during the reading which aims at improving the efficiency and effectiveness of the reading progress. Some

frequently used monitoring strategies include keeping the work on track to help learners know if something is going wrong and self-questioning whether they understand the target language. Furthermore, monitoring strategies help learners to take control of their reading progress, to examine whether the resources they have are sufficient and are well used, also to see whether they are capable of doing a certain task and whether they are doing what they plan to do (Slife & Weaver, 1992).

As for evaluating strategies, approaches are used after reading. They help readers to evaluate and reflect how well they perform in the whole reading process. By doing this, learners can improve their abilities in arranging strength and weaknesses in order to perform better in the next task. For example, readers may think about how to apply new knowledge for other situations, learn how well a certain type of strategy works or think whether there are any other better strategies which are more suitable for this learning task.

During the reading, metacognitive strategies are supervisory activities that manage and regulate the cognitive process which involves the acts of previewing or over-viewing tasks, solving problems and planning the text move (Baker and Brown, 1984). In addition, looking at pictures, figures, table before reading as well as checking, monitoring, testing and evaluating reader's comprehension and understanding of text are also considered as metacognitive strategies (Li and Munby, 1996; Phakiti, 2003). Researches on the impacts of metacognitive strategies on reading have been started from the exploration of what successful readers do and the comparison in the use of metacognitive strategies in reading between successful and less successful readers. Some of researchers have been discover that successful readers generally employ a higher degree of metacognitive strategies in reading, which enable them to use these reading strategies more effectively and efficiently than unsuccessful readers.

For example, other researchers such as Wang Lu (2015), the researcher uses and adapts two theoretical frameworks to identify students' metacognitive strategies in

a reading context, these two frameworks are the Recursive Model of Metacognitive Strategies which emphasizes four processes of metacognitive strategies such as planning, monitoring, problem-solving and evaluating and also a Survey of Reading Strategies (SORS) which focuses on three categories such as global strategies, support strategies, and problem-solving strategies. Then the other researcher is Jennifer Alexander Courtney (2012) who focuses the research on the K-W-L, PLAN, QAR, and SQ3R strategies that have all been shown to improve reading in the content areas. And the other researcher Michelle M. Wantroba (2011) focuses on these four theoretical hypotheses are referenced throughout the study to interpret the data about what reading strategies of SFL students use in L1 and L2 and how language similarities and differences affect the types of strategies students transfer between L1 and L2 texts. Overall, this research focuses on metacognitive reading strategies within the content areas leads to improve students' understanding of the subject matter. All of these researchers focus on developing the mindset of students in higher education, even though they use different strategies. This study worked with the nine categories of metacognitive strategies which help and familiarize students in using their metacognitive abilities in the process of learning English in the form of biographical text. This research had objectives to find out the effect of metacognitive reading strategy training and learning style on students' ability to answer higher-order thinking skill questions of biography text.

2.4. Concept of Reading Strategies Training

There is a model designed to raise students' awareness in using strategy, to give students chances to practice the strategies that they are being taught, and to help them understand how to use the strategies in learning reading, at least six strategies are worth elaborating on. The kinds of micro-skills are developed through tasks and activities in the steps of pre-reading, whilst reading, and post-reading. The task or activities which accompany the text should have two intentions: the first is to create or maintain learners' motivation; the second is to develop useful micro-skills for reading. The strategy training should be accompanied by interesting tasks, to improve the learner's motivation.

1. Predicting: It is a general technique used in the reading process (Grellet, 1986). Smith (1988) also argues that prediction was viewed as the core and the basis of reading comprehension. Nuttall (1996) explained that if a reader understands a text, he could predict with a fair chance of success what is likely to come next and what is not. It requires the readers to use schemata about the way stories work: the way texts are constructed, and the way people tend to think. Therefore, making a prediction is effective in promoting reader activation on their background knowledge, which is an important part of the process of reading.

2. Extracting main ideas. It is important to help learners look for the main ideas of a passage and to avoid getting distracted by unfamiliar vocabulary. Typical activity types which develop this skill are matching exercises; text with pictures, text with the heading. This only makes the reader think a bit more. To get the gist of it, to know how it is organized, or to get an idea of the tone or intention of the writer (Grellet, 1986).

3. Understanding text organization. It is sometimes difficult to understand what information is important in a passage and where it should come from. Text organization activities help the reader to see what belongs to a passage, and how sentences are joined together.

4. Inferring. Inferring activities draw the reader's attention to the overall atmosphere of the passage. They also help build their vocabulary. It is the process of creating personal meaning from text. It involves a mental process of combining what is read with relevant prior knowledge (schema). The reader's unique interpretation of the text is the product of this blending. Grabe (2009) stated that the writer would have implicit the information reader has to draw upon his prior knowledge or his understanding of the context to deduce the implicitly – stated information embedded in the text.

5. Dealing with unfamiliar words. Smith (1971) argued that the best way to identify an unfamiliar word in a text was to draw inferences from the rest of the text rather than looking it up in a dictionary. This view differentiates top-down processing from bottom-up processing to deal with unknown words, emphasizing the reader depends on the context to interpret words.

6. Self-monitoring. To check the students' awareness of reading strategies, an approach known as metacognitive theory was developed in the 1970s. Metacognition is knowledge about cognition. Metacognition in reading refers to the reader's background knowledge of the text, their awareness of using strategy, and the importance of particular strategies. According to Oxford (1990) metacognitive strategy include three strategies sets: 1) centering your learning, 2) arranging and planning your learning, and 3) evaluating your learning.

Based on Vygotsky's theory and Halliday (see in Endang Kusrini. 2017) strategy training concerns the importance of developing students' awareness of using reading strategies. It emphasizes that learning will be effective if the teacher explains explicitly skills that belong to students, how language operates to build a meaning within variant texts and with each linguistic sort.

2.5. Concepts of Higher Order Thinking Skills

Higher-order thinking skills include critical, logical, reflective, metacognitive, and creative thinking. Higher-order thinking skills are grounded in lower-order skills such as discriminations, simple application and analysis, and cognitive strategies and are linked to prior knowledge of subject matter content. Generally, theories of higher-order thinking assert that some types of thinking require greater cognitive processing than other types of thinking. Based on Brookhart (2010) the kinds of higher-order thinking that are (or should be) stated or implied in state content standards and classroom learning objectives. Definitions of higher-order thinking skills consist of three categories: (1) those that define higher-order thinking in

terms of *transfer*, (2) those that define it in terms of *critical thinking*, and (3) those that define it in terms of *problem-solving*.

Here is a definition in the *transfer* category:

Two of the most important educational goals are to promote retention and to promote transfer (which, when it occurs, indicates meaningful learning) …retention requires that students remember what they have learned, whereas transfer requires students not only to remember but also to make sense of and be able to use what they have learned. (Anderson & Krathwohl, 2001, p.63).

The *critical thinking* category includes this definition:

Critical thinking is reasonable, reflective thinking that is focused on deciding what to believe or do. (Norris & Ennis, 1989, p.3)

In the *problem-solving* category are these two definitions:

> A student incurs a problem when the student wants to reach a specific outcome or goal but does not automatically recognize the proper path or solution to use to reach it. The problem to solve is how to reach the desired goal. Because a student cannot automatically recognize the proper way to reach the desired goal, she must use one or more higher-order thinking processes. These thinking processes are called *problem-solving*. (Nitko & Brookhart, 2007, p.215)

1. Higher-Order Thinking as Transfer

The most general of the approaches to higher-order thinking is the Anderson and Krathwohl (2001) division of learning into learning for recall and learning for transfer. For many teachers, operating with their state standards and curriculum documents, higher-order thinking is approached as the "top end" of Bloom's (or any other) taxonomy: analyze, evaluate, and create, or, in the older language, analysis, synthesis, and evaluation (Anderson & Krathwohl, 2001). Higher-order thinking is conceived as students being able to relate their learning to other elements beyond those they were taught to associate with it.

2. Higher-order Thinking as Critical Thinking

Critical thinking, in the sense of reasonable, reflective thinking focused on deciding what to believe or do (Norris & Ennis, 1989) is another general ability that is sometimes described as the goal of teaching. In this case, "being able to think" means students can apply wise judgment or produce a reasoned critique. Wisdom and judgment are particularly important in higher-order thinking tasks like judging the credibility of a source, always an important skill but newly emphasized in the era of ever-expanding, electronically available information.

3. Higher-order Thinking as Problem Solving

A problem is a goal that cannot be met with a memorized solution. The broad definition of problem-solving as the nonautomatic strategizing required for reaching a goal (Nitko & Brookhart. 2007) can also be seen as a broad goal of education. If we think of higher-order thinking as problem-solving, the goal of teaching is equipping students to be able to identify and solve problems in their academic work and life.

Using assignments and assessments that require intellectual work and critical thinking is associated with increased student achievement. These increases have been shown on a variety of achievement outcomes, including standardized test scores, classroom grades, and research instruments, as the studies described here illustrate. Pogrow (2005) designed the Higher Order Thinking Skills (HOTS) program specifically for educationally disadvantaged students, both 1 student and the other students with learning disabilities. The program specifically works on four kinds of thinking skills: (1) metacognition, or the ability to think about thinking; (2) making inferences; (3) transfer, or generalizing ideas across contexts; and (4) synthesizing information. Two things make these results for the HOTS program particularly impressive. For one, in several of the evaluations, teaching thinking skills has been contrasted with enhanced content instruction. For another, these results hold for about 80 percent of students who have been identified as Title I or learning-disabled students, as long as they have a verbal IQ of 80 or

above. In the book of Bookhart, she uses the following categories of higher-order thinking in illustrating ways to assess various aspects of such thinking:

● Analysis, evaluation, and creation (the "top end" of Bloom's taxonomy).

● Logical reasoning.

● Judgment and critical thinking.

● Problem-solving.

● Creativity and creative thinking.

Assessing higher-order thinking almost always involves three additional principles:

● Present something for students to think *about*, usually in the form of introductory text, visuals, scenarios, resource material, or problems of some sort.

● Use novel material – material that is new to the student, not covered in class, and thus subject to recall.

● Distinguish between the level of difficulty (easy versus hard) and level of thinking (lower-order thinking or recall versus higher-order thinking), and control for each separately.

There are some of the basic assessment principles of higher-order thinking skills, are:

1. Begin by specifying clearly and exactly the kind of thinking, about what content, you wish to see evidence for.
2. Design performance tasks or test items that require students to use the targeted thinking and content knowledge.
3. Decide what you will take as evidence that the student has exhibited this kind of thinking about the appropriate content.

Using three principles when will write assessment items or tasks will help ensure the assess higher-order thinking. There are:

1. Use introductory material or allow access to resource material

   It means that gives students something to think about. For example, student performance on a test question about Moby Dick that does not allow students

to refer to the book might say more about whether students can recall details from Moby Dick than how they can think about them.

2. Use novel material

   Novel material means material students have not worked with already as part of classroom instruction. Using novel material means students have to think, not merely recall material covered in class. For example, a seemingly higher-order thinking essay question about how Herman Melville used the white whale as a symbol is merely recalled if there was a class discussion on the question "What does the white whale symbolize in Moby Dick?" From the students' perspective, that essay question becomes "Summarize what we said in class last Thursday."

3. Manage cognitive complexity and difficulty separately.

   Realizing that level of difficulty (easy versus hard) and level of thinking (recall versus higher-order thinking) are two different qualities allows you to use higher-order thinking questions and tasks with all learners.

Higher-order thinking skills can be measured by a variety of item and test formats. Sugrue (1994, 1995) integrated information from three research-based, domain-specific problem-solving models and identified three response formats for measuring higher-order thinking skills:
(1) Selection (multiple-choice, matching),
(2) Generation (short answer, essay, performance), and
(3) Explanation (giving reasons for selection or generation of a response).

The impact question of reading skills belongs to higher-order thinking skills for the students are hopeful students who received treatment were more creative and can show high degrees of metacognitive. Besides, students can make improvements in their learning level, students can learn many positive characteristics, and enhance their thinking, especially in reading skills.

2.6. Bloom Taxonomy Theory

In this research, the researcher will focus on the metacognitive knowledge dimension. Metacognitive knowledge reflects recent research on how students' knowledge about their own cognition and control of their own cognition plays an important role in learning (Bransford, Brown, and Cocking, 1999; Sternberg, 1985; Zimmerman and Schunk, 1998). The term metacognition has been used in many different ways, but an important general distinction concerns two aspects of metacognition: (1) knowledge about cognition and (2) control, monitoring, and regulation of cognitive processes. The latter is also called metacognitive control and regulation as well as more generally, self-regulation (Boekaerts, Pintrich, and Zeidner, 2000; Bransford, Brown, and Cocking, 1999; Brown, Bransford, Ferrara, and Campione, 1983; Pintrich, Wolters, and Baxter, in press; Zimmerman and Schunk, 1998). Metacognitive knowledge includes knowledge of general strategies that may be used for different tasks, the conditions under which these strategies may be used, the extent to which the strategies are effective, and self-knowledge (Bransford, Brown, and Cocking, 1999; Flavell, 1979; Pintrich, Wolters, and Baxter, in press; Schneider and Pressley, 1997). Learners can activate the relevant situational, conditional, or cultural knowledge for solving a problem in a certain context (e.g., in this classroom, on the type of test, in the type of situation, in the subculture). For example, they may know that the teacher uses only multiple-choice tests. Furthermore, they know that multiple-choice tests require only recognition of the correct answers, not actual recall of the information as in essay tests.

This metacognitive knowledge might influence how they prepare for the test. Metacognitive knowledge is predicated on our belief that it is consistent with the basic precepts of cognitive psychology and supported by empirical research (Bransford, Brown, and Cocking, 1999). The researcher chose to place metacognitive knowledge as a fourth knowledge category for two primary reasons. First, metacognitive control and self-regulation require the use of the cognitive processes included in the other dimension. Metacognitive control and

self-regulation involve processes such as remembering, understanding, applying, analyzing, evaluating, and creating. The six levels of Bloom's Taxonomy are:

1. **Remember.** The example activities at the remembering level are memorizing a poem, recalling state capitals, remembering math formulas.
2. **Understand**. The example activities at the understanding level are organizing the animal kingdom based on a given framework, illustrating the difference between a rectangle and square, summarizing the plot of a simple story.
3. **Apply.** The example activities at the application level are using a formula to solve a problem, selecting a design to meet a purpose, reconstructing the passage of a new law through a given government/system.
4. **Analyze.** Example activities at the analysis level are identifying the 'parts of' democracy, explaining how the steps of the scientific process work together, identifying why a machine isn't working.
5. **Evaluate.** Example activities at the evaluation level are making a judgment regarding an ethical dilemma, interpreting the significance of a given law of physics, illustrating the relative value of technological innovation in a specific setting – a tool that helps recover topsoil farming, for example.
6. **Create.** Example activities at the Creation level are designing a new solution to an 'old' problem that honors or acknowledges the previous failures, deleting the least useful arguments in a persuasive essay, write a poem based on a given theme and tone.

The top three levels of Bloom's taxonomy which is often displayed as a pyramid, with ascending levels of thinking at the top of the structure are analysis, evaluation, and creating. Second, factual, conceptual, and procedural knowledge as conceived in the original taxonomy pertains to subject matter content. In contrast, metacognitive knowledge is knowledge of cognition and about oneself about various subject matters, either individually or collectively (e.g., all sciences, academic subjects in general).

2.7. Concept of Learning Styles

Based on Reid (1987), for example, based on survey data, and distinguished four perceptual learning modalities:

1. Visual learning (for example, reading and studying charts);
2. Auditory learning (for example, listening to lectures or audio tapes);
3. Kinesthetic learning (involving physical responses); and
4. Tactile learning (hands-on learning, as in building models).

Based on Alan Pritchard (2009) the term 'learning preferences' is also widely used to refer to what we shall here refer to as 'learning style'. The literature provides many useful definitions of learning styles and related ideas which we could consider. Learning style is defined variously as:

● a particular way in which an individual learns;

● a mode of learning – an individual's preferred or best manner(s) in which to think, process information, and demonstrate learning;

● an individual's preferred means of acquiring knowledge and skills;

● habits, strategies, or regular mental behaviors concerning learning, particularly deliberate educational learning, that an individual display.

According to Dunn and Dunn (1993), learning style is the way students begin to concentrate on, process, internalize and remember new and difficult academic information. Restak (1979), Thies (1979, 1999/2000), and Dunns (1992, 1993) theorizes that learning style is comprised of both biological and developmental characteristics that make the identical instructional environments, methods, and resources effective for some learners and ineffective for others. Learning style is a biologically and developmentally determined set of personal characteristics that make the identical instruction effective for some students and ineffective for others (Dunn & Dunn, 1972, 1992, 1993; Dunn, Dunn, & Perrin, 1994; Restak, 1979; Thies, 1979, 1999/2000). Based on Dunn & Griggs A. Shirley (1995, 1998) learning style is the way in which each person begins to concentrate on, process, and retain new and difficult information.

In relation to language learning styles, Willing (1994) identified four major styles: communicative, analytical, authority-oriented, and concrete. These styles were derived from learner strategy preferences, which, in Willing's data, clustered in the following ways.

1. Communicative : These learners were defined by the following learning strategies: they like to learn by watching, listening to native speakers, talking to friends in English, watching television in English, using English out of class, learning new words by hearing them, and learning by conversation.
2. Analytical : These learners like studying grammar, studying English books and newspapers, studying alone, finding their own mistakes, and working on problems set by the teacher.
3. Authority-oriented : The learners prefer the teacher to explain everything, have their own textbook, write everything in a notebook, study grammar, learn by reading, and learn new words by seeing them.
4. Concrete : These learners tend to like games, pictures, film, video, using cassettes, talking in pairs, and practicing English outside class.

Willing (1987) investigated the learning styles of 517 adult ESL learners in Australia. Based on their responses to a 30- item questionnaire, Willing tried to identify how differences in cognitive learning styles affected learners' preferences in six different areas:

1. Preferences for particular kinds of classroom activities;
2. Preferences for particular types of teacher behavior;
3. Preferences for particular grouping arrangements;
4. Preferences for particular aspects of language which need emphasis;
5. Preferences for particular sensory modes, such as visual, auditory, or tactile learning; and preferences for particular modes of learning on one's own outside class.

2.8. Theoretical Assumption

By those previous theories and some previous research, metacognitive is the core and the key to the success in reading. Metacognitive is important for reading

comprehension. The effect of metacognitive reading strategy training and learning styles were also found to have contributed to learners' achievement in sorting out questions of high-order thinking skills. Metacognitive reading strategy training produce a good relationship if they can be applied properly in teaching and learning activities, like a researcher who has a metacognitive reading strategy training in the form of learning strategies such as planning, directed attention, selective attention, self-management, self-monitoring, problem-identification, and the last step is self-evaluation. Other theories use metacognitive strategies such as planning, monitoring, problem-solving and evaluating. Meanwhile, this research used metacognitive reading strategies in the form of genre analysis, skimming, scanning, predicting, using visuals, visualizing, planning strategy, evaluating strategy, and monitoring strategy. Based on some strategies and theories that have been mentioned, actually there is a little common with the used strategy in this research. According to other researcher, learning styles also have an effect on the ability of students or learners to improve their metacognitive. In this research, the researcher has assumed that learning style have the effects on students' ability in answering higher-order thinking skills questions. Metacognitive was used to invite students to think creatively, critically, and logically in solving problems in answering a biographical text and the also the other reading text. If students have a learning style that they have set themselves and make them comfortable, this affects their metacognitive abilities. Although the reading strategy training used is slightly different, the results obtained are positive and have a good effect. The researcher assumed that metacognitive reading strategies training can be given to Junior High School students.

III. RESEARCH METHOD

This chapter deals with the following points research design, population and sample, the definition of variables, research instrument, data collecting techniques, research procedures, validity, reliability, items analysis, data treatment, and hypotheses testing.

3.1. Research Design

This research is a quantitative research. According to Creswell (2014:32), quantitative research is an approach for testing objective theories by examining the relationship among variables. These variables can be measured by using instruments and the obtained data can be analyzed using statistical procedures. The final written report has a set structure consisting of an introduction, literature and theories, methods, results, and discussion. Several types of experimental designs can be used in a quantitative study. This research's aim is to find out the effect of metacognitive reading strategy training and the effect of learning styles on the students' ability to answer higher-order thinking skill questions of biography text.

In this research, the researcher used a quasi-experimental. According to Ary, et al (316) quasi-experimental designs are similar to randomized experimental designs in that they involve manipulation of an independent variable but differ in that subjects are not randomly assigned to treatment groups. In this type of research, the researcher fulfilled the experiment criteria by conducting a pretest and a posttest to measure the gain of students' reading achievement from the treatments that have been implemented in experimental group. According to Sugiyono (2013) in quasi-experimental, the cause is manipulable and occurs before the effect is measured. However, quasi-experimental design usually creates less compelling support for counterfactual inferences. In the quasi-experimental, there are two forms of design in it, namely time-series and nonequivalent experimental group design. The design of this research is quasi-experimental and uses a nonequivalent experimental group design model. Before being given treatments, the experimental group was given a pretest find out the group's condition before

treatment. Then after being given treatment, the experimental group was given a posttest to find out the condition of the group after the treatments. According to Sugiyono (2013: 79), the design of the research is as follows

O1 X1 O2 X2 O3 X3 O4

Notes:

O1 : Experiment class before getting treatment (do the pretest)

O2 : Experiment class after getting treatment (do the reading test 1)

O3 : Experiment class after getting treatment (do the reading test 2)

O4 : Experiment class after getting treatment (do the posttest)

X1 : Treatment (Metacognitive Reading Strategy points 1-3)

X2 : Treatment (Metacognitive Reading Strategy points 4-6)

X3 : Treatment (Metacognitive Reading Strategy points 7-9)

The research was conducted on Junior High School students, they were given strategies in understanding reading tests about someone's biographical text. O1 is pretest before getting treatments, X1, X2, X3 are the treatments that have been given to the students, and O2, O3 are the tests of biographical text after they have got the treatments and O4 is the posttest after they get treatments and all strategies of metacognitive reading.

The researcher used one class in conducting the treatments. The first meeting, the researcher provided material in the form of reading strategies and biography text. Then, the researcher gave the task related to biographical texts. In the second meeting, the researcher continued giving the form of reading strategies. After that, the researcher gave the task related to biographical texts. In the third meeting, the researcher continued giving the form of reading strategies. Next, the researcher gave the task related to biographical texts.

The pretest is to measure students' ability to use their metacognitive abilities to answer the given reading test and see the students' understanding of biographical texts. Giving treatments and reading tests which are carried out several times have

aim to see whether there is an effect of metacognitive reading strategy training and the effect of learning styles on the students' ability to answer higher-order thinking skill questions on biography text. Post-test is also conducted to see the results that have been achieved by the students after receiving treatment. The results of achievements can be achieved by the students after they received treatments. The treatments are given in the form of strategies for answering reading text questions using students' metacognitive abilities, which are useful for solving and providing solutions in answering problems in the form of students' thinking through an organized and orderly thought process. It is expected to make students more creative and logical in patterns their thought.

The pretest is used to measure students' abilities to answers higher-order thinking skills questions. The given treatments which were carried out several times and posttest aimed to see whether there was a significant effect on students' metacognitive reading strategy training on the ability to answer biography text questions that require higher-order thinking skills. Besides that, the results of the treatment were also used to see whether there is an effect for students in answering the biography text questions that require higher-order thinking skills.

Students' scores were analyzed to determine their acquisition scores and to identify whether reading comprehension of biographical texts is suitable for metacognitive reading strategy training and learning styles questionnaire, and to find out effect on students' ability in the answer of higher-order thinking skill for junior high school students.

3.2. Population and Sample

In this step, the researcher elaborates deeply about the population and sample of this research so, the technique in sampling.

1) Population

According to Ary, et. al (2010:148), the term *population* is defined as all members of any well-defined class of people, events, or objects. This research chose the

purposive sampling method in selecting the sample. Purposive sampling refers to intentionally choosing samples according to the needs of the study. It is intended by researchers to collect relevant and useful results to answer research questions. In this research, the population was taken from SMPN 27 Pesawaran. Students at SMPN 27 Pesawaran are considered to have good skills in English skills, especially reading. Therefore, researchers provided strategies in reading skills so that they were able and accustomed to use metacognitive thinking skills. Therefore, they could issue creative ideas and solve the problem for in learning activities.

2) Sample

A sample can be defined as a small group that is observed or a portion of a population (Ary, et.al, 2010:148). The sample of this research was second-year-grader students namely VIII B class which consisted of 21 students.

3.3. The Definition of Variables

Variable can be defined as the person attribute, a piece of text, or an object that "varies" from person to person, text to text, object to object, or from time to time (Lazaraton and Hatch, 1982).

3.3.1. Dependent Variable

In experimental studies, dependent variables are those that depend on the independent variables. They are the outcomes or results of the influence of the independent variables. (Creswell, 2014:84). In this research, the dependent variable is students' reading achievement in answering higher-order thinking skills questions of biography texts.

3.3.2. Independent Variable

Independent variables are antecedents to dependent variables and are known or are hypothesized to influence the dependent variable, which is the outcome (Ary, et.al, 2010:37). In this research, the independent variables are metacognitive reading strategy training and learning style on students' ability.

3.4. Research Instrument

Reading test and metacognitive reading strategy questionnaire were used as the instrument of this research to find out the effect of metacognitive reading strategy training on students' ability to answer HOTS questions. The questions are distributed in multiple-choice questions through a google form. Then, learning style questionnaire was also administered to see the students' learning styles' effect on students' ability to answer HOTS questions.

3.4.1. Reading Test

Before administering the reading test to students, the researcher used try out to check the discrimination power, level of difficulty, and reliability of the items. Try out test was conducted in try out class which consisted of 20 students. Students were given and answered a reading test with 40 items. After the data were analyzed, 10 items were dropped out because they did not require good category to be accepted. Therefore, it could be concluded that there are only 30 items of reading test that are valid, reliable, and fulfill the category of good items. Therefore, the researcher administered reading test which consists of 30 items as pretest and posttest in experimental class. In addition, the researcher also gave a reading test in the form of a biography text.

3.4.2. Questionnaire

In addition to using a reading test, the researcher also gave questionnaires to students. There were two questionnaires, metacognitive reading strategy questionnaire and learning styles questionnaire. The were 14 items in metacognitive reading strategy questionnaire that students fulfilled to see students' ability in using their metacognitive reading strategies in answering host reading questions about biography text. In, learning style questionnaire, there were 40 items that students fulfilled to see students' ability in using their leaning styles in answering host reading questions about biography text

3.5. Data Collecting Techniques

Data in this research were collected through reading tests, metacognitive reading strategy questionnaire and learning styles questionnaire. Reading tests (pretest and posttest) were used to measure the significant improvement of students' ability to answer higher-order thinking skill questions of biography text for the experimental class. The students' performance is organized as multiple-choice answers concerning five aspects of reading: identifying the main idea, supporting detail, finding inference, finding references, and vocabulary and the reading test with the type of higher-order thinking skills. Then, through reading test, researcher also measured and analyzed the significant improvement of the students' ability in their metacognitive reading comprehension skill. metacognitive reading strategy questionnaire was administered to see the effect of metacognitive reading strategies on students' ability to answer HOTS reading test. Then, learning style questionnaire was used to find out the effect of learning styles on students' ability to answer HOTS reading test

3.6. Research Procedures

The researcher has to prepare the steps or procedures in collecting data. The research procedures are as follows:

a) Selecting the material

Selecting the material was the first way that the researcher did. Selecting the reading materials was determined by the levels of the students. Therefore, the researcher used the syllabus of the second-grade-year of junior high school students based on the school curriculum. The material has covered the goal of teaching biography texts.

b) Determining the instrument of the research

The instrument in this research is reading test and the questionnaires. The researcher conducted a reading test which are pretest-posttest that covers fives aspects of reading namely identifying the main idea, supporting detail, finding inference, finding reference and vocabulary, the reading test with the type of

higher-order thinking skills and also the examples of reading comprehension of biographical text.

c) Making the group

The researcher used a class of 21 students to conduct this research. It was taken from one class of eight-grade classes which was chosen by the teacher. The class was given pretest, posttest, and treatments.

d) Conducting treatment

The treatments were conducted three times, one-time teaching through activities adjusted to metacognitive reading strategies training with biography text reading of Walt Disney, after that the researcher gave the task to class B students based on the given material that has been discussed. Then, one-time teaching through activities adjusted to a metacognitive reading strategy training with biography text reading of BJ. Habibie, then students were given task from the material that has been discussed. After that, one-time teaching through activities adjusted to a metacognitive reading strategy training with biography text of Cristiano Ronaldo and after that task from the material that has been discussed was administered. All assigned tasks were done as individually.

e) Giving Test

To determine the content and face validity of the instrument, reading comprehension test was consulted by the English Foreign Language Specialist. There are two reading tests used in this research, pretest and posttest. Pretest was administered before the treatments were given, meanwhile posttest was administered after the researcher gave all treatments to students.

f) Giving Questionnaires

Metacognitive reading strategy questionnaire was administered twice, before and after giving the treatments. Meanwhile, learning style questionnaire was only applied once to see students' learning styles in answering HOTS reading questions about biography text.

g) Analyzing data

All collected data were statistically analyzed by using SPSS to find out whether there is a statistically significant improvement and effect of metacognitive reading strategy training and learning styles on students' ability to answer higher-order thinking skill of biography text after being taught through metacognitive reading strategy training. Data analysis is not only obtained from reading tests, but also data analysis based on metacognitive questionnaires and learning styles.

3.7. Schedule of the Research

In conducting the research, the researcher used the following schedule.

Table 3.1. Schedule of the Research

Meeting	Activity
Meeting 1	Giving the reading test or tryout for A class as the trial class
Meeting 2	Giving the pretest to experimental class and the questionnaire of metacognitive reading strategy training
Meeting 3	Teaching through activities adjusted to metacognitive reading strategy with biography text of Walt Disney and then giving the reading test in the experimental class
Meeting 4	Teaching through activities adjusted to a metacognitive reading strategy with the biography text of BJ. Habibie and then giving the reading test for experimental class.
Meeting 5	Teaching through activities adjust to metacognitive reading strategy with biography text of Cristiano Ronaldo and then giving the test to experimental class.
Meeting 6	Distributing the posttest in experimental class and distributing the learning styles

Meeting	Activity
	questionnaires

3.8. Validity

Validity simply means that a test or instrument is accurately measuring what it's supposed to. A test can be said to be valid if it measures the object to be measured and is suitable to the criteria (Hatch and Farhady, 1982:250). According to Hatch and Farhady (1982: 251-253), there are three types of validity: content validity, criterion-related validity, and construct validity. Content validity and construct validity were used in this research.

3.8.1. Content Validity

Content validity is concerned with whether the test is sufficiently representative and comprehensive for the test. For content validity, the material which is given must be suitable for the curriculum (Setiyadi, 2006: 23). Content validity is the extent to which a test measures a representative sample of the subject matter content, it is correlated the test with the educational goal stated in the English curriculum and the syllabus for the second-grade-year of junior high school students. It means the used material is suitable for their level in the eighth grade of junior high school. For the instrument to fulfill content validity, it must represent all things that should be tested of metacognitive reading strategy training and learning style to see effect on students' ability to answer higher-order thinking skill questions.

Table 3.2. Reading Skills in higher-order thinking skill

Skill	Item	HOTS Questions
1. Identifying the Main Idea	3,6,7,9,11,19,22,27,32	1,2,3,4,5,6,7,8,9,11, 13,14,15,18,19,22,25,26,27,31, 32,36,37,38,39,40
2. Supporting Detail	5,12,20,21,23,28,29,30,33	
3. Finding Inference	1,2,4,8,13,14,15,26	
4. Finding Reference	10,16,17,24,31,34,35	
5. Vocabulary	18, 25,36,37,38,39,40,	

3.8.2. Construct Validity

Construct validity is needed by the instrument that has some indicators to measure (Setiyadi, 2006). Construct validity is fulfilled if the test measures what should be measured. In this case, the measure the students' metacognitive reading skills, especially in biography text reading that has higher-order thinking skills. Therefore, the valid instrument was a reading test.

According to Setiyadi (2013: 21), validity is related to measuring instruments in research and their reliability. Therefore, the items were analyzed through Pearson's Product Moment Correlation analysis using the SPSS program with a significance level of 0.05. The item can be stated valid if the significant value is lower than 0.05. The interpretation of the Pearson correlation value is in the following categories.

Table 3.3. Items Validity Categories

Limitation	**Categories**
$0.80 < R_{xy} \leq 1.00$	Very High / Very Good
$0.60 < R_{xy} \leq 0.80$	High / Good
$0.40 < R_{xy} \leq 0.60$	Enough / Moderate
$0.20 < R_{xy} \leq 0.40$	Low / Less
$0.00 < R_{xy} \leq 0.20$	Very Low

Source: Arikunto (2010: 89)

3.8.2.1. Construct Validity of Reading Test

The validity test is carried out to determine the suitability and accuracy of the reading test. The detailed results of the validity test of each item are in the following table :

Table 3.4. The Validity of Reading Test

Question Number	Sig. (2-tailed)	Validity
S1	.220	Invalid

Question Number	Sig. (2-tailed)	Validity
S2	.000	Valid
S3	.002	Valid
S4	.000	Valid
S5	.001	Valid
S6	.002	Valid
S7	.004	Valid
S8	.000	Valid
S9	.000	Valid
S10	.000	Valid
S11	.002	Valid
S12	.000	Valid
S13	.002	Valid
S14	.000	Valid
S15	.000	Valid
S16	.007	Invalid
S17	.000	Valid
S18	.000	Valid
S19	.000	Valid
S20	.000	Valid
S21	.947	Invalid
S22	.588	Invalid
S23	.002	Valid
S24	.000	Valid
S25	.007	Invalid
S26	.000	Valid
S27	.000	Valid
S28	.002	Valid
S29	.909	Invalid
S30	.220	Invalid

Question Number	Sig. (2-tailed)	Validity
S31	.940	Invalid
S32	.035	Valid
S33	.049	Valid
S34	.640	Invalid
S35	.027	Valid
S36	.002	Valid
S37	.006	Valid
S38	.000	Valid
S39	.599	Invalid
S40	.001	Valid

The table shows that there are 40 questions items tested in class A, but ten are invalid, namely numbers 1, 16, 21, 22, 25, 29, 30, 31, 34, and 39. Two questions are 16 and 25 included in bad criteria, and eight questions are 1, 21, 22, 29, 30, 31, 34 and 39 included in poor criteria. Therefore, the ten items were dropped from reading test because they were invalid.

3.8.2.2. Validity of Metacognitive Reading Strategy Questionnaire

There are 14 items in metacognitive reading strategy questionnaire. In order to measure the validity of metacognitive reading strategy questionnaire, the researcher used pearson product moment in SPSS. The items can be stated valid if the significant value is lower than 0.005. The results of the table above can be seen in the table below :

Table 3.5. The Validity of Pretest MRSs Questionnaire

Items	Sig 2-tailed	Significant Level	R count	Decision	Criteria
M1	0.000	0.05	0.754	Valid	Proficient
M2	0.000	0.05	0.766	Valid	Proficient
M3	0.007	0.05	0.566	Valid	Beginning

M4	0.000	0.05	0.733	Valid	Developing
M5	0.000	0.05	0.695	Valid	Developing
M6	0.002	0.05	0.632	Valid	Developing
M7	0.000	0.05	0.782	Valid	Proficient
M8	0.000	0.05	0.741	Valid	Proficient
M9	0.000	0.05	0.795	Valid	Proficient
M10	0.007	0.05	0.571	Valid	Beginning
M11	0.002	0.05	0.646	Valid	Developing
M12	0.000	0.05	0.824	Valid	Proficient
M13	0.000	0.05	0.756	Valid	Proficient
M14	0.000	0.05	0.789	Valid	Proficient

Based on the table above, out of the 14 questions which were answered by students, 2 questions have beginning assessment criteria, 4 questions have developing assessment criteria, and 8 questions that have proficient assessment criteria.

Table 3.6. The Validity of Posttest MRSs Questionnaire

Items	Sig 2-tailed	Significant Level	R count	Decision	Criteria
M1	0.004	0.05	0.604	Valid	Developing
M2	0.002	0.05	0.646	Valid	Developing
M3	0.001	0.05	0.662	Valid	Developing
M4	0.000	0.05	0.774	Valid	Proficient
M5	0.000	0.05	0.777	Valid	Proficient
M6	0.008	0.05	0.560	Valid	Beginning
M7	0.010	0.05	0.551	Valid	Beginning
M8	0.000	0.05	0.704	Valid	Developing
M9	0.003	0.05	0.622	Valid	Developing
M10	0.004	0.05	0.604	Valid	Beginning
M11	0.000	0.05	0.890	Valid	Advanced

M12	0.000	0.05	0.774	Valid	Proficient
M13	0.017	0.05	0.516	Valid	Beginning
M14	0.001	0.05	0.693	Valid	Developing

Based on the table above, out of the 14 questions which were answered by students, 4 questions have beginning assessment criteria, 6 questions have developing assessment criteria, 3 questions have proficient assessment criteria and 1 question has advanced assessment criteria.

3.8.2.3. Validity of Learning Style Questionnaire

There are 40 items in learning style questionnaire. In order to measure the validity of learning style questionnaire, the researcher used pearson product moment in SPSS. The items can be stated valid if the significant value is lower than 0.005. The results of the table above can be seen in the table below :

Table 3.7. The Validity of Learning Style Questionnaire

Question Number	Sig. (2-tailed)	Validity
L1	0.006	Valid
L2	0.017	Valid
L3	0.000	Valid
L4	0.006	Valid
L5	0.000	Valid
L6	0.010	Valid
L7	0.017	Valid
L8	0.000	Valid
L9	0.004	Valid
L10	0.000	Valid

Question Number	Sig. (2-tailed)	Validity
L11	0.002	Valid
L12	0.000	Valid
L13	0.002	Valid
L14	0.000	Valid
L15	0.000	Valid
L16	0.014	Valid
L17	0.017	Valid
L18	0.006	Valid
L19	0.007	Valid
L20	0.007	Valid
L21	0.006	Valid
L22	0.002	Valid
L23	0.004	Valid
L24	0.004	Valid
L25	0.002	Valid
L26	0.001	Valid
L27	0.004	Valid
L28	0.002	Valid
L29	0.006	Valid
L30	0.000	Valid
L31	0.003	Valid
L32	0.000	Valid
L33	0.000	Valid

Question Number	Sig. (2-tailed)	Validity
L34	0.007	Valid
L35	0.000	Valid
L36	0.002	Valid
L37	0.000	Valid
L38	0.000	Valid
L39	0.000	Valid
L40	0.000	Valid

Based on the table above, it can be seen that all items in learning style questionnaire are valid since the value of sig (2-tailed) of those items are lower than 0.05.

3.9. Reliability

Reliability is the degree of consistency of a measure. A test will be reliable when it gives the same repeated result under the same conditions. A reliability test is related to the consistency of a measuring instrument, or the extent to which it can measure the same subject at different times but shows relatively the same results (Setiyadi, 2013: 16). An instrument item can have high (consistent) results if the test results are constant. However, the problem of instrument reliability is related to the accuracy of the results. Therefore, a reliability test is to determine the level of stability of a measuring instrument.

3.9.1. Reliability of Reading Test

In testing the reliability of reading test, split half method and formulas from pearson product moment and spearman brown prophecy were used.

1. The reliability of the Half Test

Pearson Product Moment:

$$\mathbf{r_{xy}} = \frac{\mathbf{N}(\sum \mathbf{xy}) - (\sum \boldsymbol{x})(\sum \boldsymbol{y})}{\sqrt{[\mathbf{N}\sum \boldsymbol{x^2} - (\sum \boldsymbol{x})^2][(\sum \boldsymbol{y^2} - (\sum \boldsymbol{y})^2]}}$$

Where:

rxy : coefficient of reliability between odd and even numbers item

x : odd number

y : even number

$\sum x^2$: total score of odd number items

$\sum y^2$: total score of even number items

$\sum xy$: total score of odd and even number

$$\mathbf{r_{xy}} = \frac{\mathbf{N(\sum xy) - (\sum x)(\sum y)}}{\sqrt{[\mathbf{N\sum x^2 - (\sum x)^2}][\mathbf{(\sum y^2 - (\sum y)^2}]}}$$

$$\mathbf{r_{xy}} = \frac{\mathbf{20(4009) - (269)(269)}}{\sqrt{[\mathbf{20(3991) - 72361}][\mathbf{(4137) - 72361}]}}$$

$$\mathbf{r_{xy}} = \frac{\mathbf{80180 - 72361}}{\sqrt{[\mathbf{7459}][\mathbf{10379}]}}$$

$$\mathbf{r_{xy}} = \frac{\mathbf{7819}}{\mathbf{8798,69}}$$

$$\mathbf{r_{xy}} = \mathbf{0,88}$$

2. The Reliability of the Whole Test

Spearman Browns Prophecy:

$$\mathbf{rk} = \frac{\mathbf{2rxy}}{\mathbf{1 + rxy}}$$

Where:

rk : the reliability of the whole tests

rxy : the reliability of half tests

$$\mathbf{rk} = \frac{\mathbf{2rxy}}{\mathbf{1 + rxy_*}}$$

$$\mathbf{rk} = \frac{\mathbf{2(0.88)}}{\mathbf{1 + 0.88}}$$

$$\mathbf{rk} = \frac{\mathbf{1.76}}{\mathbf{1.88}}$$

$$\mathbf{rk} = \mathbf{0.93}$$

Based on the criteria of reliability, it is found that the test items have high reliability because the rk value is 0,93.

3.9.2. Reliability of Metacognitive Reading Strategy Questionnaire

To check the reliability of the metacognitive reading strategy questionnaire, 21 students filled out the pretest and posttest questionnaires and then the data were analyzed using cronbach's alpha in SPSS. The results can be seen from the table below :

Table 3.8. The Reliability of MRS Pretest Questionnaire

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.928	.928	14

The table shows that the data of the pretest questionnaire had good reliability since the value of Cronbach's Alpha is 0.928.

Table 3.9. The Reliability of MRS Posttest Questionnaire

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.902	.910	14

The table shows that the data of the posttest questionnaire had good reliability since the value of Cronbach's Alpha is 0.902. In brief, it can be stated that the data of metacognitive reading strategy pretest and posttest questionnaires are reliable based on the used standard.

3.9.3. Reliability of Learning Style Questionnaire

To check the reliability of learning style questionnaire, 21 students filled out the questionnaire and then the data were analyzed using cronbach's alpha in SPSS. The results can be seen from the table below :

Table 3.10. The Reliability of Learning Style Questionnaire

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.969	.971	40

The table shows that the data of the learning style questionnaire had high reliability since the value of Cronbach's Alpha is 0.969. In other words, the data of learning style questionnaire are reliable.

3.10. Item Analysis

a) Level of Difficulties

Level of difficulty relates to how easy or difficult the item is taken from the point of view of the students who take the test. It was important since test items which were too easy (that all students get right) can tell us nothing about differences within the test population (Shohamy, 1985: 79). Moreover, the difficulty level of an item shows how easy or difficult that particular item done by the participants (Heaton, 1975: 182). It was calculated by the following formula:

$$\mathbf{LD} = \frac{U+L}{N}$$

Where:

LD = Level of difficulty

U = The number of upper groups who answer correctly

L = The number of lower groups who answer correctly

N = The total number of students in upper and lower groups

b) Discriminating Power

Discriminating power is the ability of the item to discriminate between the students who have high ability and those who have low ability. In discriminating power, the research uses the formula as following:

$$\mathbf{DP} = \frac{U-L}{\frac{1}{2}N}$$

Notes:

DP = Discriminating Power

U = The Number of Upper Group who Answer Correctly

L = The Number of Lower Group who Answer Correctly

T = The Total Number of the students in the upper and lower group

The criteria are:

DP	= 0.00-0.19	= poor
DP	= 0.20-0.39	= satisfactory
DP	= 0.40-0.69	= good
DP	= 0.70-1.00	= excellent
DP	= negative/minus	= all is poor.

Table 3.11. Result of Dropped Items

No.	**Items**	**Criteria**
1.	16, 25	Bad
2.	1,21,22,29,30,31,34,39	Poor

The table shows the results of dropped items based on the used category of difficulty and discrimination power. Obviously, due to the result of discrimination power calculation it is found that there are 2 items on the try out test which are categorized as bad (item number 16, 25), 8 items categorized as poor (item number 1,21,22,29,30,31,34,39). It can be concluded that the ten items are dropped from pretest and posttest.

3.11. Data Treatment

In this part, before answering the hypothesis testing, the researcher uses normality testing for the data of reading tests.

Normality Testing

Normality testing is a test to find out whether the data are normally distributed or not. The researcher used Saphiro Wilk in SPSS to find out the normality of the data. The hypotheses of the normality test as follows :

Ho : The distribution of data is not normal

Hı : The distribution of data is normal

The level of the significance used is 0.05. Hı accepted if the significant value of the normality test is higher than 0.05.

3.12. Hypotheses Testing

Hypothesis testing is used to prove the hypothesis in this research is accepted or not. The researcher used Regression Linear in SPSS 21.0 to find out the statistically significant effect of metacognitive reading strategies on the students' ability to answer higher-order thinking skill questions after the students were taught through metacognitive reading strategies training. The hypothesis is approved if the significant value is lower than 0.05. The hypothesis is drawn as follows:

Ho = There is no a statistically significant effect of metacognitive reading strategy training on students' ability to answer higher-order thinking skill questions of biography texts after being taught by using metacognitive reading strategy training

H1 = There is a statistically significant effect of metacognitive reading strategy training on students' ability to answer higher-order thinking skill questions of biography texts after being taught by using metacognitive reading strategy training

In order to answer the second research question, Regression Linear in SPSS was also used. The researcher analyzed the data of learning style questionnaire to find out statistically significant effect of learning styles on students' ability to answer HOTS reading questions about biography text. The hypothesis is approved if the significant value is lower than 0.05. The hypothesis is drawn as follows:

Ho = There is no a statistically significant effect of learning styles on the students' ability to answer higher-order thinking skill questions of biography texts

H1 = There is a statistically significant effect of learning styles on the students' ability to answer higher-order thinking skill questions of biography texts

V. CONCLUSIONS AND SUGGESTIONS

This chapter provides the conclusions of the research findings and suggestions for further research to English teachers, the other researchers who want to conduct the same research, and also the students.

5.1. Conclusions

There is a statistically significant effect of metacognitive reading strategy training after being taught through metacognitive reading strategies and there is a statistically significant effect of learning style on students' ability to answer higher-order thinking skill questions of biography texts. The training carried out is in the form of providing useful reading strategies for teacher and students. Metacognitive reading strategies help students to improve their reading achievement, because it requires some steps that ask and help them to solving problem in answering the reading test. Then, learning styles can help students to improve their learning achievement. This strategy is considered easy even though it requires a fairly deep understanding. Metacognitive reading strategies and learning styles can affect student learning processes in answering higher-order thinking skill questions because researchers provide detailed and sequential strategy steps and are given easy-to-understand examples. This is to assist students in solving their learning problems, especially in participating in English learning activities, and in reading skills.

5.2. Suggestions

Referring to the conclusion above, some suggestions could be listed for the teachers, students, and further researchers:

5.2.1. For the Teachers

It is suggested that mastery of metacognitive reading strategies and learning styles facilitate students to improve their higher-order thinking skill. In addition, providing appropriate and direct steps or metacognitive reading strategies are needed in providing English material, especially reading. There are still some

students who need attention to be able to understand the given material which requires the ability to think critically and logically.

5.2.2. For the Students

Getting used to use metacognitive abilities is highly suggested for students to help them improve more their reading achievement and learning to begin to understand about suitable learning styles, which can be used by students to build and motivate students in carrying out learning activities. So that it can improve achievement in learning English, especially skills in reading texts.

5.2.3. For Further Research

Providing simple and easy to understand metacognitive reading strategies which are appropriate for students' level is suggested because students are being invited and accustomed to be able to think independently, logically and creatively in order to solve problems and provide solutions. And explain about the influence that can be obtained by having a learning style in learning activities.

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