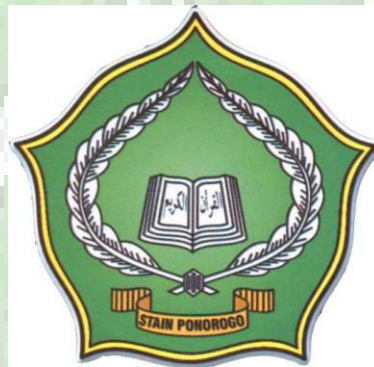


**THE CORRELATION BETWEEN STUDENTS' THINKING
STYLE AND STUDENTS' ENGLISH ACHIEVEMENT AT
TENTH GRADE OF SMK MUHAMMADIYAH 5
PURWANTORO IN ACADEMIC YEAR 2015/2016**

THESIS



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ABSTRACT

CIPTO. 2016. *The Correlation between Students' Thinking Style and Students' English Achievement at Tenth Grade of SMK Muhammadiyah 5 Purwantoro in Academic Year 2015/2016.* **Thesis**, English Education Department, Tarbiyah Faculty, State Islamic college of Ponorogo. Advisor Drs.H.Dolar Yuwono, M.Pd.

Key word : Students' Thinking Style and Students' English Achievement

Thinking style is the way of thinking as the individual's preferred thinking style when student is learning English process. The goal of this research is to find the correlation between students' thinking style and students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwantoro in academic year 2015/2016.

This research employed a correlation method in the quantitative design. The population of the research were 128 students taken from 4 classes at tenth grade students. The researcher took 31 students as sample of this research who were selected by proportional random sampling. This research collected the data with the questionnaire of students' thinking style which developed John Le Tellier and adapted Anthony Gregorc. And, other instrument used documentation of GPA (Grade point Average) of student's English achievement. All the documentation from the tenth grade students of SMK Muhammadiyah 5 Purwantoro in academic year 2015/2016. All the data gained in this research was analyzed by using the formula of pearson product moment correlation coefficient.

According to the result of the analysis and statistical calculation, it is found that r_{xy} is 0,492 and r_t is 0,367 and 0,470 with the degree of freedom ($df = N - nr$) $31 - 2$ is 29. It means that the r_{xy} is higher than r_{table} . Thus, the researcher concludes that H_0 was rejected and H_a was accepted.

In line with the findings above can be summed up that there is a significant correlation between students' thinking style and students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwantoro in academic year 2015/2016. This research is expected to be usefull for teacher. For students, it is important to be able to learn in the best way, and for researcher, it can be used as reference to conducting the next research about thinking styles.

CHAPTER I

INRODUCTION

A. Background of the study

The basic characteristic of human being is the ability of thinking.¹ Which ability of thinking is distinguishes the way a person receiving and processing information, and then used that information to set up life in a certain way. A certain ability of thinking has implications for the style of thinking. Everyone usually appear within one or two dominant thinking styles. Various styles of thinking illustrate the dominance of certain brain regions in the thought process. Whatever the dominant style, the important thing is to see things from the positive aspects will undoubtedly have a positive impact.

Students think in different ways, and moreover, students overestimate the extent to which others think the way they do. Many students who fail in school succeed in life, and vice versa. It can be an integrative education establish a balance between the development of the left brain and right brain, and also knowledge and skills to realize the ideals of the nation. All of them needs the students in the learning process.

Thinking style in the educational process is expected to make a significant contribution to social change and fit the demands of the times .

¹ Ali Abdi, A study on the relationship of thinking styles of students and their critical thinking skills, Department of Educational Sciences Azad University of kermanshah branch, Iran 1719

The education system must be able to create a pious intellectual, creative, full of integrity, responsible, have advantages, trust, and humble.

Apart from containing a variety of theories of styles, the style literature also finds itself containing different style labels, such as learning styles, cognitive styles, and thinking styles. These styles, although different, have one thing in common. That is, styles are not abilities, but rather they are individuals' preferred ways of processing information and of using the abilities that they have.² On the other hand, the style is used to process information, so the information can be received by the student easily.

According to Abu Ahmadi that, The activity of thinking cannot be separated from a situation or issue. symptoms of thinking does not stand alone, in activities requiring mental relief from the symptoms of the other. For example, we need a observation, comment, memories and so on.³ Meanwhile, the style of thinking can not be separate from the activity done. In other words, thinking style is correlate with the daily activity.

When the researcher observed in the school, the students learn English with the teacher. And, the students belittle that explained of the teacher. Thus, it is one of the phenomenon in the senior high school .

On the other hand, theory of mental self-government applies to a school which supports the proposed link between thinking styles and english achievement. Being aware of the students' thinking styles, teachers

² Li-Fang-Zang, Thinking Styles: their relationships with modes of thinking and academic performance, Educational Psychology, 2002, v. 22 n. 3, p. 331-348

³ Abu Ahmadi, Psikologi Umum, (Jakarta: RINEKA CIPTA, 2009), 175

could help them to know their learning habits, and help them to apply better learning strategies. Moreover, teachers can create a better and more attractive learning environment by being familiar with the methods, resources, and conditions in which students learn better and using these efficiently and effectively.⁴

From those statements above can be said that understanding about thinking style is very important for teachers and students. Teacher can accommodate and facilitate varieties of students' thinking style and for students, understanding thinking style is very important because when students understanding their best way to learn, they are expected to be easier to learn.

The writer argued most people think that factors which effect in the English achievement depends on not only intelligence, age, and environment, but also depend on many factors, one of them is thinking style. As sternberg stated "Understanding styles can help people better understand why some activities fit them and others don't, and even why some people fit them and others don't".⁵ Because the writer agrees that thinking style is important to English learning process in the classroom.

Moreover, as explained by Sternberg, two or more people with the same level of abilities may have very different styles of thinking. The theory of mental self-government provides an important insight into

⁴ Alanood, Tamader, Yassirsemmar, *Investigating the Relationship between Students' Thinking Styles, Self-Efficacy for Learning, and Academic Performance at Qatar University*, American International Journal of Social Science. Vol. 3 No. 2; March 2014

⁵ Robert J. Sternberg, *Thinking Style*, (Cambridge University Press, 1997), 19

individuals' preferred ways of thinking in different activities.⁶ Familiarization with thinking styles can help people to recognize their strengths and weaknesses and understand how they can develop their strategies in decision making and problem solving. This can decrease the wrong decisions.

Based on the reason above, the researcher decides to do a research entitled "The Correlation between Students' Thinking Style and Students' English Achievement at tenth grade students of SMK Muhammadiyah 5 Purwanto in academic year 2015/2016"

B. Problem Limitation

This study specifically deals with style of students thinking and English achievement of students at tenth grade of SMK Muhammadiyah 5 Purwanto. This study intends to measure whether or not, students' thinking style correlates with students' English achievement.

C. Problem Statement

Based on the preceding statements, the researcher proposes the following statement:

Is there any correlation between students' thinking style and students' English achievement at tenth grade of SMK Muhammadiyah 5 Purwanto in academic year 2015/2016 ?

D. Objective of the study

⁶ *Ibid*,.31

According to statement of the problem stated above the general objective of the study is to describe whether there is any correlation between students' thinking style and students' English achievement of students at tenth grade of SMK Muhammadiyah 5 Purwantoro in academic year 2015/2016.

E. Benefit of the study

Basically, all the study activities should have purpose and significance. At the end of this study, the writer hopes that this writing will give a great benefit for the following component:

1. Theoretically

After research, it is expected to give contribution of knowledge to develop the teaching and learning process. This research is also expected to improve learning of the students.

2. Practically

a. For the Teachers

- 1) The teachers could help them to know their learning habits, and help them to apply better learning strategies.
- 2) teachers can create a better and more attractive learning environment by being familiar with the methods, resources, and conditions in which students learn better and using these efficiently and effectively.

b. For the Students

The result of the study is expected to help the students to know their type of thinking style. Beside that, students know dominant characteristic which they use everyday.

c. For the researcher

The result of this study is expected to present and provide the description for other researchers to conduct their research. The other researchers can use the result of this study as the consideration on their study to do better research in the future.

F. Organization of the Thesis

This thesis report is organized in five chapters that interact one with each other as described in the following.

Chapter I : Introduction. It contains background of the study, limitations of the study, statements of the problem, objectives of the study, significances of the study, and organizations of the thesis.

Chapter II : Review of related literatures. This chapter explains about theoretical background, previous research findings, theoretical framework, and hypothesis.

Chapter III : Research methodology. This chapter tells about research design, population and sample, instrument of data collection, technique of data collection, and technique of data analysis.

- Chapter IV** : Research result. In this chapter, the researcher tells about research location, data description, data analysis, and discussion.
- Chapter V** : Closing. This chapter consists of conclusion and recommendation



CHAPTER II

LITERATURE REVIEW

A. Theoretical Background

This chapter presents reviews of related literature used in this research. The reviews of related literature have a goal of providing overviews of thinking style, students' English achievement, and correlation between students' thinking style and students' English achievement.

1. Thinking style

a. Definition of Style

Style is defined as a set of individual activities, behaviors, or qualities that are typically sustained over a period of time. Styles are applied without individual awareness. Simply described style as a pattern of a person's ways of accomplishing a particular type of task. Thinking style is one of the important subjects which have been considered in the field of humanities epistemology and behaviors and attitude of people such as principals can be discussed in different fields.⁷ Styles are thought to be distinct from abilities and to involve preferences, not necessarily conscious, in the use of whatever abilities one has. It is not connected solely with

⁷ Khalil, Fatemah, . Studying Relationship between Thinking Style of Principals and Organizational Health of the High School in East of Tehran. Online International Journal Available at www.cibtech.org/sp.ed/jls/2015/02/jls.htm 2015 Vol. 5 (S2), pp. 188

ability, but rather, is a preferred way of expressing or using one or more abilities.

Styles depend upon cerebral dominance of an individual in retaining and processing different modes of information in his own style of learning and thinking. Style indicates the hemisphericity function of the brain and students learning strategy and information processing are based on the preferences of the brain area.⁸ Thus, the style is the way of thinking that use to get the information and English learning strategy.

b. Definition of Thinking

The basic characteristic of human being is the ability of thinking. Thinking is defined in the intransitive sense as a process “to exercise the powers of judgment, conception, or inference”. One of the important thinking abilities that should be acquired by learners in school and university is the ability of a critical thinking. In other hands, students’ ability to think critically has become a major concern among educators and psychologists, as they try to study the factors influencing the acquisition of thinking skills.⁹ Thinking is a mental activities that involves the work of the brain. Althought, thinking is not be separated from the work of the human brain activity, more than just work organs called the brain.

⁸ Sharma, Neetu, (2011) A study of learning-thinking style of secondary school student. International journal on new trends in education and their implications, volume:2 ISSN:1309-6249

⁹ Ali Abdi, A study on the relationship of thinking styles of students and their critical thinking skills, Department of Educational Sciences Azad University of kermanshah branch, Iran

Therefore, De Bono define that thinking is an activity the opposite of the problem and aims to solve problem.¹⁰ It means that the thinking is a process of think to finish of the problem in the life. Beside that, the thinking is finish of the problem in the school also. For example, the education management is used the thinking to organizing of the learning process, so the process of learn can fluently.

Knowledge of the cognitive power of learners is needed in designing or modifying materials, goals, and methods of learning. with the interaction between cognitive style, with factors objectives, materials, and methods of learning, the possibility of student learning outcomes can be achieved with optimal.¹¹ It means that the process of thinking is important aspect in education, because the nature of education is to do business train humans to use his mind in order to be a man who independent.

On the other hand, thinking is an important part of the learning process. By understanding the diversity of thinking styles our students possess, we are able to insure that students understand what we are teaching even if they have very different styles from our own.

¹⁰ De Bono, Mengajar Berpikir, (Jakarta:Erlangga), 35

¹¹ Desmita, (2012), Psikologi Perkembangan peserta didik, (Bandung: PT. Remaja Rosda Karya), 145

c. Devinition of Thinking Style

Thinking style is one of the important subjects which have been considered in the field of humanities epistemology and behaviors and attitude of people such as principals can be discussed in different fields.¹²

Familiarization with thinking styles can help people to recognize their strengths and weaknesses and understand how they can to develop its strategies in decision making and problem solving. One of the influential and study able things in managers is them thinking style that will be affected many aspects of managers even employees behaviors. Thinking style of managers is important to these criteria because this person is the main components of the education system of any society and can induce and transfer their thinking style in educational environment.

In school, students are viewed as stupid often suffer from nothing more than a style that mismatches that of their teacher. the students do not know of their thinking style, they often forget that in fact it can learning easily.

d. Type of Thinking Style

Not only do we have preferred learning styles; we also have favourite thinking styles. Anthony Gregorc, professor of

¹² Khalil,Fatemah,„Studying relationship between thinking style of principles and organizational health of high school in east of Tehran, Indian Journal of Fundamental (online)

curriculum and instruction at the University of Connecticut, has divided these into four separate groups.¹³

1) Concrete Sequential

Concrete sequential thinkers are based in reality, according to Super Camp co-founder and president Bobbi De Porter. They process information in an ordered, sequential, linear way. To them, reality consists of what they can detect through their physical sense of sight, touch, sound, taste and smell. They notice and recall details easily and remember facts specific information, formulas and rules with easy.¹⁴ Hands on is a good way for these people to learn. The concrete sequential(CS) build on organisational strengths. Provide yourself with details. Break projects down into specific steps. Set up quiet work environments.

2) Concrete Random

Concrete random thinkers are experimenters. says De Porter: Like concrete sequentials, they are based in reality, but are willing to take more of a trial and error approach. Because of this, they often make the intuitive leaps necessary for true creative thought. They have a strong need to find alternatives

¹³ DePorter, Henarcki., Quantum Learning: Membiasakan belajar nyaman dan menyenangkan, (New York: Dell Publishing), 122

¹⁴ Ibid, 128

and do things in their own way.¹⁵ The Concrete Random (CR), students use divergent thinking ability. Believe that it is good to see things from more than one viewpoint. The students put in a position to solve problems, but students give deadlines. Accept your need for change. student must try and work with people who value divergent thinking.

3) Abstract Random

Abstract random thinkers organise information through reflection, and thrive in unstructured, people oriented environments. Says De Porter: The 'real' world for abstract random learners is the world of feelings and emotions. The Abstract Random's mind absorbs ideas, information and impressions and organises them through reflection. They remember best if information is personalised.¹⁶ the students feel constricted when they are subjected to a very structured environment.

The style of AR, the students use natural ability to work with others. Recognise how strongly emotions influence concentration. Build on your strength of learning by association. Look at the big picture first. Be careful to allow enough time to finish the job. Remind yourself to do things through plenty of

¹⁵ Ibid,130

¹⁶ Ibid,132

visual clues, such as coloured stickers pasted up where you will see them.

4) Abstract Sequential

Abstract sequential thinkers love the world of theory and abstract thought. They like to think in concepts and analyse information. They make great philosophers and research scientists. De Porter again: It is easy for them to zoom in on what's important, such as key points and significant details. Their thinking processes are logical, rational and intellectual. A favourite activity for abstract sequentials is reading.¹⁷ And when, a project needs to be researched. Students are very thorough at it. Generally they prefer to work alone rather than in groups. As a Abstract Sequential, the student giving exercises in logic, feed the intellect, Steer yourself toward highly structured situations.

We all need the abilities of each of these styles, but most of us have a style preference, just as we have a preferred hand for writing. The following sketchy profiles describe learners who have a style dominance in each of the four styles.¹⁸ It is important to emphasize, however, that each profile characterizes a person with a single, very dominant preference for that style. Most of us have a more mixed preference pattern. A teacher who plans to appeal to

¹⁷ Ibid, 134

¹⁸ Nancy Foss, A Brief Introduction to the Gregorc Model for Describing Cognitive Style Differences, 3

all four styles throughout a unit or a lesson will not only be meeting style preference needs, but will also be challenging students to develop cognitive strengths outside of their dominant style.

e. Principles of Thinking Style

The fact leads us to the first of 15 general points you need to understand about thinking styles before we proceed any further.¹⁹ And it can be describes in the following statement:

1. Styles are preferences in the use of abilities, not abilities themselves
2. A match between styles and abilities creates a synergy that is more than the sum of its parts.
3. Life choices need to fit styles as well as abilities.
4. People have profiles (or patterns) of styles, not just a single style.
5. Styles are variable across tasks and situation.
6. People differ in the strength of their preferences.
7. People differ in their stylistic flexibility.
8. Styles are socialized.
9. Styles can vary across the life span.
10. Styles are measurable.

¹⁹ Robert J. Sternberg, *Thinking Style*, (Cambridge University Press, 1997), 79

11. Styles are teachable.
12. Styles valued at one time may not be valued at another.
13. Styles valued in one place may not be valued in another.
14. We confuse stylistic fit with levels of abilities
15. Styles are not, on average, good or bad – but high and low level

f. Development of Thinking Style

Consider some of the variables that are likely to affect the development of thinking styles.²⁰ Development of thinking style have more kinds, there are consist of :

1) Culture

Some cultures are likely to be more rewarding of certain styles than of others.

2) Gender

The potentially relevant to the development of styles is gender. For example, males were more typically described as adventurous, enterprising, individualistic, inventive, and progressive. Females were more often described as cautious, dependent, fault-finding, shy, and submissive.

3) Age

Children are now expected to be socialized into the largely conforming values of the school. The teacher now decides what the student should do, and the student does it, for the

²⁰ *Ibid.*,99

most part.²¹ Age is one of the criteria to find the students thinking style.

4) Parenting style

What the parent encourages and rewards is likely to be reflected in the style of the child?²² style of parents (teacher) impact the students to learning.

5) Schooling and occupation

The development of styles is kind of schooling and, ultimately, of occupation. Different schools and, especially, occupations reward different styles.

2. English Achievement

a. Definition of Achievement

Webster's Collegiate Dictionary lists the meaning of achievement as "successful completion, accomplishment a result brought about by resolve, persistence, or endeavor," and then the quality and quantity of a student's work.²³ Achievement is a result that got by someone when do the assignment or certain activity.

Achievement is the result of learning that has been achieved according to the capabilities not found and marked with the developments and changes to a person's behavior is required of learning with a certain time. This achievement can be expressed in terms of value and result of test or exams, also in learning English.

²¹ *Ibid.*,104

²² *Ibid.*, 105

²³ Leo van Lier, *Interaction in the language curriculum*, (England: 1996, Longman), 118

Learning English is defined as process of thinking activities consciously to understand the English concept and English principles and then apply in other situation or environment.

b. Students' English Achievement

Student english achievement is how children accepting the English language as the foreign language, but in foreign language learning, students have difference achievement. They must compatible in four skill, they are listening, speaking, reading and writing. They describe in the following:

Listening and reading are receptive skills because the focus is on the receiving information from an outside source. Speaking and writing are productive skill while focus on producing information. The explanation of four skill is stated in the following paragraph.

1) Listening

Listening is an active, purposeful process of making sense of what we hear.²⁴ The major reason for teaching listening is because it helps students to acquire language subconsciously even if teachers do not draw attention to its special features.²⁵ The process of listening performance is the invisible, inaudible process of internalizing meaning from the

²⁴ Marc Helgesen, Practical English language teaching, editor by: David Nunan (New York:McGraw-Hill,2003), 24

²⁵ Jeremy Harmer, How to teach English (England:Longman, 1998), 98

auditory signals being transmitted to the ear and brain. In other means, listening process a spoken or written response from the student that indicates correct or incorrect auditory processing.²⁶

2) Reading

In foreign language learning, reading is likewise a skill that teachers simply expect learners to acquire. Basic, beginning level textbooks in a foreign language presuppose a student's reading ability if only because it's a book that is the medium.²⁷ On the other hand, Reading is a set of skills that involves making sense and deriving meaning from the printed words.²⁸ Thus, it can be concluded that reading is a fluent process of readers combining information from a text and their own background knowledge to build meaning. In reading skill, the students need to be able to relate to and understand the text and this is an interactive process.

3) Writing

Writing is a way to state the information or the word mentioned. Meanwhile, writing skill is a necessary condition for achieving employment in many walks of life and is simply taken for granted in literate culture.²⁹ Thus, Writing is a

²⁶ H. Douglas Brown, *Language assessment: Principle and classroom practices*, 118

²⁷ *Ibid.*, 185

²⁸ Caroline T. Linse, *Practical English language Teaching (Young Learners)*, editor by : David Nunan, ((New York: McGraw-Hill, 2003), 69

²⁹ H. Douglas Brown, *Language assessment: Principle and classroom practices*, 218

combination of process and product.³⁰ Writing is the mental work of inventing ideas, thinking about how to express them and organizing them into statement and paragraph that will be clear to a reader. Writing purpose is both to express and impress.

4) Speaking

Speaking is a productive skill that can be directly and empirically observed; those observations are invariably colored by the accuracy and effectiveness of a test-taker's listening skill, which necessarily compromises the reliability and validity of an oral production test.³¹ In terms of speaking, this is the learner's ability to use language strategies to compensate for gaps in skill and knowledge.³² It consist of producing systematic verbal utterances to convey meaning. Usually, teachers maesure students' speaking achievement by students's conversation, speech, telling, story, and other skill.

B. Previous study

Before the researcher holding this researcher studied previous research as follow from journal written by :

³⁰ Caroline T.Linse, Practical English language Teaching (Young Learners), editor by : David Nunan, ((New York:McGraw-Hill,2003), 98

³¹ H. Douglas Brown, Language assesment: Principle and classroom practices,140

³² Kathleen M. Bailey, Practical English Language Teaching (Speaking), editor by: David Nunan (New York:McGraw-Hill,2005), 3

1. Ali Abdi, Department of Educational Sciences Azad University of kermanshah branch, Iran with “A study on the relationship of thinking styles of students and their critical thinking skills”³³.

This study is investigate the relationship between thinking styles and critical thinking skills among university students. The results of regression analysis is indicate that critical thinking skills where significantly predicate by particular thinking styles. The importance of the finding about the relationships between thinking styles and critical thinking skills lies not only in its contribution to the literature but also in its significant implications for education at the level of instruction and assessment as well as at the level of curriculum development and non-academic program development.

However, this research has different with Ali Abdi research. Researcher emphasized the correlation thinking style and students’ English achievement. On the contrary, the researcher has aim to find out the correlation thinking style and students’ English achievement.

2. Hsiao Tien Wang, Wenloong Chang, Ying Fang Lai with “The study on the relationship between thinking style(attitudes) and collaboration attitudes of college students in Taiwan.”³⁴

³³ Ali Abdi, A study on the relationship of thinking styles of students and their critical thinking skills, Department of Educational Sciences Azad University of kermanshah branch, Iran

³⁴ Wang, Chang, Lai, (2012) The study on the relationship between thinking style (attitudes) and collaboration attitude of college students in Taiwan, Journal of educational and instructional studies in the world, volume: 2 ISSN :2146-7463.

These thinking styles concludes to be highly relate to intra-personal and interpersonal relationship which significantly influences the collaborative attitudes in whole career. Research on different thinking styles is therefore highly concern with the factors which result in positive thinking, negative thinking, and collaborative attitudes. This study is conducted to identify the structural mechanism of thinking styles and their factors, and even consequent influences on collaborative attitudes.

3. Assoc. Prof. Dr. Parveen Sarma, Neetu, Hindu College of Education India "A Sudy of Learning-thinking style of secondary school student"³⁵

The styles depend upon cerebral dominance of an individual in retaining and processing different modes of information in his own style of learning and thinking. This study attempted to find out the relationship and significance of difference between academic achievement and learning-thinking style of secondary school students. The purpose of present study was to see whether there is a relationship between academic achievement and learning-thinking style of secondary school students or not.

4. Li-fang Zhang, "Thinking style and cognitive development"³⁶

These preliminary conclusions imply that educators who are committed to helping students progress along Perry's cognitive

³⁵ Sharma, Neetu, (2011) A study of learning-thinking style of secondary school student. International journal on new trends in education and their implications, volume:2 ISSN:1309-6249

³⁶ Li Fang Zhang, Thinking style and cognitive development, The Journal of Genetic Psychology, 2002, 163(2)

developmental scheme, in addition to using other strategies, might also make use of the relationships between thinking styles and cognitive development. Educators may enhance students' cognitive development by encouraging students to engage in a variety of thinking styles in their task performance. These tasks can be, according to the results of the present study, of both an educational and an interpersonal nature. In particular, tasks that require students to think critically and to work with others can promote relativistic reasoning and counteract dualistic reasoning.

5. Zahra Bahrami, "The relationship between thinking style and metacognitive awareness among Iranian EFL learners."

This research study is an exploration of the relationship between thinking styles and metacognitive awareness of Iranian EFL senior students, and the contribution of thinking styles to metacognition. Moreover, this study made a principal contribution to the current literature concerning thinking styles and metacognition.

C. Theoretical Framework

The Thinking Style is very important to improve the English learning process. Thinking power is the main distinguishing feature of human life. All human successes and achievements depend on fruitful, dynamic and effective thoughts. Understanding learning-focused models related to thinking styles and motivation is a major advance in psychology in the twentieth century.

People with different thinking styles tend to use their abilities in different ways and react according to their thinking style. For this purpose, many assumingly poor-functioned students can act successfully in classrooms. In fact, the teachers are unaware of diversity of the students' thinking styles.³⁷

From statement above we have two variables, there are thinking style (X) and students' English achievement (Y). Thus, we can conclude that theoritical framework as follow:

- a. If the students have high thinking style, their English achievement is good
- b. If the students have low thinking style, their English achievement is less.

D. Hypothesis

Hypothesis in this research can be stated based on the review of related literature and theoritical framework stated above. The hypothesis are as follow :

1. Null hypothesis (Ho): there is no significant correlation between students' thinking style and students' English achievement at tenth grade student of SMK Muhammadiyah 5 Purwantoro in academic year 2015/2016
2. Alternative Hypothesis (Ha): there is significant correlation between students' thinking style and students' English achievement at tenth

³⁷ Shariatmadari, Mehdi,(2015) the relationship between functions of thinking style and academic achievement motivation among students of payame noor University, Iran, Indian Journal of Fundamental and Applied Life Sciences vol: 5 ISSN: 2231– 6345

grade student of SMK Muhammadiyah 5 Purwantoro in academic year
2015/2016



CHAPTER III

RESEARCH METHOD

This part presents the research methodology used in this study. The existence of the research methodology has a good of guiding the research in order to work systematically. The research methodology covers a set of research activities concluded by research. It involves research design, population and sample, instrument data, technique of data collection, and technique of data analysis.

A. Research Design

This research a quantitative approach and this research applies a correlative research. Quantitative reserach tries to convert concepts about various aspects of social live into variables that can be precisely measured with numbers.³⁸ So, this research will find some numbers that show the variables are researched. Besides applies quantitative approach, also use correlation analysis that attempts to determine the degree of relation ship between variables as reserach design.

The hypothesis offers two variable, there are X variable and Y variable. X variable is identified as students' thinking style. Y variable is identified as students' English achievement.

Students' thinking style at SMK Muhammadiyah 5 Purwantoro is measured through questionnaire given to the students. First, the researcher

³⁸ W.Lawrence Neuman, Social Research Method, (USA: Perso Education Company, 2000), 126.

uses percentage analysis to know score of students' thinking style. The next step using product moment correlation analysis used to know whether there is a significant correlation between students' thinking style and student's English achievement at tenth grade students of SMK Muhammadiyah 5 Purwantoro in academic year 2015/2016 or not.

B. Population, Sample, and Sampling

1. Population

A population is a group of potential participants to whom you want to generalize the result of study.³⁹ Population can be defined as follow; according to Ary "Population is defined as all members of any well defined class of people, event or object."⁴⁰

From the statements above, the researcher summarized that population is all subject who will be researched. Population provides the researcher with information or data will be used to solve the research problems.

The population in this research is the tenth grade of SMK Muhammadiyah 5 Purwantoro in academic year 2015/2016 which the total population is 128 students. There are at X BB 32 students, X TSM 31 students, X TKR1 32 students, and X TKR2 32 students.

³⁹ Neil J. Salkind, Exploring Research (Pearson Education, 2006), 85.

⁴⁰ Donald Ary, Introduction To Research In Education, (United State Of America: Library Of Congress Cataloging in Publication Data, 1979), 129.

2. Sample

Sample is the set of actual data sources that are drawn from a larger population or potential data sources.⁴¹ Sample is a subset of population.⁴² It means that sample is some resident without the amount is less than population. Sampling technique is a technique to take a sample.

If the number of population was less than 100 people, they are should be taken as the sample. But, if the population was more than 100 people, the researcher can took the sample about 10%-15% or 20% -25% of the population or more.⁴³

From the population, the research take 31 students. This is 25 % from population. Researcher used random sampling as the sampling technique. The basic characteristic of Proporsional stratified random sampling is that all members of the population have an equal numbers from each stratum or select in proportion to the size of the stratum in the population.⁴⁴ It means 25% from the population. The calculation to take sample are :

$$25\% \times 128 = 31$$

⁴¹ Lisa M. Given, the SAGE Encyclopedia of Qualitative Research Method vol. 1 and 2 (California: SAGE Publications, inc., 2008), 644

⁴² Geoffrey marczyk, David Dematto, David Festinger, Essentials of research design and methodology.,18

⁴³ Suharsimi Arikunto, Prosedure penelitian Suatu Pendekatan Praktis, (Jakarta: PT RINEKA CIPTA, 2002), 107

⁴⁴ Donald Ary, Introduction To Reasearch In Education, (United State Of America: Library Of Congress Cataloging in Publication Data, 1979), 153.

C. Instrument of Data

In this study, there are two instruments in collecting data that are questionnaire and document. The questionnaire is about the aspect of Thinking Style. Meanwhile the document consist of the list of the tenth grade student of SMK Muhammadiyah 5 Purwantoro and the document of the score of English subject.

1. Questionnaire of students' thinking style

In this research, the questionnaire used to know the students' thinking style taken from the book Quantum Learning.⁴⁵ The questionnaire developed by John Le Tellier the results of adaptability Gregorc and questionnaire has been in the validation by a Psikologist. Validation aims to determine whether the instrument are worth it or not when asked to students' Senior High School level.

The questionnaire are consist of 15 questions. Each the question there are 4 of the nature of student. Then, the students are asked to choose two the nature of the most describes herself. Furthermore, the results of the answer students put in the colum then totaly and multiplied(see appendix 1)⁴⁶ And then, The biggest score shows the thinking style of the most dominant.

⁴⁵ DePorter, Henarcki., Quantum Learning: Membiasakan belajar nyaman dan menyenangkan, (New York: Dell Publishing), 125

⁴⁶ Appendix 1

Table.3.1

Indicator of questionnaire

Variable	Type of thinking style	Indicator	Categorized
Students' Thinking Style	Concrete Sequential (CS)	Look for facts and information	Realistic
		Carry out tasks in a step-by-step way	Organized
		Focus on detail and specific result	Getting to the point
		Can apply ideas in a practical, hands-on way	Practical
		Be accurate and particular	Precise
		Have an Orderly quite environment	Orderly
		Create real and practical Product	Perfectionist
		Work within structured condition	Hardworking
		Plan and organize their time	Planner
		Interpreting abstract ideas	Memorize
		Follow directions to get correct answer	Methodical
		Step back to see the problem	Caution
		Perform according to standards	Structured
		Are given approval for specific work done	Completing work
		Know the accepted way of doing things	Doing

	Abstract Sequential (AS)	Research information	Analytical
		Gather information and analyze ideas	Rational
		Debate point of view	Debating
		Examine key point and form theories	Academic
		Write analytical essays	Systemic
		Think in structured way	Sensible
		Organize ideas in a logical way	Logical
		Strive for intellectual recognition	Intellectual
		Have reading reference and expert source	Non-fiction
		Have time to learn material thoroughly	Thinking-through
		Judge value or importance	Researcher
		Strive for intellectual recognition	Reasoning
		Concentrate on finding answers	Examining
		Organize ideas in a logical way	Gaining ideas
		Think in a structured way	Thinking
	Abstract Random (AR)	Use imagination to create	Imaginative
		Be flexible and adaptable	Adaptable
		Have open communication with others	Relating to other

		Have sennsitivity	Emphatetic
		Consider solution	Flexible
		Can work and share with other	Sharing
		Be a part of a social group	Cooperative
		Have sensitivity	Sensitive
		See a holistik view	Peaple Person
		Personalize information	Personalize
		Reflectupon feeling	Spontaneous
		Relate to others	Communicating
		Discovering unusual way of doing things	Caring
		Making or creating physical product	Interpreting
		Explore personal feeling	Feeling
	Concrete Random (CR)	Investigate “Why”	Investigate
		Search for a variety of options	Inquisitive
		Create unusual and varied approaches	Creating
		Can try new approaches and solve problems	Adventurous
		Find possibility and crete change	Inventive
		Be independent	Independent
		Working in a controlled environment	Competitive
		Following a lecture without being able to interact with speaker	Risktaking

		Have a high degree of curiosity	Problem solver
		Do brainstorming and open-ended activities	Originate
		Find possibility and create change	Changer
		Discover new information and processes	Discovering
		Accept other's ideas without need to show another way	Divergent
		Realize the limitation of a situation and know when change is impossible.	Seeing possibility
		Experiment to find answer.	experimenting

2. Documentation of students' English achievement

Documentation method is used to find out the data from the written documentation, such as daily note, transcript, book, newspaper.⁴⁷ In this research, documentation is used to get some data about Students' english achievement at tenth grade students of SMK Muhammadiyah 5 Purwanto in academic year 2015/2016. The data got from documentation of students' English evaluation estimation (Rapport/GPA). Beside that, documentation used to know about research location, data description, and other data.

⁴⁷ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik* (Yogyakarta: Rineka Cipta), 158

D. Technique of Collecting the Data

Instrument is needed to get data in a research. The researcher uses three instrument as follow :

a. Questionnaire

Questionnaire is one of the most common instruments used. They are relatively easy to prepare, they can be used with large numbers of subjects, and they obtain information that is relatively easy to tabulate and analyze. They can also be used to elicit information about many different kinds of issues, such as language use, communication difficulties, preferred classroom activities, and attitudes and beliefs.⁴⁸

The questionnaire used to determine the thinking style of the students by fill on behalf of questionnaire given on each student to fill in accordance with the actual condition. Therefore, before the researcher said that the fill in questionnaire does not affect the value. The questionnaire used to obtain the data of the thinking style to determine the students' thinking style who most dominant. This questionnaire of thinking style is the result of the development of the John Le Tellier the results of the adaptability Gregorc that had been in the validation by a psychologist.

b. Documentation

⁴⁸ Jack C. Ricards, 2001, Curriculum Development in Language Teaching (Usa: Cambridge University Press), 60.

The documentation method is used by reseracher to collect data which is included history of school, condition of teacher, rapport and the other data.

In this research the researcher takes data by using the documentation. It is basically a way to trellising the data or information by reading note accurately, journal in SMK Purwanto.

Thus, in this research a documentation method using value English lesson in before semester. The data in this research are the result of English study and the questionnaire of students' thinking style. The documentation of student's mark is used to collect the data about result of study (Grade Point Average) in English subject. Students' thinking style score is gained after they answer the questionnaire.

E. Technique of Analyzing the Data

To find out the relation between of the students' thinking style and students' English achievement, the reseracher uses Pearson Product Moment correlation. Pearson Product Moment is used for data maesured on an interval or ratio scale of measurement.⁴⁹

In this research, the researcher use the coefficient product moment, it is the formula of correlation, or called The Product Moment Correlation. Before analysis the correlation between students' thinking syle and

⁴⁹ Shheri L. Jacson, Research Methods and statistics: A Critical Thingking Approach (Cengage Learning, 2011), 59

students' English achievement, the researcher have to prove the data are fulfilled the requirement. The requirement includes providing normality test and homogeneity test.

1. Normality test

Normality test need to measure normality of data. If the data to large and the spread is 100% not normal, it can conclude that the data is not normal. To avoid it, we can use the formula. The formula are Kolmogorov-Smirnov, Lilifors, and chi Square.⁵⁰ In this research, the researcher used Kolmogorov –Smirnov formula. The steps of this formula as follow:

a. Formulated hypothesis

Ha : the data is not normal

Ho : the data is normal

b. Determine the mean score for X variable and also Y variable. And the formula is:

$$1) Mx = \frac{\sum fx}{n}$$

Mx = Mean (Students' Thinking Style)

$\sum fx$ = the total number of score multiplication of deviation and frequency)

N = Number of cases

$$SDx = \sqrt{\frac{\sum fx^2}{n} - \left(\frac{\sum fx}{n}\right)^2}$$

⁵⁰ Retno widyaningrum, Statistika (Edisi Revisi), (Yogyakarta : Pustaka Felicha 2013), 204

Notes:

SD_x = Standard Deviation of Students' thinking style

$\frac{\sum fx^2}{n}$ = the total number of score multiplication frequency and deviation score

N_x = Number of cases

2) $My = \frac{\sum fy}{n}$

My = Mean (Students' English achievement)

$\sum fy$ = The total number of score multiplication of guess midpoint and frequency.

N = Number of cases

$$SD_y = \sqrt{\frac{\sum fy^2}{n} - \left(\frac{\sum fy}{n}\right)^2}$$

SD_y = Standard Deviation of students' English achievement

$\frac{\sum fy^2}{n}$ = the total number of score multiplication of frequency and deviation score

N_y = Number of cases

- c. Determining the fkb
- d. Determining f/N score with formula each frequency score total data
- e. Determining fkb/N score with formula the each fkb : score total data
- f. Determining the Z. The Z can be gotten by using formula above:

$$Z = \frac{x - \mu}{\sigma}$$

- g. Determining $P \leq Z$ with look at the normality distribution table.
- h. Then determining a_1 with the formula $f_{kb}/N - P \leq Z$
- i. Determining a_2 with the formula $f/N - a_1$
- j. Compare score maximum of a_1 with the Kolmogorov –Smirnov table
- k. Giving interpretation and making conclusion. This interpretation can be applied based on the hypothesis.

2. Homogeneity test

Homogeneity test needed to compare data groups. It is also used to measure variant homogeneity of the two groups or more. In this research, researcher used harley test. The steps as follow:

- a. Make the table of frequenting distribution. In this table, determine the mean score for x variable and also y variable.
- b. Determines the deviation standard. The formula as follow:

$$SDx = \sqrt{\frac{\sum fx^2}{n} - \left(\frac{\sum fx}{n}\right)^2}$$

Notes:

SDx = Standard Deviation of Students' thinking style

$\frac{\sum fx^2}{n}$ = the total number of score multiplication frequency and deviation score

N_x = Number of cases

$$SDy = \sqrt{\frac{\sum fy^2}{n} - \left(\frac{\sum fy}{n}\right)^2}$$

SDy = Standard Deviation of students' English achievement

$\frac{\sum fy^2}{n}$ = the total number of score multiplication of frequency and deviation score

Ny = Number of cases

- c. Determines $C_{\text{calculation}}$ by using Chocran formula. The formula as follow:

$$C_{\text{calculation}} = \frac{SD_{\text{max}}^2}{SDx^2 + SDy^2}$$

- d. Then compare $C_{\text{calculation}}$ and C_{table} in the significant standard 5% and 1%. Then check a criterion of hypothesis. There are criterion of homogeneity data; if the $C_{\text{calculation}} < C_{\text{table}}$, so the data is homogeny and if the $C_{\text{calculation}} > C_{\text{table}}$, so the data is not homogeny.

After determining normality and homogeneity, researcher analysis of data. The technique of data analysis in the formula of correlation. Meanwhile, to know whether there is significant correlation between students' thinking style and Students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwantoro or not. Researcher used a correlation product Moment formula. The formula as follow:⁵¹

$$r_{xy} = \frac{\frac{\sum xy}{n} - Cx' Cy'}{SDx' SDy'}$$

⁵¹ Retno Widyaningrum, statistika, Edisi revisi, 107

Notes:

r_{xy} = The correlation coefficient between x variable and y variable

$\sum xy$ = The total number of score multiplication of x variable (thinking style) and y variable (students' English achievement)

Cx' = Value of correlation on the x variable (students' thinking style)

Cy' = Value of correlation on the y variable (students' English achievement)

SDx' = Standard Deviation of students' thinking style (x)

SDy' = Standard Deviation of students' English achievement (y)

N = The number of subject.

The steps of the data analysis applied in this research are:

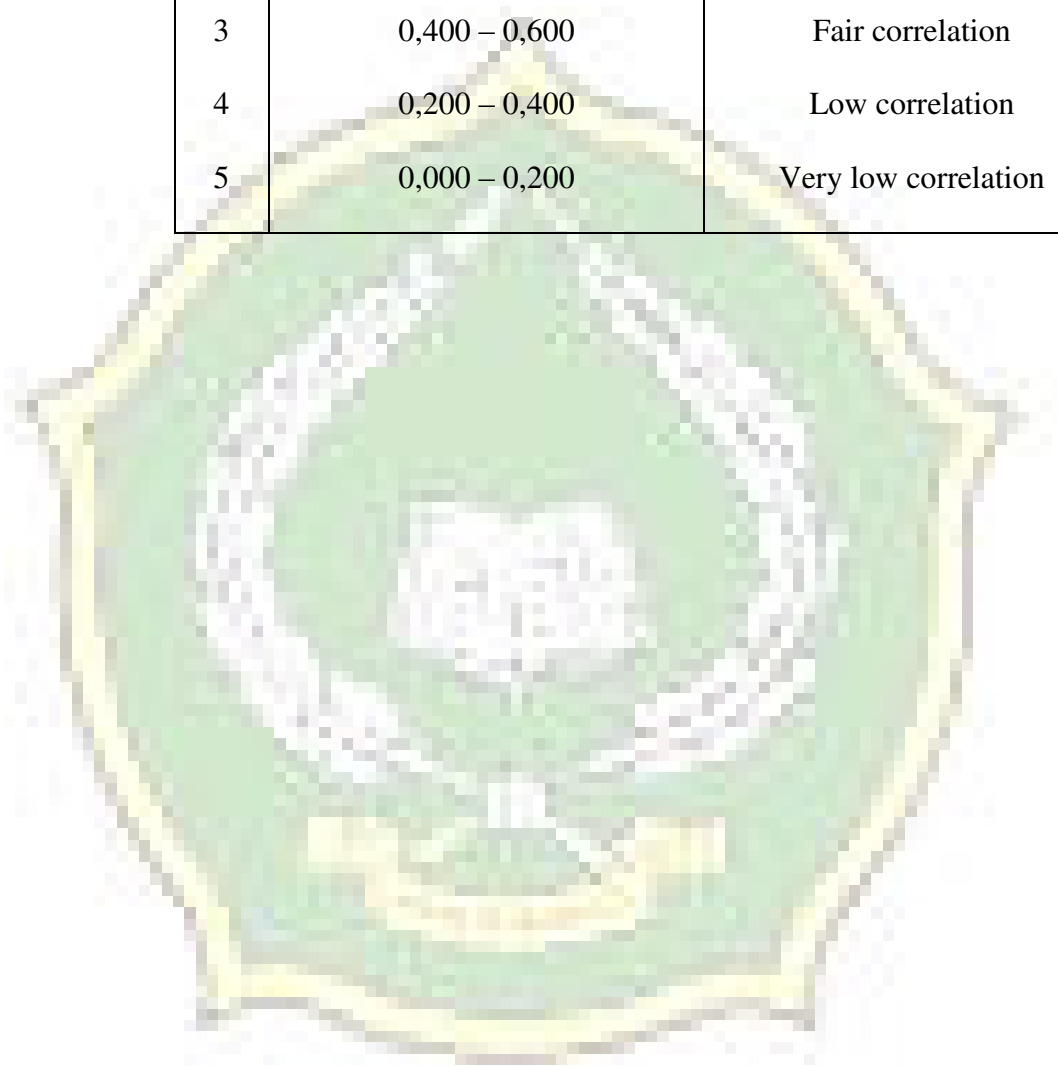
1. Determining Null Hypothesis (H_0) and Alternative Hypothesis (H_a)
2. Determining interval each variable
3. Making map correlation
4. Determining Cx' , Cy' , SDx' , and SDy' .
5. Computing by applying the formula of Product Moment Correlation
6. Determining the significant standard 5% and 1%⁵²
7. Determining the correlation criteria by applying the indexes of correlation, as suggested by Hadi in Arikunto, are as follow:⁵³

⁵² Appendix 2

⁵³ Suharsimi arikunto, prosedur penelitian suatu pendekatan praktis, 221

Table 3.2
The indexes of correlation

No	Scale	Interpretation
1	0,800 – 1,000	High correlation
2	0,600 – 0,800	Sufficient correlation
3	0,400 – 0,600	Fair correlation
4	0,200 – 0,400	Low correlation
5	0,000 – 0,200	Very low correlation



CHAPTER IV

RESEARCH RESULT

A. Research Location

1. Background of the School

SMK Muhammadiyah 5 Purwanto is one of the education institution in Wonogiri built on 2001 and on the year also this school has operated. This school occupies an area 9.232 m² with building large 2.100 m². SMK Muhammadiyah 5 Purwanto registered as Accreditation school with score C with the number 324031219021. SMK Muhammadiyah 5 Purwanto has 12 classrooms with 356 students which are educated with 31 teachers.

2. Location of SMK Muhammadiyah 5 Purwanto

SMK Muhammadiyah 5 Purwanto is located on Jln. Raya Purwanto-Pakis Baru KM 1 Dusun Dadagan. SMK Muhammadiyah is a including one of the school under the foundation MPPK Muhammadiyah Regional.

3. School organization Structure⁵⁴

School organization at SMK Muhammadiyah 5 Purwanto contains: School Committe, Headmaster, Vice of Headmaster, Administration staff, vice of Curriculum, vice of Students, Vice of

⁵⁴ Appendix 3

Infrastructure, vice of Publik Relations, Head Education Department, teacher, and student.

4. Vision and Mission of School

a. Vision

Vision on SMK Muhammadiyah 5 Purwantoro is achievement, competent, and personality value based on faith and piety. There are indicator of vision :

- 1) Realizable KTSP in the school
- 2) Realizable educator professionalism
- 3) Realizable standard of effectively and effeicienly teaching and learning process.
- 4) Realizable of intelligent, competitive, a great interest in the country, and pious graduates.
- 5) Realizable standard of education management
- 6) Realizable standard of education evaluation
- 7) Realizable standard of education culture quality
- 8) Realizable standard of education financing
- 9) Realizable standard of enjoyable, peaceful, beautiful, clean, and leafy condition in the school envirointment.

b. Mission of School

- 1) Develop Education Unity Level Curriculum (KTSP) which diversified based oriented on increasing students' guiding

based on potency, development, necessary, students' importance, and also environment demands.

- 2) Improve the quality of religion
- 3) Apply the process of education and exercise competency-based
- 4) Produce graduates are competent at her field and recognized by DU/DI
- 5) Form of human resources are ready to work, productive and independent.
- 6) Produce graduates reliable in the field of academic and professionals in work, are self employed, resilient, and independent.
- 7) Distribute alumnus to exchanges work, so it can reduce unemployment.
- 8) Increasing academic and non-academic achievement
- 9) Optimally in implementing of religion.
- 10) Built relationship with school committe in order to finding school financial.

5. Educational Personality and Staffs

A Teacher is person who provides schooling for others. A teacher who facilitates education for an individual student may also be describing a personal tutor. The role of the teacher is often formal and ongoing, carried out by way occupation or profession at a school on other place of formal education. In SMK Muhammadiyah 5

Purwanto have 31 teachers as permanent teacher and 3 teacher as nos permanent. There are 356 students which are spread from tenth grade until twelveth grade.

6. Fasilitates and Infrastructures⁵⁵

Facilitates and infrastructures at SMK Muhammadiyah 5 Purwanto consist of: Condition of building contain classroom, headmaster room, teacher room, administration room, students' organization room, counseling room, masjid, toilet, canteen, conventional library, multimedia library, garage room, students' job practice room, hall room, healty room, parking area and kitchen. All of them are in good condition.

Beside that, the educational support for teaching and learning is 15 computers (laboratory), 2 printer, 1 LCD, 1 cupboard, 1 televisions, 270 student tables, 356 students' chairs and 2 school's fields.

B. Data Description

The researcher took the score of students' thinking style (variable X) by using 15 item questionnaire and students' English achievement (variable Y) by using GPA (Grade Point Average) at tenth grade students of SMK Muhammadiyah 5 Purwanto and those scores were analyzed. It can be seen in the follows :

⁵⁵ Appendix 4

1. The score of students' thinking style

In this description, to get data the researcher conducted by giving a questionnaire about students' thinking style to the tenth grade students of SMK Muhammadiyah 5 Purwanto. The result from the students' thinking style of each student as followed:

Table 4.1

Score the students' thinking style to the tenth grade students of SMK Muhammadiyah 5 Purwanto.

No	Name	Class	Thinking style	Score(X)
1	Alif	X. TB	CS	36
2	Anissa Banad Ananti	X. TB	AR	36
3	Dea	X. TB	CS	44
4	Diah Kristiana	X. TB	CS	36
5	Dita Septiyani	X. TB	AR	40
6	Husnul	X. TB	CS	48
7	Ita	X. TB	AS	40
8	Khoirrotun	X. TB	CS	48
9	Muh Johan	X.TSM	CS	52
10	Arya Panji L	X.TSM	CS	44
11	Rian.S	X.TSM	CR	40
12	Tri Mutholif	X.TSM	CS	40
13	Riky.P	X.TSM	CS	44
14	Pandris.H	X.TSM	AR	36
15	Pahreixbal N.A	X.TSM	AS	44
16	Aji Widiarto	X.TKR 1	CS	44
17	Ari Setyawan	X.TKR 1	CR	40
18	Arif Al Fajar	X.TKR 1	CR	40
19	Arthur Adi.P	X.TKR 1	AR	36

20	DanarMuh Pras	X.TKR 1	CS	40
21	Dandi Nur Setyawan	X.TKR 1	AS	36
22	Danu Aji Pangestu	X.TKR 1	CS	40
23	Eko Prasetyo	X.TKR 1	CS	40
24	Agung Nugroho	X.TKR 2	CS	44
25	Agung Prasetyo	X.TKR 2	AS	40
26	Danang Setya Agung	X.TKR 2	AS	40
27	Dusas Aldi DF	X.TKR 2	CR	48
28	Dio Hermansyah	X.TKR 2	CR	40
29	Frendi P	X.TKR 2	CR	36
30	Reza Mustofa	X.TKR 2	AR	36
31	Nana Larasati	X.TKR 2	AR	44

The table above can be concluding that the highest score for students' thinking style is 52 and lowest score is 36.

2. The score of students' English achievement

The researcher took the students' English Achievement from the Grade Point Average(GPA) of the student. The score is stated as Follows:

Table 4.2

Score the students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwanto.

No	Nama	Kelas	Score
1	Alif	X. TB	86
2	Anissa Banad Ananti	X. TB	78
3	Dea	X. TB	78

4	Diah Kristiana	X. TB	84
5	Dita Septiyani	X. TB	83
6	Husnul	X. TB	77
7	Ita	X. TB	84
8	Khoirrotun	X. TB	85
9	Muh Johan	X.TSM	78
10	Arya Panji L	X.TSM	76
11	Rian.S	X.TSM	77
12	Tri Mutholif	X.TSM	80
13	Riky.P	X.TSM	76
14	Pandris.H	X.TSM	81
15	Pahri Eixbal N.A	X.TSM	78
16	Aji Widiarto	X.TKR 1	78
17	Ari Setyawan	X.TKR 1	77
18	Arif Al Fajar	X.TKR 1	77
19	Arthur Adi.P	X.TKR 1	70
20	DanarMuh Pras	X.TKR 1	70
21	Dandi Nur Setyawan	X.TKR 1	79
22	Danu Aji Pangestu	X.TKR 1	76
23	Eko Prasetyo Putro	X.TKR 1	76
24	Agung Nugroho	X.TKR 2	77
25	Agung Prasetyo	X.TKR 2	75
26	Danang Setya Agung	X.TKR 2	78
27	Dusas Aldi DF	X.TKR 2	76
28	Dio Hermansyah	X.TKR 2	75
29	Freudi P	X.TKR 2	70
30	Reza Mustofa	X.TKR 2	78
31	Nana Larasati	X.TKR 2	76

3. Students' thinking style and students' English achievement

The result of questionnaires and documentations of students' thinking style and students' English achievement are shown in this table.

Table 4.3

Students' thinking style(X) and students' English achievement(Y)

No	Name	Score (X)	Score (Y)
1	Alif	36	86
2	Anissa Banad Ananti	36	78
3	Dea	44	78
4	Diah Kristiana	36	84
5	Dita Septiyani	40	83
6	Husnul	48	77
7	Ita	40	84
8	Khoirrotun	48	85
9	Muh Johan	52	78
10	Arya Panji L	44	76
11	Rian.S	40	77
12	Tri Mutholif	40	80
13	Riky.P	44	76
14	Pandris.H	36	81
15	Pahri Eixbal N.A	44	78
16	Aji Widiarto	44	78
17	Ari Setyawan	40	77
18	Arif Al Fajar	40	77
19	Arthur Adi.P	36	70
20	DanarMuh Pras	40	70

21	Dandi Nur Setyawan	36	79
22	Danu Aji Pangestu	40	76
23	Eko Prasetyo Putro	40	76
24	Agung Nugroho	44	77
25	Agung Prasetyo	40	75
26	Danang Setya Agung	40	78
27	Dusas Aldi DF	48	76
28	Dio Hermansyah	40	75
29	Frengi P	36	70
30	Reza Mustofa	36	78
31	Nana Larasati	44	76

C. Data Analysis

In this chapter, the researcher measured some aspect as follows : the normality and homogeneity, mean and standard deviation of students' thinking style, students' English achievement and the correlation between students' thinking style and students' English achievement to the tenth grade students of SMK Muhammadiyah 5 Purwantoro in academic year 2015/2016.

1. The normality and the homogeneity test of students' thinking style and students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwantoro.

Before testing hypothesis, the data must be normally and homogeny. Therefore, normality and homogeneity must be provided.

a) Normality

Hypothesis:

Ho: the data distribution is normal

Ha: the data distribution is not normal

Based on the calculation(for detail, see on appendix)⁵⁶, the maximum score a_1 variable X was 0,146. With error degree 5%, $n = 31$ $D_{(0,05,31)}$ in table was $1,63\sqrt{n}$. $D_{(0,05,31)} = 1,63\sqrt{n} = 1,63\sqrt{31} = 0,2927566423 = 0,293$.

a_1 of variable X was 0,146 and $D_{(table)}$ was 0,293. That means $a_1 < D_{(table)}$, so that rejected Ha and accepted Ho. It means that the data distribution of variable X is normal.

The maximum score a_1 variable Y was 0,291⁵⁷ with error degree 1%, $n = 31$ $D_{(0,05,31)}$ in table was $1,63\sqrt{n}$. $D_{(0,05,31)}$ was 0,293. That means $a_1 < D_{(table)}$, so Ha was rejected and accepted Ho. That means the data distribution of variable Y is normal.

Table 4.4

The normality test of students' Thinking style (X variable) and Students' English Achievement (Y variable)

Variable	Category
Students' Thinking Style (X)	Normal
Students' English Achievement (Y)	Normal

⁵⁶ Appendix 5

⁵⁷ Appendix 6

b) Homogeneity

Step 1 : Making hypothesis

Ha : Data is not homogeny.

Ho : Data is homogeny.

Step 2 : Table distribution (see appendix 7)⁵⁸

Step 3 : Determining of Standard Deviation X Variable (SDx) and

Standard Deviation Y variable (SDy)

$$SDx = \sqrt{\frac{\sum fx^2}{n} - \left(\frac{\sum fx}{n}\right)^2}$$

$$SDx = \sqrt{\frac{52736}{31} - \left(\frac{1272}{31}\right)^2}$$

$$SDx = \sqrt{1701,1612 - (41,03226)^2}$$

$$SDx = \sqrt{1701,1612 - 1683,6463}$$

$$SDx = \sqrt{17,5149}$$

$$SDx = 4, 18508$$

$$SDy = \sqrt{\frac{\sum fy^2}{n} - \left(\frac{\sum fy}{n}\right)^2}$$

$$SDy = \sqrt{\frac{187498^2}{31} - \left(\frac{2409}{31}\right)^2}$$

$$SDy = \sqrt{6048,3225 - (77,70967)^2}$$

$$SDy = \sqrt{6048,3225 - 6038,7928}$$

$$SDy = \sqrt{9,5297}$$

$$SDy = 3,08702$$

Step 4 : Calculating $C_{\text{calculation}}$ with the formula is follows :

$$\begin{aligned} C_{\text{calculation}} &= \frac{SD_{\text{max}}^2}{SDx^2 + SDy^2} \\ &= \frac{4,18508^2}{4,18508^2 + 3,08702^2} \\ &= \frac{17,5148946064}{17,5148946064 + 9,5296924804} \\ &= \frac{17,5148946064}{27,0445870868} \\ &= 0,647630320 \end{aligned}$$

Step 5 : Determining degree of freedom or db = (n-1; k) = 31-1; 2)

at the significant 5% was gotten 0,6602

Based on the calculation above. The $C_{\text{calculation}} = 0,6476$

and $C_{\text{table}} = 0,6602$. That means $C_{\text{calculation}} < C_{\text{table}}$, so that is accepted H_0 and rejected H_a . Therefore, the data is Homogeny.

2. The analysis of students' thinking style and students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwanto in academic year 2015/2016

The researcher used questionnaire method to collect data and GPA of students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwanto in academic year 2015/2016.

After knowing questionnaire score, the next step identify mean and standard deviation of two variable. Both variable is students' thinking style and students' English achievement in the tenth grade of students of SMK Muhammadiyah 5 purwanto in academic year 2015/2016. Therefore, it can be categories high, sufficient and low. the analysis standard deviation of both variable could be seen clearly as the table below:

a. The analysis of students' thinking style at tenth grade students of SMK Muhammadiyah 5 Purwanto in academic year 2015/2016.

Table 4.5

Analysis data standard deviation of students' thinking style

X	f	fx	x ²	fx ²
52	1	52	2704	2704
48	3	144	2304	6912
44	7	308	1936	13552
40	12	480	1600	19200
36	8	288	1296	10368
Σ	31	1272		52736

After made the table, the researcher continued to count mean and standard deviation of students' thinking style. The formula of students' thinking style could be explained clearly as the bellow :

Look for Mx

$$\begin{aligned} Mx &= \frac{\sum fx}{n} \\ &= \frac{1272}{31} \\ &= 41,03226 \end{aligned}$$

Look for SDx

$$\begin{aligned} SDx &= \sqrt{\frac{\sum fx^2}{n} - \left(\frac{\sum fx}{n}\right)^2} \\ SDx &= \sqrt{\frac{52736}{31} - \left(\frac{1272}{31}\right)^2} \\ SDx &= \sqrt{1701,1612 - (41,03226)^2} \\ SDx &= \sqrt{1701,1612 - 1683,6463} \\ SDx &= \sqrt{17,5149} \\ SDx &= 4,18508 \end{aligned}$$

From the analysis above, it can be explained that Mx = 41,03 and SDx = 1,31224997 to determine high, sufficient and low for students' thinking style in the tenth grade students of SMK

Muhammadiyah 5 Purwanto. The researcher used the formula to look for that categories. The formula is:

- 1) Score more than $Mx + 1.SD$ is the category of students' thinking style is high
- 2) Score of less than $Mx - 1.SD$ category of students' thinking style is less
- 3) score between $Mx - Mx + 1.SD$ to $1.SD$ a category of students' thinking style is sufficient.

The calculating is :

$$\begin{aligned} Mx + 1.SDx &= 41,03226 + 1.4,18508 \\ &= 41,03226 + 4,18508 \\ &= 45,2172 \quad (45) \end{aligned}$$

$$\begin{aligned} Mx - 1.SDx &= 41,03226 - 1.4,18508 \\ &= 41,03226 - 4,18508 \\ &= 36,847 \quad (37) \end{aligned}$$

It can be seen that score over 45 is considered high level of students' thinking style, while score less than 37 were categorized as low thinking style and it score of 37-45 categorized sufficient.

To know more clearly about the categorization of the students' thinking style can be seen on the following table.

Table 4.6

Categorization of students' thinking style at the tenth grade students of SMK Muhammadiyah 5 Purwanto in academic year 2015/2016

No	Score	Frequency	Percentage	Category
1	Uper of 45	4	12,90 %	High
2	37-45	19	61,29 %	Sufficient
3	Lower of 37	8	25,81 %	Low
Number		31	100 %	

Based on the categorization above, researcher can be seen that the states students' thinking style at tenth grade students of SMK Muhammadiyah 5 Purwanto in high category with the frequency 4 respondents (12,90%), in sufficient category with the frequency 19 respondents (61,29%) and the low category with frequency 8 respondents (25,81%). Thus, it can be said that students' thinking style at tenth grade students of SMK Muhammadiyah 5 Purwanto is sufficient.

b. The analysis of students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwanto in academic year 2015/2016.

The researcher got the data used documentation of Grade Point Average (GPA) of TKR 1, TKR 2, TSM, and BB randomly tenth grade students' English achievement of SMK Muhammadiyah 5 Purwanto in academic year 2015/2016.

Then, the researcher got the score of students' English achievement, searcher continued count the My and SDy to determine the category of students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwantoro in academic year 2015/2016. It has three categories high, sufficient and low. the analysis of standard deviation could be seen clearly as the table below :

Table 4.7
Analysis Data standard deviation of students' English achievement

Y	f	Fy	y ²	fy ²
86	1	86	7396	7396
85	1	85	7225	7225
84	2	168	7056	14112
83	1	83	6724	6724
81	1	81	6561	6561
80	1	80	6400	6400
79	1	79	6241	6241
78	7	546	6084	42588
77	5	385	5929	29645
76	6	456	5776	34656
75	2	150	5625	11250

70	3	210	4900	14700
Σ	31	2409		187489

After made the table, the researcher continued to count mean and standard deviation of students' English achievement. The formula of students' English achievement could be explained clearly as the bellow :

Look for My

$$My = \frac{\Sigma fy}{n}$$

$$My = \frac{2409}{31}$$

$$My = 77,70967$$

Look for SDy

$$SDy = \sqrt{\frac{\Sigma fy^2}{n} - \left(\frac{\Sigma fy}{n}\right)^2}$$

$$SDy = \sqrt{\frac{187498^2}{31} - \left(\frac{2409}{31}\right)^2}$$

$$SDy = \sqrt{6048,3225 - (77,70967)^2}$$

$$SDy = \sqrt{6048,3225 - 6038,7928}$$

$$SDy = \sqrt{9,5297}$$

$$SDy = 3,08702$$

Based on the analysis above, it can be explained that $\bar{M}_y = 77,70967$ and $SD_y = 3,08702$ to determine high, sufficient and low for students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwanto. The researcher used the formula to look for that categories. The formula is:

- 1) Score more than $\bar{M}_y + 1.SD_y$ is the category of students' English achievement is high
- 2) Score of less than $\bar{M}_y - 1.SD_y$ category of students' English achievement is less
- 3) score between $\bar{M}_y - 1.SD_y$ to $\bar{M}_y + 1.SD_y$ a category of students' English achievement is sufficient.

The calculating is :

$$\begin{aligned}\bar{M}_y + 1.SD_y &= 77,70967 + 1. 3,08702 \\ &= 77,70967 + 3,08702 \\ &= 80,79669 (81)\end{aligned}$$

$$\begin{aligned}\bar{M}_y - 1.SD_y &= 77,70967 - 1. 3,08702 \\ &= 77,70967 - 3,08702 \\ &= 74,62265 (75)\end{aligned}$$

Moreover, it refers that score over 81 is considered high level from students' English achievement, while scores less than 69 were categorized as sufficient. Thus, the count showed that students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwanto is sufficient. To know more clearly

about the categorization of students' English achievement can be seen in the following table :

Table 4.8

Categorization of students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwantoro

No	Score	Frequency	Percentage	Category
1	Uper of 81	6	19,35 %	High
2	75-81	20	64,52 %	Sufficient
3	Lower of 75	5	16,13 %	Low
Number		31	100 %	

Based on the categorization above, researcher can be seen that the states students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwantoro in high category with the frequency 6 respondents (19,35%), in sufficient category with the frequency 20 respondents (64,52%) and the low category with frequency 5 respondents (16,13%). Thus, it can be said that students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwantoro is sufficient.

3. The analysis correlation between students' thinking style and students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwanto.

a. Determining Hypothesis

1) Hypothesis Alternative (Ha)

There is significant correlation between students' thinking style and students' English achievement at tenth grade student of SMK Muhammadiyah 5 Purwanto in academic year 2015/2016.

2) Hypothesis Nol (Ho)

There is no significant correlation between students' thinking style and students' English achievement at tenth grade student of SMK Muhammadiyah 5 Purwanto in academic year 2015/2016.

b. Determining i (interval) Of each variable. The formula is $R/i = K$ for x variable

$$\begin{aligned} K &= 1 + 3,3 \log n \\ &= 1 + 3,3 \log 31 \\ &= 1 + 3,3 \times 1,491 \\ &= 1 + 4,9203 \\ &= 5,9203 (6) \end{aligned}$$

$$\begin{aligned} R &= H - L \\ &= 52 - 36 = 16 \end{aligned}$$

$$i = \frac{R}{K}$$

$$i = \frac{16}{6} = 2,66 = 3$$

For y variable

$$K = 1 + 3,3 \log n$$

$$= 1 + 3,3 \log 31$$

$$= 1 + 3,3 \times 1,491$$

$$= 1 + 4,9203$$

$$= 5,9203 (6)$$

$$R = H - L$$

$$= 86 - 70 = 16$$

$$i = \frac{R}{K}$$

$$i = \frac{16}{6} = 2,66 = 3$$

c. Making map of correlation (see appendix 8)⁵⁹

d. Determining Cx' , Cy' , SDx' , SDy'

$$C_{x'} = \frac{\sum fx'}{n}$$

$$= \frac{-19}{31} = -0,612$$

$$C_{y'} = \frac{\sum fy'}{n}$$

⁵⁹ Appendix 8

$$= \frac{+7}{31} = +0,225$$

$$SD_x = \sqrt{\frac{\sum fx'^2}{n} - \left(\frac{\sum fx'}{n}\right)^2}$$

$$= \sqrt{\frac{65}{31} - \left(\frac{-19}{31}\right)^2}$$

$$= \sqrt{2,096 - (0,612)^2}$$

$$= \sqrt{2,096 - 0,374}$$

$$= \sqrt{1,722}$$

$$= 1,31224997$$

$$SD_y = \sqrt{\frac{\sum fy'^2}{n} - \left(\frac{\sum fy'}{n}\right)^2}$$

$$= \sqrt{\frac{47}{31} - \left(\frac{+7}{31}\right)^2}$$

$$= \sqrt{1,516 - (+0,225)^2}$$

$$= \sqrt{1,516 - 0,050}$$

$$= \sqrt{1,466}$$

$$= 1,21078486$$

e. Determining r_{xy}

$$r_{xy} = \frac{\frac{\sum xy}{n} - \bar{cx}' \bar{cy}'}{SDx' SDy'}$$

$$= \frac{\frac{20}{31} - (-0,612)(+0,225)}{1,31224997 \cdot 1,21078486}$$

$$= \frac{\frac{20}{31} + 0,1377}{1,58885239}$$

$$= \frac{0,64516129 + 0,1377}{1,58885239}$$

$$= \frac{0,78286129}{1,58885239}$$

$$= 0,492$$

f. The significant standard product moment 5% or 1%

1) The significant standard product moment of 5% with $n = 31$ is

0,355

2) The significant standard product moment of 1% with $n = 31$ is

0,456

g. Determining the correlation criteria by applying the index correlation.

Based the calculation Pearson's Product moment correlation above, the researcher got the result from $r_{xy} = 0,492$ (it is between 0,400 – 0,600). According to simple interpretation above, the researcher noticed that the correlation between students' thinking style and students' English achievement is fair correlation. Thus, the researcher can interpret that there is a positive correlation between students' thinking style (as X variable) and students' English achievement (as Y variable).

D. Interpretation

Based on the analyzing of data above, it can be identified that the coefficient correlation product moment between students' thinking style and students English achievement is 0,492

Therefore, the value of r_{xy} is 0,492, and the value of r_{table} (r_t) with degree of freedom (df/db) = $N - nr = 31 - 2 = 29$. Thus, the significant product moment 5% = 0,367 and r_{xy} 0,492, so $r_{xy} > r_t$. And the significant product moment 1% = 0,470 and r_{xy} 0,492, so $r_{xy} > r_t$.

Based on the caculation above, the researcher concludes that H_0 was rejected and H_a was accepted. It means that there was significant correlation between students' thinking style and students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwanto in academic year 2015/2016. Thus, it can be concluded that thinking style of students have related with the English achievement.

E. Discussion

Based on the categorization can be seen that the students' thinking style at tenth grade students of SMK Muhammadiyah 5 Purwanto in high category with a frequency of as much as the frequency 4 respondents (12,90%), in sufficient category with the frequency 19 respondents (61,29%) and the low category with frequency 8 respondents (25,81%).

On the other hand, the students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwanto in high category with the

frequency 6 respondents (19,35%), in sufficient category with the frequency 20 respondents (64,52%) and the low category with frequency 5 respondents (16,13%).

From the explanation before, the researcher concluded that H_0 was rejected and H_a accepted. It means that there was significant correlation between students' thinking style and students' English achievement at tenth grade students of SMK Muhammadiyah 5 Purwantoro in academic year 2015/2016. Thus, it can be concluded that the students thinking style closely related to the formation of students English achievement.

In order to, know whether the coefficient correlation has significant correlation, the researcher used the table of "r" interpretation. The table function use to interpret the significant of the coefficient correlation. The researcher knows that correlation between students' thinking style and students' English achievement at fair correlation levels of significance.

Based on the explanation above, it is show that students' thinking style influence of students' English achievement. Style of thinking have the important role in the learning, especially english learning. With know the thinking style, students understood that their doing. Thus, they can learning english process easily. Beside that, they can improve their English learning.

CHAPTER V

CLOSING

A. Conclusion

Thinking style is one of the style which influence of the student learning process. on the other hand, style of thinking is important to easier of student in learning, especially English learning, which English learning have four skill. There are speaking, writing reading and listening. All of them need the thinking on the undertanded. Based on the data anaysis, it can be identified that the coefficient correlation product moment between students' thinking style and students English achievement is 0,492.

Meanwhile, the significant product moment 5% = 0,367 and r_{xy} 0,492, so $r_{xy} > r_t$. Beside that, the significant product moment 1% = 0,470 and r_{xy} 0,492, so $r_{xy} > r_t$. It means that the r_{xy} is higer than r_{table} . Thus, the researcher concludes that H_0 was rejected and H_a was accepted.

B. Rekomendation

1. for the Teacher

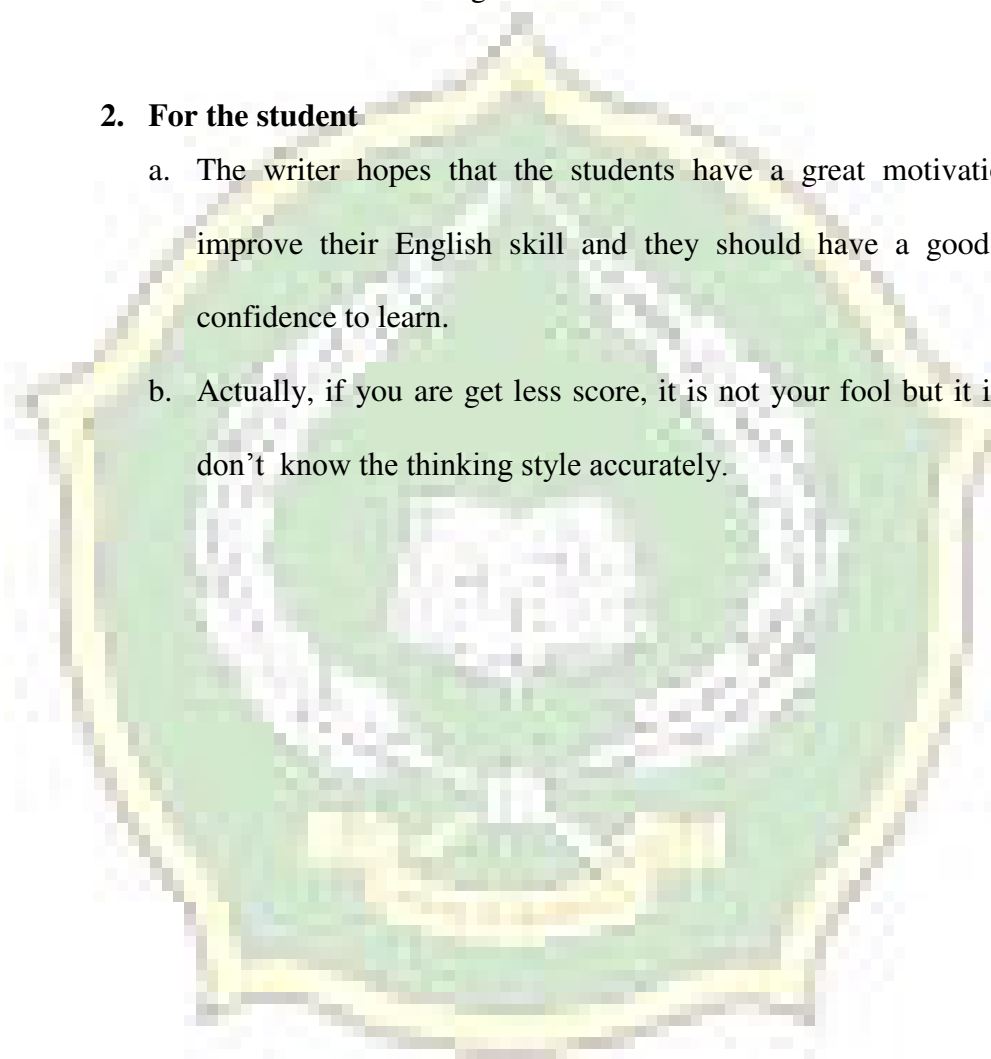
After getting the results of the study in this research, the writer would like to give some suggestions, as follow:

- a. The teacher should understanding the students thinking style every student. Thus, teacher can use the good method, and the material can receive of the students.

- b. In teaching-learning process, the teacher should give motivation to the students in order to make the students are eager to learn and understand the material easily.
- c. In learning process, the teacher should use media because it makes the students learn English more excited.

2. For the student

- a. The writer hopes that the students have a great motivation to improve their English skill and they should have a good self-confidence to learn.
- b. Actually, if you are get less score, it is not your fool but it is you don't know the thinking style accurately.



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