A CORRELATION STUDY BETWEEN DOMINANT STUDENT'S THINKING STYLE IN LEARNING AND ENGLISH ACHIEVEMENT OF THE SECOND YEAR STUDENTS OF MTs NEGERI 6 BOYOLALI IN ACADEMIC YEAR 2017/2018

THESIS

Submitted as A Partial Requirements for degree of *Sarjana* in Islamic

Education and Teacher Training Faculty

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DEDICATION

This thesis dedicated to:

1. My beloved parents, Mr. Ali Syamsudin and Mrs. Suryani, who always pray and support me.
2. My beloved husband Mr. Budi Santosa, who always pray and support me.
3. My beloved brothers and sister.
4. My best friend (Katerin, Dilla, Verla and COC Class).

MOTTO

“Education is the most powerful weapon which you can use to change the world” (Nelson Mandela)

“Man jadda wajada”

(where there is will, there is a way)

“Don’t forget to smile in any situation. As long as you are alive, there will be better things later, and there will be many”

(Eiichiro Oda)

PRONOUNCEMENT

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I hereby sincerely state that the thesis titled *"A Correlation Study Between Dominant Student's Thinking Style in Learning and English achievement of the second year students of MTs Negeri 6 Boyolali in academic year 2017/2018"* is my real masterpiece. The things out of my masterpiece in this thesis are signed by citation and referred in the bibliography.

If later proven that my thesis has discrepancies, I am willing to take academic sanction in the form of repealing my thesis and academic degree.

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The researcher realizes that this thesis if still far from being perfect. The researcher also hopes this thesis is useful for the researcher in particular and reader in general.

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The Researcher

Yogi Indah Liantika

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ABSTRACT

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Advisors : Hj. Fithriyah Nurul Hidayati, M.Pd
Key Words : Thinking Style, English Achievement, and Correlational Study

This research is aimed to know (1) the dominant student's thinking style in learning and English achievement of MTs Negeri 6 Boyolali in the academic year 2017/2018, (2) whether there is a positive correlation between the dominant student's thinking style in learning English achievement of MTs Negeri 6 Boyolali in the academic year 2017/2018.

This research is a correlation study which the independent variable is thinking style and dependent is English achievement. This research was cried out in Januari up to May 2018 at MTs Negeri 6 Boyolali. The population is 299 students of the second year students of MTs Negeri 6 Boyolali. The sample was 36 students which were taken by multi stage random sampling technique. The class choosen is VIII A. The instrument of collecting data were questionnaire and documentation. The questionnaire was used to collect the data of the dominant student's thinking style. The documentation of book report used to collect the data student's English achievement. The researcher used Pearson Product Moment to analyze the data.

The result of the study shows that (1) the dominant student's thinking style that students used in learning is analyst thinking (83.4%) and the other student's thinking style that researcher founded is idealist thinking (5.5%), idealist and analyst thinking (5.5%), pragmatist thinking (2.8%), and neutral thinking (2.8%), (2) there is a positive correlation between the dominant student's thinking style in learning and English achievement, because the coefficient of correlation from the r_{xy} obtained is higher than r_{table} (0.787>0.361) for level significance 0.05. So, the alternative hypothesis (Ha) which states that "r_{xy}> r_{table} means that there is correlation between variable X and variable Y" is accepted. Students thinking style is important factor for English achievement. It can be seen from the contribution that it gives to English achievement. The coefficient of determination between the student's thinking style and English achievement is 61.9%. it means that 61.9% variance of English achievement is influenced by student's thinking style while the other 38.1% is contributes by other factors

CHAPTER I

INTRODUCTION

In this chapter, the researcher explains about the background of the study, the problem identifications of the study, the problem limitation of the study, the problem statements of the study, the objectives of the study, the benefits of the study and definition of the key terms.

A. Background of the study

Communication is something that connects us to social human life. People cannot life without communication, even he is dumb or deaf, they surely have their way for communicating because it has a relationship that everyone cannot live alone, they are the social creature. So, communication is an important way for interacting and sharing information to each other. Crystal (1992:212) stated that communication can occur both in written and oral form. In written form, communication may occur in the form of the memo, e-mail, telegram, letter and et cetera. Meanwhile, in oral form, it may occur in dialogue and interview. The main instrument in communication is language.

Language as a means of communication is very important, so people have to master it. Language is very useful to make social cooperation and communication in society. Ramelan (1994:1) stated that language is a mean of communication with other person, as a tool to express his idea and wishes without language it is hard to imagine how people can cooperate. We can see from this statement that the main factor in communication is language. People

have to learn some language to survive in this global competition. English becomes the most important language to learn because it is the most common language used in international language.

In this modern era, it is important to master an international language. English is the official or second language in many foreign countries. In line with them, Harmer (2007:13) stated that English is a mother tongue for many people in the world, the people who have English as the second or third language like native speakers and use it for international communication. So, English is a language which has been used in some countries. In Indonesia, English becomes a first foreign language. So, it has been taught in school. Not only in school but also many courses offer English education. By understanding and using the English language well, people can get a job easily or when they are dealing with their foreign business partner. That statement has formed people believe that studying English is necessary, especially at school. The English language has been taught from Elementary school up to Universities. English also is examined in the national examination.

Based on the English curriculum and syllabus, Kurtilas *(Kurikulum 2013)* is emphasized on four areas of skills there are listening, speaking, reading and writing that are integrated each other. For students, English sometimes becomes the most difficult lesson. However, students have to get good English achievement because it is one of the requisites of school graduation and the result of it also determines the ongoing education in the future. To know the student's achievement, the teacher can see it through

their achievement test. The purpose of the achievement test is to see the effectiveness of the learning process in their students. Achievement determines student success in learning if the result of student's English achievement well it means that they are capable and successful in understanding the learning material presented by the teacher in the classroom well. The students who have low achievement means that they are incapable. It is the important thing to the teacher to knowing the factor influences teaching-learning process to improve their student's ability. Every people in the world have the different internal factor in the learning process, one of them is thinking style. They have different thinking style with each other.

The basic characteristic of a human being is the ability of thinking (Abdi, 2012:1). Thinking is the activity or method of mind process to resolve the problem. Every people in the world have a different style to thinking about something. Style of thinking means step, method, or way that people use to thinking something which tends to use the ability in a certain way. Harrison & Bramson (in Golian, 1999:1) stated that thinking style is an interactive mix of inherited tendencies and conditioned responses to early behavioral experiences as a result of each person favors a particular method of thinking. Harrison & Bramson (in Lubbe, 2005:264) conclude that in Western society there are five distinct styles of thinking. Most of the people showed a preference for one or two styles. Harrison & Bramson (1984) states the technical name for the style of thinking is inquiring modes. Inquiring modes are basic sets of purposive methods for making sense of the world. They are built on early-acquired preferences, on learned values and on

concepts about the world and the nature of reality. The researcher concludes that thinking style is the activity or method of mind process to thinking about something which tends to use their ability in a certain way.

Harrison & Bramson (in Golian, 1999:3) categorize five thinking style. That is the synthesist, idealist, pragmatist, analyst, and realist. All of them have different characteristic and handling. Zhang (in Lubbe Sam, 2005:271) states that the styles of thinking contribute to student' academic achievement beyond what can be explained by abilities. He also found that teachers could increase student's creativity by using the thinking styles. The understanding of how students think can help teachers in using different instructional styles on teaching-learning process. From the statement above, the researcher assumes that it is a very important thing to the teacher to understand their student's thinking style well. The teacher should not be selfish in teaching learning process in the classroom, just explain and do not want to understand what is the students need in the learning process. Every child is born with the ability of think differently, by way of the teacher must know and understand the characteristics of its students well. The teacher must be able to establish good communication with their students so that the teacher can understand how the characteristics of their student easily and know what their students need at learning process happen. By understanding the student's thinking style the teacher can use method teaching which appropriates to their student's thinking style in order to the students can improve their personal ability and get a better achievement. So, the student's thinking style has the important role in achieving of English achievement

because through of the thinking style of the students, the students will motivate their self to learn English and finally they will get English achievement well.

Based on the observation that has been done in VIII G of MTs Negeri 6 Boyolali. The researcher is interested to do the research about the correlation between student's thinking style and student's English achievement. The reasons why the researcher chooses MTs Negeri 6 Boyolali are; Firstly, based on the observation that has been done by the researcher, it can be seen that the eight students of MTs Negeri 6 Boyolali have characteristics. It can be seen from before the English lesson begins, the students learn English material was learned last week. Before start the lesson, the teacher usually review the material that learned last week by asking some questions about the material that learned last week. So, the students are afraid if they cannot answer the questions from the teacher and then they will get a bad score. Students learn with their teamates and they also bring dictionary to make it easy to learn. Secondly, MTs Negeri 6 Boyolali is a favorite junior high school in Boyolali. This school has many students, there is religion subject beside formal subject. Every morning before teaching-learning process the teachers and students read the holy Al-Qur'an. On the other hand, the students in MTs Negeri 6 Boyolali have a good score in English lesson.

Based on the explanation above, the researcher assumes that the relationship between thinking style and English achievement is strongly related. Therefore, the researcher is interested in studying whether there is a correlation between thinking style and English achievement. The title of this

study is **"A Correlation Study between Dominant Student's Thinking Style in Learning and English Achievement of the second year students of MTs Negeri 6 Boyolali in academic year 2017/2018".**

B. Problem Identification

From the background of the study above, the researcher can identify some problems as follows:

1. There is the dominant thinking style that students at MTs Negeri 6 Boyolali in the academic year of 2017/2018 use in learning.
2. The student's thinking style of students in MTs Negeri 6 Boyolali in the academic year of 2017/2018 has the role in achieving of English achievement.
3. There are factors influences of thinking style that students have of MTs Negeri 6 Boyolali in the academic year of 2017/2018 uses in the learning process.
4. The dominant student's thinking style correlates to their English achievement.

C. Problem Limitation

To avoid the extended of the discussion in this research, the researcher will limit the scope of the research. The researcher will limit the problem into the restricted field because of the very limited problem ability to identify the entire problem easily. The study of this research will focus on the correlation between the dominant student's thinking style and English achievement of the second year students of MTs Negeri 6 Boyolali in academic year 2017/2018.

The researcher's subject is the second year students of MTs Negeri 6 Boyolali. The study is correlation and focuses on two variable e.g. student's thinking style and English achievement.

D. The Problem Statement

Based on the background of the study and the problem identification above, the researcher formulates the problem into following questions:

1. What is the dominant student's thinking style of students of MTs Negeri 6 Boyolali in academic year 2017/2018 used in learning?
2. Is there a positive correlation between the dominant student's thinking style in learning and English achievement of the second year students of MTs Negeri 6 Boyolali in academic year 2017/2018?

E. The Objective of the Study

Objectives of the study is the important part of the research because the objective will be the application of the research result. Concerning with the problem statements, this study has some objectives described as follows:

1. To know the dominant student's thinking style of the second year students of MTs Negeri 6 Boyolali in academic year 2017/2018.
2. To know whether there is a positive correlation between the dominant student's thinking style in learning and English achievement of the second year students of MTs Negeri 6 Boyolali in the academic year 2017/2018.

F. The Benefit of the Study

From this study, it is expected that the result of the research can give a contribution to the language teaching and learning activity in relation to the English Achievement.

1. Theoretical Benefit

   The researcher hopes that this research can be beneficially for knowing whether there is a positive correlation between the dominant student's thinking style and English achievement of the second year students of MTs Negeri 6 Boyolali in academic year 2017/2018.

2. Practical Benefit

   a. For the teacher

      1) To help the teacher to know about their thinking style and their student's English Achievement.
      2) To help the teacher to use the method teaching which is appropriate with their student's thinking style.

   b. For the students

      1) To help the students in understanding about their personality of thinking style.
      2) To help the students to motivate themselves in learning English and to increase their English Achievement.

G. The Definition of Key Term

1. Thinking Style

Harrison & Bramson (in Golian, 1999:1) stated that thinking style is an interactive mix of inherited tendencies and conditioned responses to early behavioral experiences as a result of each person favors a particular method of thinking.

2. English Achievement

Achievement is something done successfully, with effort and skill (Hornby, 1987: 8). On the other hand, Arifin (2013:12) defines that achievement used as the instrument to interpret the students result in their learning process.

3. Correlation Research

Schunk (2012:12) defines that correlation research deals with exploring relations that exist between variable. Correlation research helps to clarify relations among variables.

CHAPTER II

REVIEW ON RELATED LITERATURE

In this chapter contains the theoretical background that is related with this research. This chapter will describe the thinking style and English achievement. It is also provide rationale and hypothesis formulated based on both theories.

A. English Achievement

1. The Definition of English Achievement

The success of learning process is the student comprehend the material given by the teacher clearly. A good achievement means that students reach the goal as standardized by curriculum for each subject the student learned. Test or evaluation is used to measure how far the student's ability based on four skills of English that given in the classroom.

According to Evans (2007:24) defines that achievement is the student ability in computations and solving problem, which can normally be measured by written tests. Meanwhile, According to Arifin (2013:12) defines achievement used as an instrument to interpret the students result in their learning process. The teacher can measure and evaluate the learning goal of each subject based on students achievement. Not only for teacher, students and their parents also used

achievement as media to evaluate and represent the student's development of their learning process.

Achievement determines students success in learning. To see how far students have learned in their learning or to know the student's achievement in the learning process, the teacher can see it through their achievement test. The achievement commonly is designed in the scores by testing scores or teacher' marks as the achievement test.

Brown (2004:47) defines that achievement test is related directly to classroom lessons, units or even a total curriculum. Achievement test is (or should be) limited to particular material addressed in a curriculum within a particular time frame and are offered after a course has focused on the objectives in questions. Achievement test is used to evaluate the effectiveness of instructional programs and to identify students with learning disability. The purpose of the achievement test is to see the effectiveness of the learning process is going to their students. Its mean that achievement test is the result of the learning process. In learning English, the student has English achievement after he has studied English Lesson. When the value of their achievement well it means they are capable and successful in understanding the learning material presented by the teacher in the classroom with good. The students who have low achievement means they have not been able to understand the learning material well and usually the teacher will give the remedial test in order to the students can get achievement well.

From the explanation above, the researcher concludes that English achievement is students result according to their effort and skill in the learning process for each subject they have learned based on standardized that created in instruction of the learning. The learner will learn how to reach achievement on their learning depend on what and how they understand the material. It can be assumed that achievement is given a result of a measurement of evaluation after following the learning process.

2. The Indicators of English Achievement

The indicators of English achievement are language skills and elements of language. Studying English is studying functional skills and the elements of English language. The students will get English achievement and mastery English language if the students can understand the functional skills and elements of English language well. The elements are used to express the functional skills of language.

1) Language skills

Language skill consists of listening, speaking, reading and writing.

a. Listening

Rost (2001:1) defines that listening is a topic that has increasing personal relevance to each of us. Rost (2011:2) listening is essentially a transient and invisible process that cannot be observed directly and we need indirect descriptions, analogies and

metaphor to describe it. Rost (2011:2-3) listening as a process of receiving what the speaker actually says, listening as a process of constructing and representing meaning, listening as a process of negotiating meaning with the speaker and responding and listening as the process of creating meaning through involvement, imagination and empathy.

b. Speaking

Speaking is a productive skill that can be directly and empirically observed; those observation are invariably colored by the accuracy and effectiveness of a test-taker's listening skill, which necessarily compromises the reability and validity of an oral production test Brown (2003:140). In terms of speaking, this is the learner's ability to use language strategies to compensate for gaps in skill and knowledge (Nunan, 2005:46). It consists of producing systematic measure students' speaking achievement by student's conversation, speech, telling, story and other skill.

c. 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 is a book that is the medium (Brown 2003:118). On the other hand, reading is a set of skills that involves making sense and deriving meaning from the printed word (Nunan

2005:69). 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.

d. 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 Brown (2003:218). Thus, writing is a combination of process and product Nunan (2005:98). 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.

2) Language Elements

Language elements consist of grammar and vocabulary.

a. Grammar

Scrivener (2009:252) defined four meanings of grammar first, grammar is rules about sentence formation, tenses, verb patterns, etc. Second, the moment by moment structuring of what we say as it is being spoken, third, exercise (fill in the gap, multiple

choice, etc) about tenses and forth, our internal database as to what are possible or impossible sentences.

b. Vocabulary

Huckin (1997:5) stated that vocabulary is central to language and of critical importance to the typical language learner.

3. The Kinds of Achievement

Sudjana (2009:22) says that the student's learning achievement can be divided into 3 categories. The first is the student's achievement in the cognitive domain that is customarily called as academic achievement. The second is the student's achievement in the affective domain and the last is the psychomotor domain. Benjamin S. Bloom (in Arifin, 2012:21), explains that cognitive domain is the understanding, comprehending, application, analysis, synthesis, and evaluation. Affective domain is behavioral pattern concerning feeling and attitude like: receiving, responding, valuing, organizing, and characterizing. While, the psychomotor domain is dealing with sensory controlling in doing movement the achieve some goals.

In achievement evaluation, Sudjana (1995:23) stated that the aspect that will be measured is cognitive domain and the last two domains (affective and psychomotor) are not involved in the achievement test construction. For the sake of further test instruction, the aspects of co-cognitive domain employed are:

1) Knowledge-memory

In this aspect a person will be required to know the concept,

facts or terms regardless the meaning or use. He/she should memorize or remember the concept, facts, or terms. Sudjana (1995:23) says that based on the learning process, this type is as a foundation because it is needed or to be prerequisite for the next types of learning result.

2) Comprehension-understanding

It is an aspect in which a student is determined to comprehend and to understand the concept and the significance.

3) Application-use

It is the aspect in which the students are required to be able to use and apply what they have known to the new situation.

4) Analysis-identifying

In this aspect, students are required to be able to discuss further and to analyze a new situation and concept based on the previous elements.

5) Synthesis-construction

The ability to construct something new and to make the conclusion based on the separate elements.

6) Evaluation

In this aspect, a person is required to evaluate a situation, statement, and concept based on certain criteria.

4. The Factors that Influence the Achievement

According to Syah (1995:132), there are some factors that influencing the success of student's learning, They are external factors, internal factors and approach to learning factors. He says further that the external factors are factors commit coming user from outside the learner, that is the condition of the environment around the learners. The internal factors are the factors coming from the learners themselves. The internal factors involve physiological and psychological factors. The physiological factors concern with the learner's body, like the health of the learners. The health of the learners can influence the spirit and the intensity of the learners in attending the instruction. The psychological factors cover motivation, attitude, talent, intelligence, interest. While the approach to learning factors are the efforts of the learner in learning to involve method and strategy used by the learners to carry out the learning activity. The factors that can influence the achievement can be explained, as follows:

1) External factors

a. Environment factors

Environment can be nature and social. Nature environment is like air temperature, and humidity study in the fresh air will get better result than in the hot and stuffy air. Social environment is relationship between a person and his or her family, also a person and the society.

b. Instrumental factor

The instrumental factor is a factor that its existence and usage have been planned, it is appropriate to the study result that is hoped. It is such as the building, the facility, and class or school administration. Factors that are hoped can bring to the better result.

2) Internal factors

a. Physiology factor

Physiology condition generally, such as body health will influence to the achievement. The healthy and fresh body will receive information easily from the teacher. It is different from the student whose body is not healthy, so his or her achievement will be less.

b. Psychology Factor

Actually, Everyone has different psychology condition. The difference can influence the achievement. Psychology factors that be considered influence the achievement are:

a) Motivation

Motivation can encourage students in learning. Motivation can be intrinsic or extrinsic. In cognitive perspective, instrinsic motivation is more significant than extrinsic motivation. Motivation is psychology condition which motives someone to study. Therefore, improving student motivation is important to

reach the maximal achievement.

b) Attitude

Positive attitude toward teacher and course gives good impacts in learning process. On the contrary, negative attitude toward teacher and course appears difficulty of learning.

c) Talent

Talent is the factor that has big influence on the achievement. If someone studies in the case that is suitable with his or her talent, so the possibility of his or her success is bigger.

d) Intelligence

Intelligence has big role in determining one's success to study something. Generally, the intelligent person is more able to study. One's intelligence usually can measure by using certain tool, while the result of measuring is reflected in numbers that show intelligence comparative. It is well know as Intelligence Quotient (IQ) of each student, so the teacher can suppose the right action that will be given to the student.

e) Interest

If someone is not interested to study something, he or she will not be hoped that he or she can success well. But, the other way, if someone is interested to study something, so his or her achievement will be better.

3) Approach to learning factors

Students who are familiar apply deep approach, have opportunity to achieve top grade achievement better than who apply surface approach in learning.

From the explanation above, we know that there are many factors that influence achievement. In this study, the researcher chose psychological factors in influencing the achievement that is interesting.

B. Thinking Style in Learning

1. The Definition of Learning

Hergenhahn & Olson (2008:2) said that learning is one of the most important topics in psychology today, but the concept is difficult to define. American Heritage Dictionary (in Hergenhah & Olson, 2008:2) defines that learning to gain knowledge, comprehension or mastery through experience or study. Reber (in Syah, 1995:91) defines that learning as a relatively permanent change in the behavior potential that occurs as a result of reinforced practice. Others by B.F Skinner (in Hergenhahn & Olson, 2008:4) stated that learning is something that happens as a result or consequence of experience and precedes changes in behavior. From the theory above it can be concluded that learning is something that happens as a result of knowledge and experience of study.

Schunk (2012:2) stated that learning involves acquiring and modifying knowledge, skills, strategies, beliefs, attitudes, and behavior. Schunk (2012:15) stated that learning often is assessed based on students'

written responses on test, quizzes, homework, terms papers and reports. Based on the level of mastery indicated in the responses, teachers decide whether adequate learning has taken place of whether an additional instruction is needed because students do not fully comprehend the material.

From the theory above it can be concluded that learning not only getting knowledge but also modifying the knowledge itself and elaborated it into student's internal factor in learning. Learning is the process that involves not only the practice but also other forms of experiences.

Learning is the process of changes the important component in education. The effective result of learning are understand, getting knowledge, beliefs, values, attitudes and behavior or skill. It means that the success or failure in reaching the goal of education and target teaching depends on the learning process. Learning is not simple process. It must make the learner being able to do what they have learned. Learning needs time to make the successful learning can be achieved.

Some parents considered that learning process is the activities of collecting data and memorizing words in the forms of information on the lessons. They assume that their children successful on learning process when their children have been able to mention orally the information that they get from school.

From the explanation above, the researcher concludes that learning is the activities to make learner getting new experience and knowledge

from the study that modifying the learner to be able to apply their knowledge in their life because they have really understood it.

2. The Definition of Thinking Style

Thinking about something will improve an individual's ability to communicate and improve their skill ability to reach success. Thinking is the activity or method of mind process to resolve the problem. Everyone in the world has different style to thinking about something. Style of thinking means step, method or way that people use to thinking something which tends to use their ability in certain way.

Harrison & Bramson (1984) states that the technical name for the style of thinking is InQ mode or inquiring mode. Inquiring modes are basic sets of purposive methods for making sense of the world. They are built on early-acquired preferences, on learned values, on concepts about the world and the nature of reality. They conclude that there are five distinct style of thinking that is the synthesis, idealist, pragmatist, analysist and realist to understanding personal ability. Harrison & Bramson (in Golian, 1999:1) stated that thinking style is an interactive mix of inherited tendencies and conditioned responses to early behavioral experiences as a result of each person favors a particular method of thinking.

From the explanation above the researcher concludes that thinking style is the activity or method of mind process to thinking about something which tends to uses their ability is a certain way and as result of each person method of thinking.

1) The Kind of Thinking Style

Harrison & Bramson (in Golian, 1999:2) categorize thinking style in the five dimensions of thinking are as follows:

a. Synthesis Thinking

A dimension of thinking associates with concentrating on underlying assumptions and abstract ideas. The orientation of synthesis thinkers is focused on integration while their behavior is often views as challenging. To be a synthesis thinker is to be someone who tends to be interested in conflict and use it to make creativity they will often ask a question "what if" which they already know the answer only to get the respondent to open up. Synthesis thinker likes to speculate about new ideas and concepts.

b. Idealist Thinking

A dimension of thinking associated with focusing on process, aspiration and values. The orientation of idealist thinkers is focused on assimilation while their behavior is often viewed as receptive. Idealist tends to take a much longer view of things. They tend to be the greater planner of thinking about the future and planning more. Idealist thinker also tends to be very receptive listeners. They are more interests in people and feeling, but they are not interests in listening to a lot of data or facts.

c. Pragmatist Thinking

A dimension of thinking associated with examining problems within their situation context. The orientation of pragmatist

thinkers is focused on payoff while their behavior is often viewed as adaptive and incremental. Pragmatist tinker tends to be less predictable that people who prefer other styles of thinking. They are apt to be interested in formulating strategies and tactics for getting things done. Pragmatist tends to be very creative and innovative.

d. Analyst Thinking

A dimension of thinking associated with abstracting facts into theories and problem solving approaches. The orientation is focused on method while behavior is often viewed as perceptive and logical. They tend to have a theory about everything in the world. Their basic strategies are the methodology and the scientific method. They feel that clarity can be gained by looking at something when it is written down.

e. Realist Thinking

A dimension of thinking associated with emphasizing available resources and apprehend able facts. The orientation of realist thinkers is focused on the task as hand while their behavior is often viewed as empirical and objective. They like things concrete which can tell them about the world. They always want to get things done by proceeding on the facts that are at hand, rather than by gathering more data.

Harrison & Bramson (in Lubbe, 2005:269) stated that the most productive thinkers may simply be those who are capable of thinking

well in all five dimensions. He further stated that the synthesist and idealist style are strongly oriented toward the value side of the dichotomy or substantive rationality while the analysist and realist approaches are clearly more oriented toward facts or formal, functional rationality. The pragmatist, contingent approach either bridges the gap between the two or perhaps ignore the question altogether.

Kienholz (in Lubbe, 2005:269) states that the synthesist and idealist inquiring substantive, value oriented way thinking and knowing, while the analysist and realist are functional and fact oriented. The summary of thinking style types can be seen in the table below.

Table 2.1 The summary of thinking style

Thinking Style	Characteristic	Strengths	Behavioral clue	Dislikes
Synthesist	Interested in change and conflict	Focuses on underlying assumption	Argumentative	Talk that seems too simplistic
Idealist	Interested in values	Focus on process and relationship	Hopeful	Talk that seems too factual
Pragmatist	Interested in innovation	Focus on payoffs	Enthusiastic	Talk that seems too humorless, dry
Analysist	Interested in scientific solutions	Focus on method and plan	Stubborn	Talk that seems irrational, aimless
Realist	Interested in concrete result	Focus on fact and result	forthright	Talk that seems too sentimental

2) Combined of Thinking Style

Harrison & Bramson (in Lubbe, 2005:267) reveal that no individual thinks with purely one style. Most people show preferences for a single and some show equal preferences for two style. Harrison & Bramson (1984) categorize multiple thinking styles as follows:

a. Idealist-Analyst (I-A) Thinker

Idealist-Analyst (I-A) thinker are careful, thoughtful and comprehensive view. They are the people who want to achieve the ideal goal using the best method possible.

b. Analyst-Realist (A-R) Thinker

Analyst-Realist (A-R) thinker is highly task oriented and the objective of problem. They like facts and structures approach to resolve the problems. They are interesting to find the best methods to resolves the problems. They do not like situations that defy analysis and when confronts with such situations they tend are unable to cope.

c. Synthesist-Idealist (S-I) Thinker

The Synthesist-Idealist (S-I) Thinker will tend to focus on ideas and inferences rather than structure and facts. They are perceived as conceptualizes and theories by other individuals and therefore not very practical.

d. Idealist-Realist (I-R) Thinker

The Idealist-Realist thinker is characterizes by the twin thrust of high standards and concreteness. They know how things should be

done and also have the skill set to carry them out. They do not seek a lot of recognition for their effort.

e. Pragmatist-Realist (P-R) Thinker

Pragmatist-Realist thinker is highly task oriented but approaches things in a fewer structures manner then the analyst-realist. They tend to have considerable energy and achieve things solely for the makes of achievement. They tend to make quick decisions with the minimal amount of data.

f. Idealist-Pragmatist (I-P) Thinker

The Idealist-Pragmatist thinker is typical of someone who gains agreement on goals and then tolerates a great deal of latitude in the method. They have a great concern for people's issues and people's needs.

g. Analyst-Pragmatist (A-P) Thinker

The Analyst-Pragmatist thinker likes facts and structures although they are willing to experiment. They know what they want and how to get there but want to have fun along the way.

h. Analyst-Synthesist (A-S) Thinker

The Analyst-Synthesist thinker respects structure and logic. The analyst style seems to be more dominant in this combination most of the time. Whereas the Analyst respects structure and logic, the synthesist understands and values the opposite. This can be the source of great internal conflict and a profound lack of

understanding by people around them. They sometimes can be very difficult to listen but have a lot to contribute.

i. Synthesist-Pragmatist (S-P) Thinker

The Synthesist-Pramatist thinker shows the greats tolerance for change. They strive on ambiguity and uncertainty. They have develops mechanisms to deal with both. Their thinking style generates tremendous amount of creativity.

j. Synthesist-Realist (S-R) Thinker

The Synthesist-Realist thinker is a person with great energy for achieving something. They can see clearly what the proper course is and also see that the opposite ways is just as acceptable.

k. Three Way Thinker.

The people who have posse strong preferences for three of five styles tend to be more creative. This is flows from the idea that they have more thinking style available to them.

l. Flat Profile Thinker

The rarest of thinking style preferences is a person who shsows no preferences for any specific style. This is where the InQ test shows a relatively equal score for all five thinking style. These people tend to be unpredictable, less intense and less recognizable then people with strong preferences for other styles. They tend to be very adaptable to a situation but also tend not be leaders.

C. Previous Study

There is research in concerning on English Achievement which have conducted by the other researchers. What are mentioned below will explain about the finding of those research.

The first is Fandra Nur Cahyono, a student of English education, Islamic Education and Teacher Training Faculty of IAIN Surakarta in 2016. He conducted a research entitled "A Correlation Study between Student's Learning Style and English achievement at the eight grade students of MTs Negeri Gondangrejo in the academic year of 2015/2016". The aim of the study is to determine the correlation between student's learning style and English achievement of eight grade students of MTs Negeri Gondangrejo in the academic year of 2015/2016. The population of this research was the eight grade students of MTs Negeri Gondangrejo. The sample was 79 students from VIII B and VIII G. The result of this research is the r_{xy} obtained is higher than r_{table} (0.776 > 0.227) for level significance 0.05. It means there is a significant positive correlation between student's learning style and English achievement of Eight grade students of MTs Negeri Gondangrejo.

The difference between this research is in the independent variable. The similarity of both research is in the dependent research that is English achievement.

The second is Viona Rosalina, a student of English education, Islamic Education and Teacher Training Faculty of Syarif Hidayatullah State Islamic University Jakarta in 2014. She conducted a research entitled "The

Relationship Between Students' Motivation and Their English Learning Achievement". The aim of the study is to find out the correlation between students' motivation and their English learning achievement at the second grade of SMAN 3 TANGSEL in academic year 2013/2014. The population of this research was the eight grade students of SMAN 3 TANGSEL. The sample was 31 students from XI Science 4 class. The result of this research is the r_{xy} obtained is lower than r_{table} (0.143 > 0.355) for level significance 0.05. It means there is a significant negative correlation between students' motivation and English learning achievement of Eight grade students of SMAN 3 TANGSEL in academic year 2013/2014.

The difference between this research is in the independent variable. The similarity of both research is in the dependent research that is English achievement.

The third is Abozar Heydari Rafat, Ali Enayati Novinfar, Hossein Ostad, and Akbar Hadayati, the student of Department of Educational Management and Planning of University Tehran, Iran in 2011. They have conducted a research entitled "Study of the relationship between thinking style and achievement motivation of students". The population of this research is the students Faculty of Psychology and Educational Sciences Tehran University with 1321 students. The sample was 135 (36 male, 99 female). The result of this study indicated in the level of significance $\alpha = 0.05$ relationship between thinking style and student achievement in motivation.

The difference between this research is in the dependent variable. The similarity of both research is in the independent research that is student thinking style.

The fourth, Rekesh Harypursat, Sam Lubbe, and Rembrandt Klopper. The students of Information System and Technology of University KwaZulu-Natal, Durban, South Africa. They have conducted a research entitled "The Thinking Style of a Group of Information System and Technology Students". The aim of the study is to determine the thinking style of IT students in relation to the marks they obtain. The population of this research is all second year Information System and Technology students with 230 students. The sample was 144 students. The result of the research is there is a positive relationship between the style of thinking and the student's examination marks. The strongest relationships exist between the synthesist and pragmatist style of thinking and their relevant examination marks.

The difference between this research is in the dependent variable. The similarity of both research is in the independent research that is student thinking style.

D. Rationale

Learning the English language as a foreign language is not easy for each student. It needs some good method to make the students English language easily. Studying English language means study about four skill language, which is speaking, listening, reading and writing. To get better English achievement, the student should mastery all the English skill.

Students have an English achievement after they have learned English language. To know how the result of the study, The teacher will give the student's achievement test. The purpose of the achievement test is to measure the students' English achievement. The result of achievement test is depending to how the teacher teaches and how the student learn. Achievement determines student success in learning, if the value of their achievement well it means they are capable and successful in understanding the learning material presented by the teacher in the classroom with good. The student who have low achievement means they have not been able to understand the learning material well.

The method of teaching is a manner the teacher teaches to their students in the classroom. The using of method teaching should pay attention first to the ability of student's thinking. Because of that, the teachers can use method teaching that appropriates with their student's ability. The ability of thinking of every student is different. How the students think about something is determined how their thinking style. Harrison & Bramson (1984) categorize thinking style in five style thinker. That five thinking style is the synthesis, idealist, pragmatist, analyst, and realist. Each a style thinker has a different method thinking and different characteristic.

Student's thinking style has the important role in the student's achievement because through of the thinking style of the students, the students will motivate their self to learn English and finally they will get English achievement well. The teacher should be closed with their students, by way of the teacher can understand the characteristics and the ability of their student

easily. So, the teacher can use methods teaching that appropriates with their student's ability of thinking and the student can improve their personal ability well. Therefore, the researcher assumes that there is a positive correlation between the dominant students' thinking style in learning and English achievement.

E. Hypothesis

There are two hypotheses in this research. The alternative hypothesis of this research are (Ha) and Null hypothesis (Ho). The alternative hypothesis (Ha) means that there is a positive correlation between the dominant students' thinking style in learning (X) and English achievement (Y). The Null hypothesis (Ho) means that there is no positive correlation between the dominant students' thinking style in learning (X) and English achievement (Y). The hypothesis of the study can be formulated as follows:

1. Ha: There is a positive correlation between the dominant students' thinking style in learning (X) and English achievement (Y).
2. Ho: There is no a positive correlation between the dominant students' thinking style in learning (X) and English achievement (Y).

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the research method; place and time of the study; population, sample, and sampling; technique of collecting the data; and technique of analyzing the data. To get the clearer view of the matters above, each of the items is elaborated in the following descriptions.

A. Research Design

This research applies a quantitative correlation research which studies the correlation between two variables. Schunk (2012:12) defines that correlation research deals with exploring relations that exist between variables. Correlation research helps to clarity relations among variables. The correlation research has a goal of finding whether there is a correlation between one variable and another or not. This research has a goal of finding whether there is a correlation between the dominant student's thinking style in learning and English achievement or not. The reason of choosing the method is the researcher wants to know the strength of the relation of two variables based on correlation coefficient. In this research, the researcher examines two variables, namely:

1. Independent variables

   Sugiyono (2013:61) states that independent variable is the variable which influences the other variable or causes of change or emergence of

the dependent variable. The independent variable in this study in student's thinking style of MTs Negeri 6 Boyolali (X).

2. Dependent variable

Sugiyono (2013:61) states that dependent variable is the variable which influenced of the independent variable. Referring to the definition, the dependent variable in this study is student's English achievement of MTs Negeri 6 Boyolali (Y).

The correlation between two variables can be seen below:

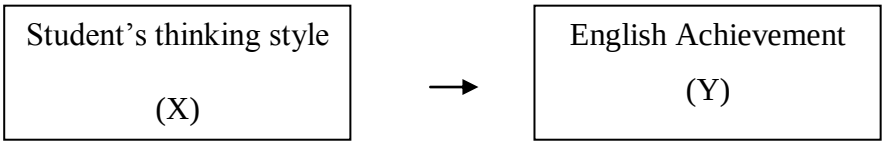

Figure 3.1 The correlation between student's thinking style (X) and English achievement (Y)

B. Setting of Place and Time of the Research

a. Setting of place

This research was carried out at MTs Negeri 6 Boyolali. MTs Negeri 6 Boyolali is one of the islamic junior high school in Boyolali. MTs Negeri 6 Boyolali located at Jl. Waduk cenglik, Ngesrep, Ngemplak, Boyolali, in Central Java, Zip Code 57375. The headmaster of MTs Negeri 6 now is Drs. H. Nurhidayah Solichin. There are some facilities in the school which can motivate the students in their learning and support their learning activities. They are library, a computer laboratory which

connected to the internet, natural sciences laboratory, 25 classroom, canteen, bathroom, language laboratory, mosque, park and much more.

b. Setting of times

The researcher was conducted the research from January up to May 2018 at MTs Negeri 6 Boyolali in the academic year of 2017/2018. There are eighth classes in eight grade; they are VIII A, VIII B, VIII C, VIII D, VIII E, VIII F, VIII G, VIII H.

Table 3.1 The time schedule of the research

No	Activities	Month in 2017/2018							
		11	12	1	2	3	4	5	6
1.	Proposing the title proposal								
2.	Writing the proposal								
3.	Consulting the proposal								
4.	Making the blueprint and the instruments								
5.	Seminar Proposal								
6.	Consulting the proposal and the instrument.								
7.	Conducting and scoring the questionnaire								
8.	Analyzing the data and writing the thesis								
9.	Consulting the thesis								
10.	Report and submitted chapter IV and V								

C. The Population, Sampling and Sample of the Research

1. The Population of Research

Sugiyono (2013:117) defines that population is the generalization that composed of the subject or object that has certain qualities and characteristics of the applied researcher to learn and then be concluded. The population of the research is the second grade students of MTs Negeri 6 Boyolali in academic year 2017/2018 that consist of regular class and excellent class. The students of MTs Negeri 6 Boyolali in academic year 2017/2018 consist 299 students.

Table 3.2 List of population

No.	**Class**		**Number**
1.	Regular	VIII A	36
2.		VIII B	39
3.		VIII C	40
4.		VIII D	40
5.		VIII E	39
6.		VIII F	38
7.		VIII G	40
8.	Excellent	VIII H	27
Total			299

2. The Sample of the Research

Sugiyono (2013:118) define that sample is part of total and characteristic which own by population. Creswell (2012:142) defines that a sample is a subgroup of the target population that the researcher plans to study for generalizing about the target population. In this research, the researcher took 36 students from 299 students as a sample.

3. The Sampling of the Research

Sugiyono (2013:118) defines that sampling is technique of taking sample. There are eight classes in the population. In this study, the researcher uses multi-stage random sampling to choose the sample of the data. In this study, the researcher will take one class among eight class. The steps of selecting the classes as the sample are below:

1. Stage 1 use cluster random sampling:
    a. Making a list of all classes of the second grade students of MTs Negeri 6 Boyolali in academic year 2017/2018 which consisting of regular class and excellent class.
    b. Give each class a code.
    c. Write down each code of the class on a piece a paper.
    d. Rolling the piace paper well.
    e. Putting the rolled paper into a box
    f. Shaking and taking one rolled paper randomly from the box. From the cluster random sampling the classes was chosen the regular class.
2. Stage 2 use cluster random sampling:
    a. Making a list of all classes of the Regular class of MTs Negeri 6 Boyolali in academic year 2017/2018 which consisting of seven class.
    b. Give each class a code.
    c. Write down each code of the class on a piece a paper.
    d. Rolling the piace paper well.

e. Putting the rolled paper into a box

f. Shaking and taking one rolled paper randomly from the box. From those steps, the classes chosen was VIII A consists of 36 Students.

D. The Technique of Collecting Data

Before analyzing the data, the researcher collects the data to carry out the research. The main components of the technique of collecting the data are follows:

1. The instruments of collecting the data

   a. Questionnaire

      Sugiyono (2013:199) defines that questionnaire is technique of collecting data which done by giving questions or instrument written to the respondent. In this research, the researcher used closed-typed questionnaire in collecting the data about student's thinking styles. It is a questionnaire which answer the questions are provided so that the respondents only choose the suitable one in the answer by giving the checklist (√). In collecting data about the student's thinking style the researcher uses question refers to the indicators traits of thinking style such as how to do the task (the orientation from characteristic and strengths), behavioral clues (the orientation from interest of thing). based on the summary of theory of thinking style from Harrison & Bramson (1984).

      The researcher used the Likert Scale as a method of summated ratings the questionnaire data. A Likert Scale use to asses attitudes,

opinion, perception toward a topic research. It presents a number of positive and negative statements regarding the attitude of respondents. In responding to the items on these scales, the respondents indicate whether they always, often, sometime or never to respond each statement. The score ranges from 1 to 4 can be seen at the table below:

Table 3.3 The way to score the questionnaire

Positive Statement	Score	Negative Statement
Always (selalu)	4	Never (tidak pernah)
Often (sering)	3	Sometime (kadang-kadang)
Sometime (kadang-kadang)	2	Often (sering)
Never (tidak pernah)	1	Always (selalu)

From the table above it can be described that if the students choose positive statement with always mean that students get score 4 and if the student has a commitment to answer the statement honestly then students sure to choose the negative statement with always too, to bucked the positive statement. If the students choose often in the positive statement and sometimes in the negative statement, it means that the students get score 3. If the students choose sometimes in the positive statement and choose often in the negative statement it means the student get score 2. And if the student chooses never in the positive statement and choose always in the negative statement it means that the students get score 1. The blueprint of thinking style can be seen in the table below.

Table 3.4 The blueprint of thinking style

Concept	Type of thinking style	Indicators				Total
		How to do the task		Behavioral clues		
		(+)	(-)	(+)	(-)	
Thinking style is the activity or method of mind process to thinking about something which tends to uses their ability.	Synthesist	1, 3	2	15	16	5
	Idealist	4	5,6	17, 19	18, 20	7
	Pragmatist	7	8, 9	21	22	5
	Analyst	10, 12	11	24	23, 25	6
	Realist	14	13	26, 27	28	5
Total						28

Based on the table above, the researcher has provided 28 items of thinking style questionnaire. Each item based on indicators available. The indicator consisted of how to do the task and behavioral clues. Synthesist consisted of five items, idealist consisted of seven items, pragmatist consisted five items, analysist consisted of six items and realist consisted of five items.

b. Documentation

Sugiyono (2013:329) defines that documentation is the transcript of past event. It can be transcript, images, books, etc. In the other word, it can be stated that documentation is used to collect data through printed materials. Documentation provides the researcher with information that is used to support the available data of student's English achievement.

In collecting the data of English achievement of this research by using document, the researcher took the score from book report resulted from the English semester examination. The researcher was taken the result score of English first semester examination of class. The researcher was taken the score from book report to know result score of students' English achievement. The researcher got the data from the second grade English teacher of MTs Negeri 6 Boyolali.

2. Try-out of the instrument

Try-out of the instrument needed to conduct try-out for the research instruments before it is used to take the data of the sample. Try-out is used to know what extent the validity and reliability of the instrument since good instruments have to be valid and reliable. The try-out instrument was tried out to 40 students of one class (VIII D) which have not chosen as the sample of the study. To know the validity result of the try-out instrument, it can be seen in appendix 6.

a. The Validity of the Instruments

Validity is an instrument that used to measure the level of validity of instrument (Sugiyono, 2013:172). The instrument is valid when the result r_{xy} are greater then r_{table} or $r_{xy} > r_{table}$. To measure the validity of the try out of instrument, the researcher using *Pearson Product Moment* formula as follows:

$$r_{xy} = \frac{N\sum XY - (\sum x)(\sum y)}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y^2 - (\sum Y)^2\}}}$$

Where:

r_{xy} = The coefficient of the correlation between X and Y

N = The number of the students

$\sum X$ = The sum of the scores of each item

$\sum Y$ = The sum of the scores of each student

b. The Reliability of the Instrument

Reliability of the questionnaire indicates the stability of the questionnaire score when it is used to collect the data. Sugiyono (2013:185) to measure the reliability of student's thinking style questionaire, the researcher uses split half technique of spearman Brown *(split half).* The formula is follow:

$$r_{11} = \frac{2(r_{xy})}{1+r_{xy)}}$$

Where:

r_{11} : The coefficient of reliability

r_{xy} : The coefficient of correlation between X and Y

Calculation research if the value of the r_{11} of the instrument is higher then the t_{tables}, it means that the instrument is reliable. To know the result reliable of the try-out instrument, it can be seen in appendix 7. Classified reliabilities coefficient can be seen based in the table:

Table 3.5 interpretation of r_{11} for Realiability Test

Value of interval	Correlation
0.000-0.199	Very low
0.200-0.399	Low
0.400-0.599	Enough
0.600-0.799	High
0.800-1.000	Very high

E. The Technique of Analyzing the Data

Before the research analyzing the other data of the variables, the first step is analyzing the questionnaire. The step to analyze the questionnaire are:

1. The data has been gooten from the questionnaire which has been answered by the students.
2. Score classification based on the option aswer are:

Positive Statement	Score	Negative Statement
Always (selalu)	4	Never (tidak pernah)
Often (sering)	3	Sometime (kadang-kadang)
Sometime (kadang-kadang)	2	Often (sering)
Never (tidak pernah)	1	Always (selalu)

After collecting the data, the next step is analyzing the data to know whether there is a positive correlation between the dominant students' thinking style in learning and English achievement.

In this research, the researcher will use some technique analyzing data, they are as follows:

1. Description of the Data

The researcher presented the mean, range, mode, median and standard deviation of the sample as follow:

a. Mean

Mean is the average value of a data group. It is gained from summing up all individual data of the group and dividing it by the total of the individual (Arikunto, 2006:150).

$$\text{Me} : \frac{\sum X}{n}$$

Where:

Me = Mean

$\sum$X = The total of value

N = The total of the individuals

b. Range

Range is the gap between the highest and the lowest value in a data group. It is gained by subtracting the highest value with the lowest value (Arikunto, 2006:152).

$$\text{R: } X_t - X_r$$

Where:

R = Range

X_t = The highest value

X_r = The lowest value

c. Mode

Mode is the most frequent value of a data group. It is gained by counting the similar data and finding the highest (Arikunto, 2006:166).

$$Mo = u + \left[\frac{Fa}{Fa+Fb}\right]$$

Where:

u = Limitation interval class with the highest frequency

Fa = Frequency on modus class (frequency on the highest interval class less the closest interval class before)

Fb = Modus class frequency – the next interval class

d. Median

Median is the central value of data group. It is gained by picking the middle value of the data ranged from the lowest to the highest or inversely (Arikunto, 2006:168).

$$\text{Md} : \text{b} + \left[\frac{\frac{1}{2}n - F}{f}\right]$$

Where:

Md = Median

b = Lower Limit

n = Respondents

F = The total of frequency before median class

f = Median Frequency

e. Standard Deviation

Standard deviation is the distance of an individual value from the mean (Arikunto, 2006:170).

$$S : \sqrt{\frac{\sum fx^2 - \frac{(\sum fx)^2}{n}}{n-1}}$$

Where:

S = Standard deviation

n = Total of sample

fx = Total of independent score

2. Prerequisite Test

There are major prerequisite tests for the data to enter linear regression analysis:

a. Normality test

Normality is aims to know whether the data come from normal distribution or not. To check the normality of the variable, the researcher using manual computation based on liliefors method with the procedure below:

a) Test statistic

L : maks $F(z_i)$-$S(z_i)$

Where:

z_i : Standard score = $\frac{x-\bar{x}}{s}$

S : Standard deviation

b) Significance (α) = 0.05

c) Test result

The sample is in normal distribution if Lo ($F(z_i)$-$S(z_i)$) is lower than Lt.

b. Linearity test

After the normality test the next step is linearity test. Linearity test is used to know whether two variables have significant linier regression or not. This research uses simple linear regression. The computation of linearity testing of dominant

students' thinking style in learning (X) and English achievement (Y) is obtained by using *Microsoft Excell Program*. This regression is linear if the F-obtained is lower than the F-table or if the significance of F-obtained is lower than 0.05. The value of F-table is 3.32 from the total sampel is 30 students.

3. Hypothesis Testing

After doing testing the prerequisite test, the researcher will test the hypothesis between student's thinking style and student's English achievement. To test the hypothesis whether there is a positive correlation between the dominant student's thinking style and English achievement, the researcher will use *Pearson Product Moment* formula as follows:

$$r_{xy} = \frac{N\sum XY - (\sum x)(\sum y)}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y^2 - (\sum Y)^2\}}}$$

Where:

r = The coefficient of the correlation between X and Y

X = The scores of student's thinking style

Y = The scores of English achievement

N = The number os sample

There are two hypothesis in this research. There are alternative hypothesis (Ha) and Null hypothesis (Ho).

a. Ha : There is positive significant correlation between the dominant student's thinking style in learning and English achievement.

b. Ho : There is no positive significant correlation between the dominant student's thinking style in learning and English achievement.

Table 3.6 The interpretation of r value

r value	**Interpretation**
0.800-1.000	Very strong
0.600-0.799	Strong
0.400-0.599	Medium
0.200-0.399	Low
0.000-0.199	Very low (no correlation)

CHAPTER IV

RESEARCH FINDING AND DISCUSSION

A. Research Finding

In the previous chapter, the researcher conducted the research using questionnaire in VIII A class for getting the score of student's thinking style in learning. From the questionnaire test the researcher can founded the data of the dominant student's thinking style in learning. The classes consist of 36 students. Before the researcher did the research, the researcher did tryout to know the validation instrument of thinking style in VIII D that consist of 40 students. The result of validity test can be seen in appendix 6 where there are 12 items not valid and 28 items valid. After the researcher did the try out and founded the valid items of the instrument thinking style, the researcher did the research test. From the test of questionnaire thinking style, the researcher founded that there are 30 students who have the analyst thinkers. The data of the student's that have the dominant thinking style can be seen in the appendix 12.

The data of student's English achievement score, the researcher got it from the English teacher of the second years student name Mrs. Anis Mawati, S.Pd. The score is take from book report of the second year students in the academic year of 2017/2018. The score of student's English achievement took from the students who have the analyst thinking only.

The data analyzed in this research are the score of the dominant student's thinking style in learning and the student's English achievement that have the dominant student's thinking style. The data of both score can be seen in appendix 12. The obtained data for the dominant student's thinking style in learning and student's English achievement are described as follows:

1. The data of the dominant student's thinking style in learning

The data of student's thinking style is obtained questionnaire consist of 28 items. The data that is obtained that variable of the dominant student's thinking style in learning with N = 30 get minimal score 18, maximal score 24, mean score 21.5 and standard deviation score is 2.13. the second, variable of English achievement with N = 30. Score in minimal is 67 and score in maximal score is 72. Score in mean is 69,6. Score in standard deviation is 1.58. Score is the data obtained for student's thinking style and English Achievement is presented at the table 4.1.

Tabel 4.1 The descriptive statistic of the dominant student's thinking style in learning and English achievement.

Descriptive Statistics				
Variable	N	Min	Max	SD
The dominant student's thinking style in learning	30	18	24	2.13
English Achievement	30	67	72	1.58

The data of the thinking style questionnaire found the analyst thinker with 30 respondents of 36 respondents as the dominant student's thinking style in learning. The researcher was got the data score by analyze the data based on the theory from Kienholz (2000) in the chapter

III. The data of thinking style can be seen in the appendix 11 and the data of the dominant student's thinking style can be seen in the appendix 12.

Based on the research result, it is found that the high score is 24 and the lowest score is 18 with range is 6. The mean is 21.5, the median is 21.5, the mode is 24 and standard deviation is 2.13. The statistic computation of the data is as follows:

1. The highest score is 24
2. The lowest score is 18
3. Range is 24 - 18 = 6
4. The number of classes

   Formula : 1 + 3.3 log.n

   : 1+ 3.3 (1.48) = 5.9, 6 is used

5. Find the class width (interval)

   Interval $= \frac{the\ highest\ score - the\ lowest\ score}{the\ number\ of\ classes}$

   $= \frac{24-18}{6} = 1$

6. Mean

   Me $= \frac{\sum X}{n}$

   $= \frac{645}{30} = 21.5$

7. Median

   Individual score:

   18 18 19 19 19 19 19 19 20 20 20 21 21 21 21 22 22 23 23 23 23 23 24 24 24 24 24 24 24 24

The midpoint or median is $\frac{21 + 22}{2} = 21.5$

8. Mode

Mode is the most frequent value of a data group. In the data the value which appears most frequently is 24.

Skor	Frequency
18	2
19	6
20	3
21	4
22	2
23	5
24	8
Total	30

9. Standard Deviation

$$S = \sqrt{\frac{\sum fx^2 - \frac{(\sum fx)^2}{n}}{n-1}}$$

$$= \sqrt{\frac{13999 - \frac{(645)^2}{30}}{30-1}}$$

$$= \sqrt{\frac{13999 - \frac{416025}{30}}{29}}$$

$$= \sqrt{\frac{13999 - 13867,5}{29}}$$

$$= \sqrt{\frac{131,5}{29}}$$

$$= \sqrt{4.53448} = 2.13$$

The frequency distribution of the score can be seen in the table 4.2 and the histogram can be seen at the figure 4.1.

Table 4.2 The frequency distribution of the score the dominant student's thinking style in learning

Skor	Frequency	Percentage	Comulative percent
18	2	6.7	6.7
19	6	20	26.7
20	3	10	36.7
21	4	13.3	50
22	2	6.7	56.7
23	5	16.7	73.3
24	8	26.7	100
Total	30	100	

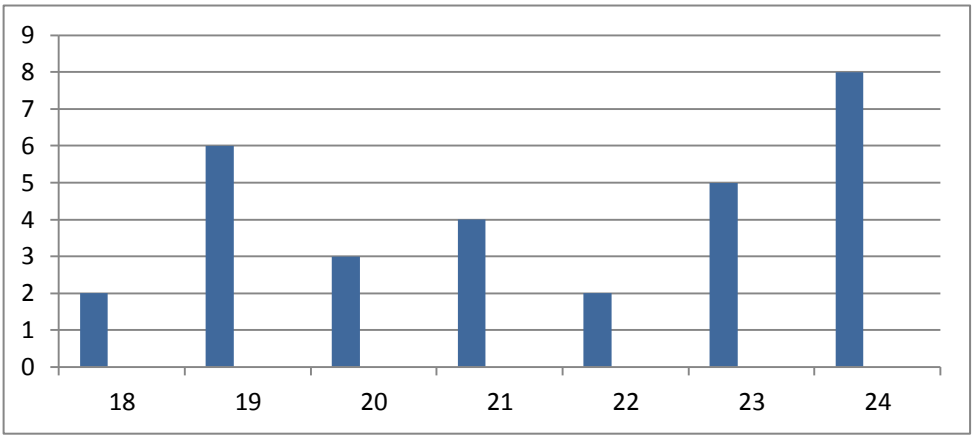

Figure 4.1 The histogram of the dominant student's thinking style

From the table and histogram above, it can be described that there are 2 students get score 18 and 22, there are 6 students get score 19, there are 3 students get score 20, there are 4 students get score 21, there are 5 students get score 23 and there are 8 students get score 24.

2. The Data of English Achievement

The researcher took the student's English achievement score who have the analyst thinkers as the dominant student's thinking style in learning only. The data of English achievement score can be seen in appendix 10 and the data score of student's English achievement who have analyst thinkers can be seen in appendix 12. From the book report found that highest score is score is 72 and the lowest score is 67 with the range is 5. From the computation the data founded that mean score is 69.6, the median score is 69.7, the mode is 68.5 and the standard deviation score is 1.58. the statistical computation of the data is as follow:

1. The highest score is 72
2. The lowest score is 67
3. Range is 72 - 67 = 5
4. The number of classes

   Formula : 1 + 3.3 log n

   : 1 + 3.3 log (1.48) = 5.9, 6 is used
5. Find the class width (interval)

   Interval $= \frac{the\ highest\ score - the\ lowest\ score}{the\ number\ of\ classes}$

   $= \frac{72-67}{6}$

   $= \frac{72-67}{6}$ = 0.8, 1 is used
6. Mean

   Me $: \frac{\sum Y}{n}$

$$: \frac{2090}{30} = 69.6$$

7. Median

Class	Frequency
67	2
68	7
69	5
70	6
71	5
72	5
Total	30

$$Md = b + \left[\frac{\frac{1}{2}n - F}{f}\right]$$

$$= 69.5 + \left[\frac{15-14}{6}\right]$$

$$= 69.7$$

8. Mode

Class	Frequency
67	2
68	7
69	5
70	6
71	5
72	5
Total	30

The highest frequency = 68

Fa = 7 – 2 = 5

Fb = 7 – 5 = 2

u = 68 – 0.5 = 67.5

$$Mo = u + \left[\frac{Fa}{Fa+Fb}\right]$$

$$= 67.5 + \left[\frac{5}{5+2}\right]$$

$$= 68.5$$

9. Standard Deviation

$$S = \sqrt{\frac{\sum fx^2 - \frac{(\sum fx)^2}{n}}{n-1}}$$

$$= \sqrt{\frac{145676 - \frac{(2090)^2}{30}}{30-1}}$$

$$= \sqrt{\frac{145676-145603.3}{29}}$$

$$= \sqrt{\frac{72.7}{29}}$$

$$= \sqrt{2.50689655}$$

$$= 1.58$$

The frequency distribution of the score can be seen in the table 4.3 and the histogram can be seen at figure 4.2.

Table 4.3 The frequency distribution of the score of student's English achievement of the dominant student's thinking style

Class Limit	Frequency	Percentage	Commulative Percent
67	2	6.7	6.7
68	7	23.3	30
69	5	16.7	46.7
70	6	20	66.7
71	5	16.7	83.3
72	5	16.7	100
Total	30	100	

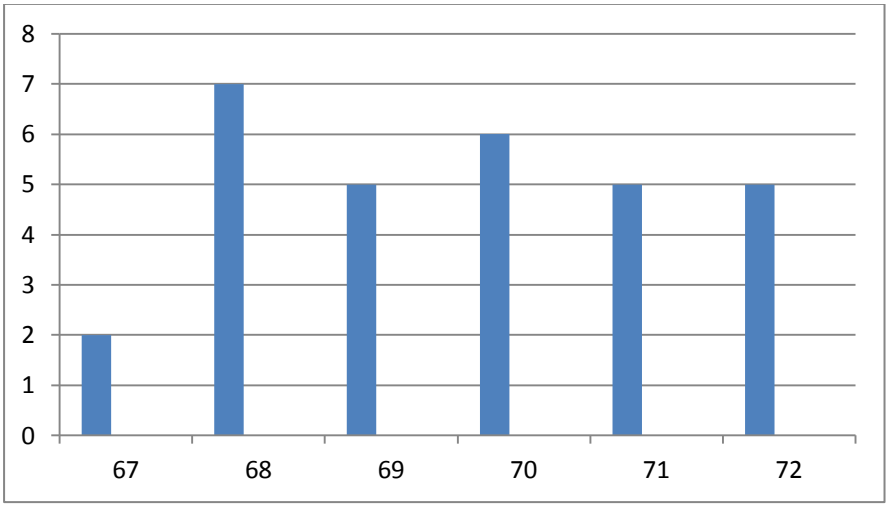

Figure 4.2 The histogram of student's English achievement of the dominant student's thinking style in learning.

From the table and the histogram above it can be describe that the result score of English achievement of the students is reach KKN the value is 67. There are 2 students who get score 67, There are 7 students who get score 68, There are 5 students who get score 69, There are 6 students who get score 70, There are 5 students who get score 71, and there are 5 students who get score 72.

B. The Testing of Prerequirement Analysis

The characteristic of the data the research determines the techniques of analyzing the data. Before analyzing the data, it is necessary to examine the data. The examinantion covers normality and linearity.

1. Normality Test

Normality test is one of the perquisite tests before entering the linear regression analysis, that is used to know whether the data come from normal distribution or not. In this research, the normality test was analyzed using manual computation by using *lilliefors* method. The computation analysis can be seen at appendix 13 and 14. Accepting or rejecting the data according to the result of the significant value and L stands for *lilliefors* with $\alpha = 0.05$. The distribution of the data is in normal distribution if Lo < Lt, conversely if Lo > Lt means that the distribution of the data is not normal. The summary of normality test result of each variable can be seen at the table 4.4.

Table 4.4 The summary of normality test

No.	Variable	N	L_{obt}	L_{table}	α	Conclusion
1	The dominant student's thinking style	30	0.153	0.161	0.05	Normal
2	English achievement	30	0.159	0.161	0.05	Normal

Based on the computation on the normality test, the distribution of the data is normal distribution because the Lo value of the dominant student's thinking style in learning is lower than Lt or 0.153 < 0.161. the Lo value of the English achievement is lower than Lt or 0.159 < 0.161.

2. Linearity Test

Linearity test used to know whether two variables have significant linear regression or not. The computation of linearity analysis can be seen in appendix 15.

The summary of linearity test results can be seen in the following table.

Table.4.5 The linearity test

Test	Fo	Ft	Linearity
Linearity test between the dominant student's thinking style in learning and English achievement.	2.39	3.32	Linear

The computation of linearity testing the dominant student's thinking style in learning (X) and English achievement (Y) shows that the value $F_{obtained}$ is 2.39. The value of F_t for N = 30 at the level of significant $\alpha = 0.05$ is . It can be seen that $F_{Obtained}$ is lower than F_{Table} or Fo (2.39) < Ft (3.32), it means that the regression between the dominant student's thinking style in learning and English achievement is linear regression. Linearity correlation between the dominant student's thinking style (X) and student's English achievement (Y).

C. Hypothesis Test

After doing testing prerequisite test and test shows that the data are in normal distribution and the regression is linear. The researcher can continue to test hypothesis testing of the research stated on the previous study. The researcher tests the null hypothesis (Ho) against the alternative hypothesis (Ha). As described that if $r_{xy} > r_{table}$ means there is a correlation between X

and Y variables, the null hypothesis (Ho) will be rejected and alternative hypothesis (Ha) will be accepted. Then, if $r_{xy} < r_{table}$ means there is no correlation between X and Y variables, the alternative hypothesis will be rejected and null hypothesis will be accepted. The list of the students' score can be read in the table below:

Table 4.6 The hypothesis test

N	X	Y	X^2	Y^2	XY
1	22	68	484	4624	1496
2	21	69	441	4761	1449
3	20	71	400	5041	1420
4	24	72	576	5184	1728
5	23	70	529	4900	1610
6	23	71	529	5041	1633
7	24	72	576	5184	1728
8	18	68	324	4624	1224
9	19	67	361	4489	1273
10	24	72	576	5184	1728
11	20	68	400	4624	1360
12	19	68	361	4624	1292
13	24	72	576	5184	1728
14	24	70	576	4900	1680
15	19	67	361	4489	1273
16	24	71	576	5041	1704
17	18	68	324	4624	1224
18	21	70	441	4900	1470
19	20	69	400	4761	1380
20	22	68	484	4624	1496
21	23	71	529	5041	1633
22	19	69	361	4761	1311
23	24	70	576	4900	1680
24	19	69	361	4761	1311
25	23	72	529	5184	1656
26	21	70	441	4900	1470
27	19	68	361	4624	1292
28	21	69	441	4761	1449
29	23	70	529	4900	1610

30	24	71	576	5041	1704
∑	645	2090	13999	145676	45012

The statistic number entered to the pearson product moment:

$$r_{xy} = \frac{N\sum XY-(\sum x)(\sum y)}{\sqrt{\{N\sum X^2-(\sum X)^2\}\{N\sum Y^2-(\sum Y)^2\}}}$$

$$= \frac{30.45012-(645)(2090)}{\sqrt{\{30.13999-(645)^2\}\{30.145676-(2090)^2\}}}$$

$$= \frac{1350360-1348050}{\sqrt{\{419970-416025\}\{4370280-4368100\}}}$$

$$= \frac{2310}{\sqrt{\{3945\}\{2180\}}}$$

$$= \frac{2310}{\sqrt{8600100}}$$

$$= \frac{2310}{2932.59}$$

= 0.787

Based on the calculation of the hypothesis testing, it is gotten that the r_{xy} is 0.787, the r_{table} with N = 30 and the significant 5% is 0.361. So it can be compared that r_{xy} is higher than r_{table} (0.787 > 0.361). Based on the result analysis above, it can be stated that the null hypothesis or Ho is rejected and the alternative hypothesis or Ha is accepted. The conclusion of hypothesis testing is that there is a positive correlation between the dominant student's thinking style in learning (X) and English achuevement (Y).

D. The Discussion of Research Finding

1. The dominant Student's Thinking Style

The data obtained from the questionnaire test of thinking style is presented that there are two student who have idealist-analyst thinkers

(5.5%). There are two students who have idealist thinkers (5.5%). There are thirty students who have analyst thinkers (83.4%) and there is one student who has pragmatist thinker and neutral thinker (2.7%). So, the dominant student's thinking style used by students in learning is analyst thinking. Analyst thinking is a dimension of thinking associated with abstracting facts into theories and problem solving approaches. The orientation is focused on method while behavior is often viewed as perceptive and logical. They tend to have a theory about everything in the world. Their basic strategies are the methodology and the scientific method. They feel that clarity can be gained by looking at something when it is written down. The data result of student's thinking style can be seen in appendix 11.

The data of dominant student's style is the maximal score is 24 and the minimal score is 18. The mean is 21.5. The mode or value in a set data which appears most frequently of the data is 24. The median or midpoint score of the data is 21.5.Standard deviation or distance of individual value from mean of the data is 2.13.

The data of English achievement is gotten from the book raport of the second year students 2017/2018. The researcher took the student's English achievement score who have the analyst thinkers as the dominant student's thinking style in learning only. The maximal score is 72 and the minimal score is 67. The mean is 69.6. The mode or value in a set data which appears most frequently of the data is 68.5. The median or midpoint score of the data is 69.7. Standard deviation or distance of

individual value from mean of the data is 1.58. it means that English achievement reached KKM value 67.

The researcher concluded that the students are able to master the English lesson. It means that learning English language has been well presented by the teacher when teaching and learning process in the classroom. The greater English achievement means the effectiveness of learning outcomes is increasing.

2. The correlation between the dominant student's style in learning and English achievement

The result of the hypothesis test shows that there is a positive correlation between the dominant student's style in learning and English achievement. Ha is accepted and Ho is rejected. It can be proved from the product moment correlation test result that $r_{xy} > r_{table}$ (0.787 > 0.361) for level significant 0.05. This means that the student who have higher the analyst thinking as the dominant student's style in learning, have higher the student's English achievement outcomes. It means that there is positive correlation between the dominant student's style in learning (analyst thinking) and English achievement of the second year students of MTs Negeri 6 Boyolali in the academic year of 2017/2018.

Thinking style is the activity or method of mid process to thinking about something which tendency to uses their ability in certain way. The thinking style found to affect the student's learning behavior. Zhang in Lubbe Sam (2005:271) states that the styles of thinking contribute to students' academic achievement beyond what can be explained by

abilities. He also found that teachers could increase students' creativity by using the thinking style. The understanding of how students think can help teachers in using different instructional styles on teaching learning process.

From statement above, the researcher assumes that the students who have different thinking style preferences would have differently in the way they do work in learning. Since the learner differ in their preference to the certain thinking style, it will be important to the teacher to know the variations of their students on the features the students thinking style. By understanding their students thinking style, the teacher can use method of teaching that appropriate with their students thinking style. If the students and teachers are working together to fulfill those caharacteristic, it mean that the high thinking style involves and high English achievement can achieved greater that before.

In this research the dominant thinking style that students used in learning is analyst thinking. The students who have analyst thinker are to do work by considering on the many theory. Their basic stategies are the methodology and the scientific method. A dimension of thinking associated with abstracting facts into theories and problem solving approaches. The orientation is focused on method while behavior is often viewed as perceptive and logical. They feel that clarity can be gained by looking at something when it is written down.

3. The contributrion of the Dominant Student's Thinking Style toward Students English Achievement.

This research proves that the analyst thinking is one factors that contributes to the student's English achievement. Based on the result of the hypothesis testing, it can be concluded that the dominant student's thinking style in learning contributes to student's to English achievement. In other words, there is a positive correlation between the dominant student's style in learning and English achievement.

To identify the contribution of the dominant students's thinking style in learning towards English achievement, the researcher use the coefficient of determination (R2). The coefficient of the determination if gotten from (r_{xy}^2) x 100% = $(0.787)^2$ x 100% = 61.9%. It means the 61.9% variance of English achievement is contributed by the dominant students' thinking in learning while the other 38.1% (100% - 61.9%) of the students English achievement determined by the others factor that are not discussed in this study.

CHAPTER V

CONCLUSION, IMPLICATION AND RECOMMENDATION

A. Conclusion

Based on the description of the data in the previous chapter that has been described, the researcher concluded that the first, the dominant student's thinking style that students uses in learning of the students of the second year students of academic 2017/2018 is analyst thinking. Analyst thinking is a dimension of thinking associated with abstracting facts into theories and problem solving approaches. The orientation is focused on method while behavior is often viewed as perceptive and logical. They tend to have a theory about everything in the world. The highest score is 24 and the lower score is 18. The average of the dominant student's thinking style in learning or analyst thinking of the second year students of MTs Negeri 6 Boyolali in academic year 2017/2018 is 21.5, the mode is 24, the median is 21.5 and the standard deviation is 2.13. It can be seen from the contribution that it gives to English achievement. The coefficient of determination between the dominant student's thinking style in learning or analyst thinking is 61.9%. It means that 61.9% of the variances in English achievement is influenced by student's thinking style while the other is 38.1% contributes by other factors.

The second, there is a positive correlation between the dominant student's thinking style in learning and English achievement of the second

year students of MTs Negeri 6 Boyolali in the academic year of 2017/2018. It can be seen from the r_{xy} obtained is higher then r_{table} (0.787 > 0.361) for level significance 0.05. it mean that the students which have higher analyst thinking have higher in the English achievement.

B. Implication

The implication of this research is there is a need to increase the student's English achievement. The teacher should can understanding each student type of thinking style, So the teacher can use method teaching that appropriate with their thinking style. In this research, the dominant students thinking style is analyst thinking. Analyst thinking focused on method while behavior is often viewed as perceptive and logical. They tend to have a theory about everything in the world. Increasing many theory in the teaching learning process is the way to increase the ability of thinking of the analyst thinker and hopefully that the English learning will be more effective. Therefore, the English achievement of the students will be increased. However, the researcher cannot disregard the other factor that also improve the students English achievement.

C. Recommendation

Based on the conclusion above, it can be suggested as follows:

1. Recommendation for English Teacher
    a. The teacher should identify what are the caharacteristic of each their students use in learning process. It can help the teacher to teach their students that appropriate with their students characteristic when teaching learning process in the classroom.

b. The teacher should group the students according to their type of thinking style and match the teaching styles with their students thinking style in order to get the better achievement.

2. Recommendation for school

a. Schools are suggested to have well qualified libraries by providing the students with good and varied book which can improve English achievement for the students. The well qualified libraries are expected to be able to motivate the students to increase their khowledge and skill in English.

b. Schools are suggested to make the extracurriculer of English language that make the students can be active using the English language in the daily activities. So the students can increase their skill of English language and mastery English language well. Finallt, the students can get English achievement well.

3. Recommendation for students

a. Recommended that students should do overcome the learning difficulties that arise in their learning process.

b. The student must be active in teaching and learning process and in daily activities to increase their English language to get English achievement well.

4. Recommendation for Futher Research

The further research on English achievement might focuss on another factor such as intelligence, attitude, motivation, learning

environment, teaching method, which might influence the English achievement.

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APPENDICES

Appendix 1

LIST OF STUDENTS JOINING THE TRY-OUT

SISWA KELAS VIII D

MTs NEGERI NGEMPLAK BOYOLALI

TAHUN PELAJARAN 2017/2018

NO.	NAMA	L/P
1.	AN	P
2.	AAA	L
3.	AA	L
4.	ADNR	L
5.	AKA	P
6.	AHK	L
7.	CDM	P
8.	DJTA	L
9.	DS	P
10.	DM	P
11.	DNH	P
12.	ENN	L
13.	FTNS	L
14.	FBS	L
15.	GAS	L
16.	HA	P
17.	HFI	P
18.	HNA	P
19.	HBS	L
20.	IAA	L
21.	IAS	L
22.	INH	L
23.	LF	P
24.	MM	L
25.	MKF	P
26.	MYK	L
27.	MANS	L
28.	MFS	L
29.	MTM	L
30.	NEN	P
31.	NFA	P
32.	PF	P
33.	RBP	L
34.	RAP	P
35.	SIW	P
36.	SNI	P
37.	TL	P
38.	WFA	L
39.	WL	P
40.	W	L

Appendix 2

LIST OF STUDENTS JOINING THE TEST

SISWA KELAS VIII A

MTs NEGERI NGEMPLAK BOYOLALI

TAHUN PELAJARAN 2017/2018

NO.	NAMA	L/P
1.	AIP	L
2.	ACFM	L
3.	ATH	L
4.	AYP	P
5.	ANR	P
6.	AS	L
7.	AAR	P
8.	ANAM	P
9.	CAP	P
10.	DSK	L
11.	DW	P
12.	EKRP	P
13.	FV	P
14.	HFHTP	L
15.	IBP	L
16.	IHJ	P
17.	IZM	P
18.	LW	P
19.	MPH	P
20.	MCAS	L
21.	MHAM	L
22.	MRS	L
23.	MSS	L
24.	NRM	P
25.	R	P
26.	RAR	L
27.	RH	L
28.	RYP	L
29.	RH	L
30.	SMAP	P
31.	SW	L
32.	SK	P
VA	VA	L
34.	WR	L
35.	YENS	P
36.	ZT	P

Appendix 3

The Blueprint of Tried-Out the Research Instrument of Thinking Style

Concept	Type of thinking style	Indicators				Total
		How to do the task		Behavioral clues		
		(+)	(-)	(+)	(-)	
Thinking style is the activity or method of mind process to thinking about something which tends to uses their ability.	Synthesist	1, 3	2, 4	21, 23	22, 24	8
	Idealist	5,7	6,8	25, 27	26, 28	8
	Pragmatist	9, 11	10, 12	29, 31	30, 32	8
	Analyst	13, 15	14, 16	33, 55	34, 36	8
	Realist	17, 19	18, 20	37, 39	38, 40	8
Total						40

Appendix 4

The Questionnaire of Thinking Style Tried-out

Nama : .....

Kelas : .....

No : .....

Petunjuk pengisian :

1. Jawablah pertanyaan-pertanyaan dibawah ini dengan jujur.
2. Berikan tanda checklist (√) pada jawaban yang anda anggap paling benar.

No	Pertanyaan	Selalu	Sering	Kadang-Kadang	Tidak Pernah
1.	Saya menemukan ide atau konsep baru dari masalah yang sudah saya hadapi.				
2.	Saya tidak menemukan ide atau konsep baru dari masalah yang sudah saya hadapi.				
3.	Saya mengerjakan tugas dengan kemampuan saya sendiri.				
4.	Saya mengerjakan tugas dengan meniru pekerjaan teman saya.				
5.	Saya mengerjakan tugas dengan menganalisa terlebih dahulu.				
6.	Saya mengerjakan tugas dengan tidak menganalisa terlebih dahulu.				

7.	Saya suka menyelesaikan tugas dengan mengikuti petunjuk dalam panduan daripada pemikiran saya sendiri.				
8.	Saya suka menyelesaikan tugas dengan pemikiran saya sendiri daripada mengikuti petunjuk dalam panduan				
9.	Saya menggunakan strategi dalam mengerjakan tugas.				
10.	Saya tidak pernah menggunakan strategi dalam mengerjakan tugas.				
11.	Saya mengerjakan tugas dengan santai yang penting selesai.				
12.	Saya mengerjakan tugas dengan tergesa-gesa yang penting cepat selesai.				
13.	Saya mengerjakan tugas berdasarkan teori yang sudah saya pahami dari buku.				
14.	Saya mengerjakan tugas tidak berdasarkan teori yang sudah saya pahami dari dalam buku.				
15.	Saya mengerjakan tugas sesuai dengan teori yang ada dalam buku pelajaran.				
16.	Saya mengerjakan tugas tidak sesuai dengan teori yang ada dalam buku pelajaran.				
17.	Saya mengerjakan tugas sesuai				

	dengan fakta dan pemikiran saya sendiri.				
18.	Saya mengerjakan tugas tidak sesuai dengan fakta dan pemikiran saya sendiri.				
19.	Saya menyelesaikan masalah dengan pengalaman yang pernah saya alami daripada teori.				
20.	Saya menyelesaikan masalah sesuai dengan teori yang sudah saya pahami.				
21.	Saya tidak suka dengan hal-hal yang sederhana dan mudah dilakukan.				
22.	Saya suka dengan hal-hal yang sederhana dan mudah dilakukan.				
23.	Saya suka berdebat atau menyanggah pendapat orang lain yang berbeda dengan pendapat saya.				
24.	Saya tidak suka berdebat atau menyanggah pendapat orang lain yang berbeda dengan pendapat saya.				
25.	Saya suka membuat rencana terlebih dahulu sebelum melakukan sesuatu.				
26.	Saya tidak suka membuat rencana terlebih dahulu sebelum melakukan sesuatu.				

27.	Saya mencari pendapat solusi dari teman saya ketika saya menghadapi masalah.				
28.	Saya tidak pernah mencari pendapat solusi dari teman saya ketika saya menghadapi masalah.				
29.	Saya suka menggunakan cara yang instan karena mudah dan cepat.				
30.	Saya tidak suka menggunakan cara yang instan karena mudah dan cepat.				
31.	Saya bisa mengerjakan tugas dalam situasi kelas yang ramai.				
32.	Saya tidak bisa mengerjakan tugas dalam situasi kelas yang ramai.				
33.	Saya suka membaca buku.				
34.	Saya tidak suka membaca buku.				
35.	Saya pribadi akan berusaha menunjukan alasan atau penjelasan ketika saya menjawab soal.				
36.	Saya pribadi tidak perlu menunjukan alasan atau penjelasan ketika saya menjawab soal.				
37.	Saya tidak suka dengan orang yang tidak mempunyai tujuan yang jelas.				

38.	Saya suka dengan orang yang tidak mempunyai tujuan yang jelas.				
39.	Saya selalu memperbaiki jawaban yang salah dengan menuliskan jawaban yang benar yang sesuai dengan penjelasan oleh guru.				
40.	Saya tidak memperbaiki jawaban yang salah dengan menuliskan jawaban yang benar yang sesuai dengan penjelasan oleh guru.				

Appendix 5

TEST OF VALIDITY

The calculation below is the example in order to get the validity of item number 1:

Validity test of Thinking Style (X)

N	X1	Y	$X1^2$	Y^2	X.Y
1	4	102	16	10404	408
2	2	113	4	12769	226
3	4	121	16	14641	484
4	3	127	9	16129	381
5	3	127	9	16129	381
6	2	103	4	10609	206
7	3	126	9	15876	378
8	2	103	4	10609	206
9	3	110	9	12100	330
10	2	107	4	11449	214
11	3	115	9	13225	345
12	2	109	4	11881	218
13	4	112	16	12544	448
14	3	109	9	11881	327
15	4	132	16	17424	528
16	2	100	4	10000	200
17	1	103	1	10609	103
18	2	114	4	12996	228
19	2	95	4	9025	190
20	3	111	9	12321	333
21	4	102	16	10404	408
22	2	104	4	10816	208
23	3	117	9	13689	351

24	4	123	16	15129	492
25	2	113	4	12769	226
26	2	115	4	13225	230
27	2	106	4	11236	212
28	2	105	4	11025	210
29	4	118	16	13924	472
30	2	112	4	12544	224
31	2	124	4	15376	248
32	2	104	4	10816	208
33	4	103	16	10609	412
34	3	117	9	13689	351
35	2	108	4	11664	216
36	4	133	16	17689	532
37	4	128	16	16384	512
38	2	102	4	10404	204
39	2	103	4	10609	206
40	4	122	16	14884	488
∑	110	4498	334	509506	12544

$$r_{xy} = \frac{N\sum XY-(\sum x)(\sum y)}{\sqrt{\{N\sum X^2-(\sum X)^2\}\{N\sum Y^2-(\sum Y)^2\}}}$$

$$= \frac{40x12544-(110)(4498)}{\sqrt{\{40x334-(110)^2\}\{40x509506-(4498)^2\}}}$$

$$= \frac{501760-494780}{\sqrt{\{13360-12100\}\{20380240-20232004\}}}$$

$$= \frac{6980}{\sqrt{\{1260\}\{148236\}}}$$

$$= \frac{6980}{\sqrt{186777360}}$$

$$= \frac{6980}{13666,65}$$

= 0.510

Because r_{xy} is higher than t_{table} (0.510>0.312), is means that the item number 1 is valid.

TEST OF VALIDITY

The calculation below is the example in order to get the validity of item number 2:

Validity test of Thinking Style (X)

N	X2	Y	$X2^2$	Y^2	X.Y
1	3	102	9	10404	306
2	2	113	4	12769	226
3	4	121	16	14641	484
4	4	127	16	16129	508
5	4	127	16	16129	508
6	4	103	16	10609	412
7	3	126	9	15876	378
8	4	103	16	10609	412
9	3	110	9	12100	330
10	3	107	9	11449	321
11	3	115	9	13225	345
12	3	109	9	11881	327
13	3	112	9	12544	336
14	3	109	9	11881	327
15	3	132	9	17424	396
16	3	100	9	10000	300
17	3	103	9	10609	309
18	3	114	9	12996	342
19	2	95	4	9025	190
20	4	111	16	12321	444
21	3	102	9	10404	306
22	2	104	4	10816	208
23	3	117	9	13689	351
24	3	123	9	15129	369
25	3	113	9	12769	339

26	3	115	9	13225	345
27	3	106	9	11236	318
28	3	105	9	11025	315
29	3	118	9	13924	354
30	3	112	9	12544	336
31	4	124	16	15376	496
32	3	104	9	10816	312
33	2	103	4	10609	206
34	3	117	9	13689	351
35	3	108	9	11664	324
36	3	133	9	17689	399
37	3	128	9	16384	384
38	1	102	1	10404	102
39	3	103	9	10609	309
40	4	122	16	14884	488
∑	122	4498	388	509506	13813

$$r_{xy} = \frac{N\sum XY-(\sum x)(\sum y)}{\sqrt{\{N\sum X^2-(\sum X)^2\}\{N\sum Y^2-(\sum Y)^2\}}}$$

$$= \frac{40.13813-(122)(4498)}{\sqrt{\{40.388-(122)^2\}\{40.509506-(4498)^2\}}}$$

$$= \frac{552520-548756}{\sqrt{\{15520-14884\}\{20380240-20232004\}}}$$

$$= \frac{3764}{\sqrt{\{636\}\{148236\}}}$$

$$= \frac{3764}{\sqrt{94278096}}$$

$$= \frac{3764}{9709,69}$$

$$= 0.387$$

Because r_{xy} is higher than t_{table} (0.387>0.312), is means that the item number 2 is valid.

TEST OF VALIDITY

The calculation below is the example in order to get the validity of item number 3:

Validity test of Thinking Style (X)

N	X3	Y	$X3^2$	Y^2	X.Y
1	2	102	4	10404	204
2	3	113	9	12769	339
3	2	121	4	14641	242
4	2	127	4	16129	254
5	2	127	4	16129	254
6	2	103	4	10609	206
7	2	126	4	15876	252
8	2	103	4	10609	206
9	3	110	9	12100	330
10	4	107	16	11449	428
11	2	115	4	13225	230
12	2	109	4	11881	218
13	2	112	4	12544	224
14	3	109	9	11881	327
15	4	132	16	17424	528
16	2	100	4	10000	200
17	2	103	4	10609	206
18	2	114	4	12996	228
19	2	95	4	9025	190
20	2	111	4	12321	222
21	2	102	4	10404	204
22	3	104	9	10816	312
23	3	117	9	13689	351
24	4	123	16	15129	492
25	3	113	9	12769	339

26	3	115	9	13225	345
27	2	106	4	11236	212
28	3	105	9	11025	315
29	2	118	4	13924	236
30	3	112	9	12544	336
31	4	124	16	15376	496
32	4	104	16	10816	416
33	4	103	16	10609	412
34	3	117	9	13689	351
35	3	108	9	11664	324
36	4	133	16	17689	532
37	4	128	16	16384	512
38	2	102	4	10404	204
39	2	103	4	10609	206
40	3	122	9	14884	366
∑	108	4498	316	509506	12249

$$r_{xy} = \frac{N\sum XY-(\sum x)(\sum y)}{\sqrt{\{N\sum X^2-(\sum X)^2\}\{N\sum Y^2-(\sum Y)^2\}}}$$

$$= \frac{40.12249-(108)(4498)}{\sqrt{\{40.316-(108)^2\}\{40.509506-(4498)^2\}}}$$

$$= \frac{489960-485784}{\sqrt{\{12640-11664\}\{20380240-20232004\}}}$$

$$= \frac{4176}{\sqrt{\{976\}\{148236\}}}$$

$$= \frac{4176}{\sqrt{144678336}}$$

$$= \frac{4176}{12028.23}$$

$$= 0.347$$

Because r_{xy} is higher than t_{table} (0.347>0.312), is means that the item number 3 is valid.

TEST OF VALIDITY

The calculation below is the example in order to get the validity of item number 4:

Validity test of Thinking Style (X)

N	X4	Y	$X4^2$	Y^2	X.Y
1	1	102	1	10404	102
2	3	113	9	12769	339
3	3	121	9	14641	363
4	3	127	9	16129	381
5	1	127	1	16129	127
6	4	103	16	10609	412
7	3	126	9	15876	378
8	3	103	9	10609	309
9	3	110	9	12100	330
10	3	107	9	11449	321
11	3	115	9	13225	345
12	2	109	4	11881	218
13	3	112	9	12544	336
14	3	109	9	11881	327
15	3	132	9	17424	396
16	0	100	0	10000	0
17	2	103	4	10609	206
18	3	114	9	12996	342
19	2	95	4	9025	190
20	3	111	9	12321	333
21	3	102	9	10404	306
22	3	104	9	10816	312
23	3	117	9	13689	351
24	3	123	9	15129	369
25	3	113	9	12769	339

26	4	115	16	13225	460
27	2	106	4	11236	212
28	3	105	9	11025	315
29	3	118	9	13924	354
30	3	112	9	12544	336
31	3	124	9	15376	372
32	3	104	9	10816	312
33	2	103	4	10609	206
34	3	117	9	13689	351
35	3	108	9	11664	324
36	3	133	9	17689	399
37	3	128	9	16384	384
38	3	102	9	10404	306
39	3	103	9	10609	309
40	3	122	9	14884	366
∑	110	4498	324	509506	12438

$$r_{xy} = \frac{N\sum XY-(\sum x)(\sum y)}{\sqrt{\{N\sum X^2-(\sum X)^2\}\{N\sum Y^2-(\sum Y)^2\}}}$$

$$= \frac{40.12438-(110)(4498)}{\sqrt{\{40.324-(110)^2\}\{40.509506-(4498)^2\}}}$$

$$= \frac{497520-494780}{\sqrt{\{12960-12100\}\{20380240-20232004\}}}$$

$$= \frac{2740}{\sqrt{\{860\}\{148236\}}}$$

$$= \frac{2740}{\sqrt{127482960}}$$

$$= \frac{2740}{11290.83}$$

$$= 0.242$$

Because r_{xy} is lower than t_{table} (0.242<0.312), is means that the item number 4 is invalid.

TEST OF VALIDITY

The calculation below is the example in order to get the validity of item number 5:

Validity test of Thinking Style (X)

N	X5	Y	$X5^2$	Y^2	X.Y
1	2	102	4	10404	204
2	3	113	9	12769	339
3	4	121	16	14641	484
4	2	127	4	16129	254
5	2	127	4	16129	254
6	3	103	9	10609	309
7	4	126	16	15876	504
8	2	103	4	10609	206
9	3	110	9	12100	330
10	2	107	4	11449	214
11	4	115	16	13225	460
12	1	109	1	11881	109
13	2	112	4	12544	224
14	4	109	16	11881	436
15	4	132	16	17424	528
16	2	100	4	10000	200
17	2	103	4	10609	206
18	2	114	4	12996	228
19	3	95	9	9025	285
20	2	111	4	12321	222
21	3	102	9	10404	306
22	3	104	9	10816	312
23	3	117	9	13689	351
24	3	123	9	15129	369
25	3	113	9	12769	339

26	3	115	9	13225	345
27	4	106	16	11236	424
28	3	105	9	11025	315
29	3	118	9	13924	354
30	2	112	4	12544	224
31	4	124	16	15376	496
32	2	104	4	10816	208
33	4	103	16	10609	412
34	3	117	9	13689	351
35	2	108	4	11664	216
36	3	133	9	17689	399
37	4	128	16	16384	512
38	2	102	4	10404	204
39	2	103	4	10609	206
40	4	122	16	14884	488
∑	113	4498	347	509506	12827

$$r_{xy} = \frac{N\sum XY-(\sum x)(\sum y)}{\sqrt{\{N\sum X^2-(\sum X)^2\}\{N\sum Y^2-(\sum Y)^2\}}}$$

$$= \frac{40.12827-(113)(4498)}{\sqrt{\{40.347-(113)^2\}\{40.509506-(4498)^2\}}}$$

$$= \frac{513080-508274}{\sqrt{13880-12769\}\{20380240-20232004\}}}$$

$$= \frac{4806}{\sqrt{\{1111\}\{148236\}}}$$

$$= \frac{4806}{\sqrt{164690196}}$$

$$= \frac{4806}{12833.16}$$

$$= 0.374$$

Because r_{xy} is lower than t_{table} (0.374>0.312), is means that the item number 5 is invalid.

Appendix 6

The Result of Validity of Thinking Style Questionnaire

No. Item	r_{xy}	R_{table} (0,05; N=40)	Adverb
1	0.510	0.312	Valid
2	0.387	0.312	Valid
3	0.347	0.312	Valid
4	0.242	0.312	Invalid
5	0.374	0.312	Valid
6	0.225	0.312	Invalid
7	0.343	0.312	Valid
8	0.449	0.312	Valid
9	0.442	0.312	Valid
10	0.399	0.312	Valid
11	-0.122	0.312	Invalid
12	0.335	0.312	Valid
13	0.365	0.312	Valid
14	0.510	0.312	Valid
15	0.423	0.312	Valid
16	0.200	0.312	Invalid
17	0.248	0.312	Invalid
18	0.449	0.312	Valid
19	0.430	0.312	Valid
20	-0.053	0.312	Invalid
21	0.343	0.312	Valid
22	-0.127	0.312	Invalid
23	0.089	0.312	Invalid
24	0.335	0.312	Valid
25	0.485	0.312	Valid
26	0.461	0.312	Valid
27	0.388	0.312	Valid
28	0.455	0.312	Valid

29	0.389	0.312	Valid
30	0.485	0.312	Valid
31	0.192	0.312	Invalid
32	0.114	0.312	Invalid
33	0.263	0.312	Invalid
34	0.324	0.312	Valid
35	0.335	0.312	Valid
36	0.341	0.312	Valid
37	0.368	0.312	Valid
38	0.209	0.312	Invalid
39	0.503	0.312	Valid
40	0.361	0.312	Valid

Number items invalid = 12

Number items valid = 28

Appendix 7

The Calculation of Reliability test

Items Scores of Odd Number of Reliability Questionnaire

N	Score of items																				Total
	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	
1	4	2	2	3	1	2	2	2	4	2	3	2	4	2	4	2	2	2	3	2	50
2	2	3	3	4	2	2	3	3	4	2	4	2	4	4	4	2	2	2	2	2	56
3	4	2	4	4	2	2	2	4	2	2	4	1	4	2	3	1	2	3	1	3	52
4	3	2	2	2	3	1	4	4	4	2	2	2	4	4	4	2	3	4	4	4	60
5	3	2	2	3	1	4	3	4	3	3	3	3	3	3	3	3	3	3	4	4	60
6	2	2	3	3	1	3	3	3	2	3	3	2	2	2	2	2	3	2	2	2	47
7	3	2	4	4	3	4	3	3	2	3	4	2	3	4	3	2	3	2	4	3	61
8	2	2	2	3	2	2	2	4	4	4	3	4	3	2	3	2	2	2	1	2	51
9	3	3	3	2	3	1	4	4	3	3	2	4	3	4	3	3	1	2	2	2	55
10	2	4	2	1	2	4	4	4	2	2	1	1	2	3	2	2	3	2	2	2	47
11	3	2	4	3	4	3	4	4	3	3	3	3	4	3	3	1	2	3	3	1	59
12	2	2	1	4	2	4	2	2	4	4	4	2	3	4	1	3	2	3	4	4	57
13	4	2	2	4	2	3	4	4	2	3	4	1	3	2	2	2	2	2	1	3	52
14	3	3	4	3	2	3	3	3	4	3	3	2	3	3	3	3	2	2	1	3	56
15	4	4	4	4	4	3	4	4	4	4	4	1	4	3	4	2	4	4	4	4	73
16	2	2	2	2	1	4	3	3	4	2	2	1	1	2	1	1	3	1	2	3	42
17	1	2	2	2	1	2	2	3	3	2	2	1	2	3	1	2	3	1	1	2	51
18	2	2	2	3	2	3	4	4	4	2	3	3	3	3	3	1	3	3	3	2	55
19	2	2	3	2	1	2	3	3	2	1	2	2	3	3	2	3	1	2	3	3	45
20	3	2	2	4	2	2	2	3	2	2	4	1	4	2	3	1	2	3	1	4	49
21	4	2	3	2	2	3	2	2	2	3	2	2	2	2	2	2	2	2	1	3	45
22	2	3	3	3	1	2	3	3	2	2	3	2	3	3	2	2	3	2	4	3	51
23	3	3	3	2	3	1	4	4	3	2	2	4	3	3	3	3	1	2	4	2	55
24	4	4	3	2	4	2	3	3	2	3	2	3	3	2	3	3	4	3	4	4	61
25	2	3	3	2	2	3	4	4	2	2	2	1	2	3	2	1	3	2	3	2	48
26	2	3	3	0	2	3	3	3	4	2	0	1	3	2	2	1	3	2	2	3	44
27	2	2	4	2	1	1	4	4	4	4	2	4	1	4	1	3	4	4	3	1	55
28	2	3	3	3	3	3	3	3	2	2	3	3	3	3	2	1	2	2	2	2	50
29	4	2	3	3	3	1	4	4	3	2	3	1	4	2	2	4	2	3	2	4	56
30	2	3	2	2	2	4	4	4	2	2	2	1	2	3	2	1	3	2	3	2	48
31	2	4	4	3	4	2	4	3	4	4	3	2	4	3	1	1	4	3	2	3	60
32	2	4	2	1	2	4	4	4	2	2	1	1	3	3	3	3	4	3	3	2	53

33	4	4	4	4	4	4	2	3	4	1	4	1	3	2	2	3	4	4	3	4	64
34	3	3	3	2	3	1	4	4	3	2	2	4	3	3	3	3	1	2	4	3	56
35	2	3	2	3	2	2	2	3	2	2	3	1	2	2	2	2	3	1	1	2	42
36	4	4	3	4	2	1	4	4	4	4	4	2	4	4	2	4	4	1	4	4	67
37	4	4	4	4	2	2	3	4	3	4	4	3	3	4	3	3	4	3	1	4	66
38	2	2	2	2	2	1	4	4	2	2	2	1	4	3	2	1	4	3	1	2	46
39	2	2	2	2	1	2	3	3	2	2	2	2	2	2	1	2	2	2	3	3	42
40	4	3	4	3	1	3	4	4	4	2	3	1	4	4	2	3	2	4	3	4	62

Items Scores of Even Number of Reliability Questionnaire

N	Score of items																				Total
	2	4	6	7	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	
1	3	1	4	3	1	1	4	3	3	4	1	2	2	4	4	1	2	2	3	3	51
2	2	3	2	4	3	3	4	3	4	2	3	2	3	4	4	2	4	2	4	2	60
3	4	3	4	4	4	4	4	4	4	3	1	3	4	4	4	1	4	4	4	4	71
4	4	3	4	3	4	4	4	4	3	3	4	4	4	3	4	1	3	4	3	4	70
5	4	1	3	4	3	4	4	4	4	3	3	3	4	4	3	3	4	2	4	4	68
6	4	4	4	2	1	4	4	4	2	3	4	2	3	3	2	3	0	2	4	3	58
7	3	3	4	4	4	3	4	4	4	3	1	2	4	4	3	3	3	3	4	4	67
8	4	3	3	2	3	2	2	2	2	1	2	2	3	2	3	3	4	3	1	4	51
9	3	3	3	3	2	3	3	3	3	3	2	2	3	3	3	3	2	2	4	2	55
10	3	3	3	3	3	3	4	4	3	1	3	2	3	4	2	2	4	2	3	3	58
11	3	3	4	4	4	3	4	4	4	3	1	3	3	4	4	2	2	3	3	1	38
12	3	2	4	2	1	2	3	3	2	3	2	3	3	2	3	3	4	1	3	4	53
13	3	3	4	3	3	3	3	3	3	3	1	2	3	3	3	3	4	3	4	4	61
14	3	3	4	4	2	2	3	3	4	2	1	2	3	4	3	3	2	3	3	3	57
15	3	3	4	4	4	3	4	4	4	2	1	4	3	4	4	4	3	2	1	4	65
16	3	0	4	4	3	3	4	4	4	3	1	1	2	4	1	2	4	3	4	4	41
17	3	2	3	2	4	4	3	2	2	3	3	1	4	4	2	3	3	3	4	3	58
18	3	3	3	3	3	3	4	4	3	2	1	3	4	3	3	3	3	3	4	3	61
19	2	2	3	3	2	3	3	3	3	3	2	2	3	3	3	4	1	2	3	3	53
20	4	3	2	4	4	4	4	4	4	4	1	3	4	3	4	1	3	3	4	4	36
21	3	3	4	3	4	3	2	4	3	3	1	2	3	3	2	3	3	3	2	2	56
22	2	3	3	2	3	3	3	3	2	3	1	2	3	3	3	4	0	2	4	3	52
23	3	3	3	4	3	3	3	3	4	3	2	2	4	3	3	3	2	3	4	3	61
24	3	3	3	3	4	3	4	3	3	4	1	3	4	4	3	3	1	3	4	4	44
25	3	3	3	3	4	3	4	4	3	1	3	2	4	2	2	4	3	4	4	3	62
26	3	4	4	4	3	4	4	4	4	3	2	2	4	4	3	2	4	3	4	4	42

27	3	2	4	2	1	4	3	4	2	3	1	4	1	3	1	2	3	3	3	2	51
28	3	3	3	3	3	2	3	3	3	2	3	2	2	3	3	2	2	3	4	3	40
29	3	3	4	2	4	4	4	0	2	0	3	3	4	4	4	4	4	4	4	4	64
30	3	3	3	3	3	3	4	4	3	1	3	2	4	2	2	4	3	4	4	3	61
31	4	3	4	4	4	3	4	3	4	2	2	3	3	4	4	2	4	4	4	4	38
32	3	3	3	3	3	3	4	4	3	1	3	3	1	2	3	2	1	3	2	4	54
33	2	2	2	2	4	2	1	3	2	1	1	4	4	2	3	1	2	1	2	4	45
34	3	3	3	4	3	3	3	3	4	3	2	2	3	3	3	3	2	3	4	3	50
35	3	3	4	4	3	4	4	3	4	3	2	1	4	4	2	3	3	3	4	3	64
36	3	3	4	4	4	4	4	4	4	1	1	1	4	4	4	3	4	4	4	4	42
37	3	3	3	3	4	3	4	4	3	2	1	3	3	4	3	3	4	3	4	4	64
38	1	3	4	3	4	3	3	4	3	1	2	3	3	1	4	1	4	3	3	3	56
39	3	3	2	4	2	3	3	3	4	3	3	2	3	3	2	3	3	4	4	4	61
40	4	3	4	4	1	3	4	4	4	2	1	4	4	4	4	3	3	4	4	4	68

Reliability Test of Thinking Style (Split-Half)

N	i	j	i^2	j^2	i.j
1	50	51	2500	2601	2550
2	56	60	3136	3600	3360
3	52	71	2704	4238	3692
4	60	70	3600	4900	4200
5	60	68	3600	4624	4080
6	47	58	2209	3364	2726
7	61	67	3721	4489	4087
8	51	51	2601	2601	2601
9	55	55	3025	3025	3025
10	47	58	2209	3364	2726
11	59	38	3224	1444	2242
12	57	53	3249	2809	3021
13	52	61	2704	3721	3172
14	56	57	3136	3249	3192
15	57	65	3249	2806	3705
16	42	41	1764	1681	2376
17	51	58	2601	3364	2958
18	55	61	3025	3721	3355
19	45	63	2025	3969	2835
20	49	36	2321	1296	1764
21	45	56	1956	3136	2520

22	51	52	2601	2704	2652
23	55	61	3025	3721	3355
24	61	44	3721	1936	2684
25	48	62	2304	3844	2976
26	44	42	1936	1764	1848
27	55	51	3025	2601	2805
28	50	40	2500	1600	2000
29	56	64	3136	4096	3584
30	48	61	2304	3721	2928
31	60	38	3600	1444	2280
32	53	54	2809	2916	2862
33	64	45	3880	2025	2880
34	56	50	3136	2500	2800
35	42	64	1764	4096	2688
36	67	42	4489	1764	2814
37	66	64	4356	4096	4224
38	46	56	2116	3136	2676
39	42	61	1764	3721	2619
40	62	68	3844	4624	4216
∑	2133	2217	114869	124311	119078

$$r_{11} = \frac{N\sum XY - (\sum x)(\sum y)}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y^2 - (\sum Y)^2\}}}$$

$$= \frac{40x119078 - (2133)(2217)}{\sqrt{\{40x114869 - (2133)^2\}\{40x124311 - (2217)^2\}}}$$

$$= \frac{4763120 - 4728861}{\sqrt{\{4594760 - 4549689\}\{4972440 - 4915089\}}}$$

$$= \frac{34259}{\sqrt{\{45071\}\{57351\}}}$$

$$= \frac{34259}{\sqrt{2584866921}}$$

$$= \frac{34259}{13666,65}$$

$$= 0.673$$

The procedure of reliability test is using Split-Half Spearman Brown formula:

$$r_{11} = \frac{2(rxy)}{1+rxy)}$$

$$= \frac{2(0.673)}{1+0.673}$$

$$= \frac{1.346}{1.673}$$

$$= 0.80$$

Because r_{11} 0.80, it mean that the instrument is reliable and classified reliability coefficient is very high.

Appendix 8

The Blue Print after Tried-Out the Research Instrument of Thinking Styles Questionnaire

Concept	Type of thinking style	Indicators				Total
		How to do the task		Behavioral clues		
		(+)	(-)	(+)	(-)	
Thinking style is the activity or method of mind process to thinking about something which tends to uses their ability.	Synthesist	1, 3	2	15	16	5
	Idealist	4	5,6	17, 19	18, 20	7
	Pragmatist	7	8, 9	21	22	5
	Analyst	10, 12	11	24	23, 25	6
	Realist	14	13	26, 27	28	5
Total						28

Appendix 9

The Questionnaire of Thinking Style after Tried Out

Nama : .....

Kelas : .....

No : .....

Petunjuk pengisian :

1. Jawablah pertanyaan-pertanyaan dibawah ini dengan jujur.
2. Berikan tanda checklist (√) pada jawaban yang anda anggap paling benar.

No	Pertanyaan	Selalu	Sering	Kadang-Kadang	Tidak Pernah
1.	Saya menemukan ide atau konsep baru dari masalah yang sudah saya hadapi.				
2.	Saya tidak menemukan ide atau konsep baru dari masalah yang sudah saya hadapi.				
3.	Saya mengerjakan tugas dengan kemampuan saya sendiri.				
4.	Saya mengerjakan tugas dengan menganalisa terlebih dahulu.				
5.	Saya suka menyelesaikan tugas dengan mengikuti petunjuk dalam panduan daripada pemikiran saya sendiri.				
6.	Saya suka menyelesaikan tugas dengan pemikiran saya sendiri daripada mengikuti petunjuk				

	dalam panduan.				
7.	Saya menggunakan strategi dalam mengerjakan tugas.				
8.	Saya tidak pernah menggunakan strategi dalam mengerjakan tugas.				
9.	Saya mengerjakan tugas dengan tergesa-gesa yang penting cepat selesai.				
10.	Saya mengerjakan tugas berdasarkan teori yang sudah saya pahami dari buku.				
11.	Saya mengerjakan tugas tidak berdasarkan teori yang sudah saya pahami dari dalam buku.				
12.	Saya mengerjakan tugas sesuai dengan teori yang ada dalam buku pelajaran.				
13.	Saya mengerjakan tugas tidak sesuai dengan fakta dan pemikiran saya sendiri.				
14.	Saya menyelesaikan masalah dengan pengalaman yang pernah saya alami daripada teori.				
15.	Saya tidak suka dengan hal-hal yang sederhana dan mudah dilakukan.				
16.	Saya tidak suka berdebat atau menyanggah pendapat orang lain yang berbeda dengan				

	pendapat saya.				
17.	Saya suka membuat rencana terlebih dahulu sebelum melakukan sesuatu.				
18.	Saya tidak suka membuat rencana terlebih dahulu sebelum melakukan sesuatu.				
19.	Saya mencari pendapat solusi dari teman saya ketika saya menghadapi masalah.				
20.	Saya tidak pernah mencari pendapat solusi dari teman saya ketika saya menghadapi masalah.				
21.	Saya suka menggunakan cara yang instan karena mudah dan cepat.				
22.	Saya tidak suka menggunakan cara yang instan karena mudah dan cepat.				
23.	Saya tidak suka membaca buku.				
24.	Saya pribadi akan berusaha menunjukan alasan atau penjelasan ketika saya menjawab soal.				
25.	Saya pribadi tidak perlu menunjukan alasan atau penjelasan ketika saya menjawab soal.				
26.	Saya tidak suka dengan orang yang tidak mempunyai tujuan				

	yang jelas.				
27.	Saya selalu memperbaiki jawaban yang salah dengan menuliskan jawaban yang benar yang sesuai dengan penjelasan oleh guru.				
28.	Saya tidak memperbaiki jawaban yang salah dengan menuliskan jawaban yang benar yang sesuai dengan penjelasan oleh guru.				

Appendix 10

Data of English Achievement Score

No.	Name	English Achievement	Letter Grades
1.	AIP	68	C
2.	ACFM	69	C
3.	ATH	71	B
4.	AYP	72	B
5.	ANR	70	C
6.	AS	70	C
7.	APR	71	B
8.	ANAM	71	B
9.	CAP	72	B
10.	DSK	68	C
11.	DW	67	C
12.	EKRP	70	C
13.	FV	72	B
14.	HFHTP	68	C
15.	IBP	68	C
16.	IHJ	72	B
17.	IZM	70	C
18.	LW	67	C
19.	MPH	71	B
20.	MCAS	68	C
21.	MHAM	70	C
22.	MRS	67	C
23.	MSS	69	C
24.	NRM	68	C
25.	R	71	B
26.	RAR	69	C
27.	RH	70	C

28.	RYP	67	C
29.	RH	69	C
30.	SMAP	72	B
31.	SW	70	C
32.	SK	71	B
33.	VA	68	C
34.	WR	69	C
35.	YENS	70	C
36.	ZT	71	B

Appendix 11

The Data of Thinking Style

No.	Name	Type of Thinking Style					Total	Type
		S	I	P	A	R		
1	AIP	15	16	14	22	11	78	Analyst
2	ACFM	10	14	12	21	16	73	Analyst
3	ATH	14	10	16	20	11	71	Analyst
4	AYP	11	17	14	24	9	75	Analyst
5	ANR	12	18	16	18	15	79	Idealist - Analyst
6	AS	9	18	12	23	16	78	Analyst
7	APR	17	8	13	23	15	76	Analyst
8	ANAM	14	20	15	20	13	82	Idealist - Analyst
9	CAP	19	17	16	24	12	88	Analyst
10	DSK	12	15	13	18	10	68	Analyst
11	DW	13	12	11	19	14	69	Analyst
12	EKRP	12	21	15	19	15	82	Idealist
13	FV	19	17	12	24	14	86	Analyst
14	HFHTP	14	16	18	20	12	80	Analyst
15	IBP	16	17	11	19	14	77	Analyst
16	IHJ	10	19	15	24	18	86	Analyst
17	IZM	10	15	19	24	17	85	Analyst
18	LW	17	8	11	19	13	68	Analyst
19	MPH	16	14	12	24	10	76	Analyst
20	MCAS	16	15	13	18	12	74	Analyst
21	MHAM	13	19	18	21	15	86	Analyst
22	MRS	17	11	14	17	17	76	Neutral
23	MSS	11	16	8	20	14	69	Analyst
24	NRM	14	19	11	22	12	78	Analyst
25	R	8	19	17	23	13	80	Analyst
26	RAR	14	13	12	19	16	74	Analyst

27	RH	15	17	16	24	12	84	Analyst
28	RYP	17	22	20	18	13	90	Idealist
29	RH	12	14	13	19	16	74	Analyst
30	SMAP	19	17	15	23	9	83	Analyst
31	SW	13	12	17	21	8	71	Analyst
32	SK	12	15	16	13	15	71	Pragmatist
33	VA	9	13	15	19	17	73	Analyst
34	WR	18	9	12	21	14	74	Analyst
35	YENS	10	18	16	23	13	80	Analyst
36	ZT	14	16	9	24	12	75	Analyst

Where :

S	Synthesist
I	Idealist
P	Pragmatist
A	Analyst
R	Realist

From the table above can be explanating that:

1. There is one student who have pragmatist thinker (2.8%).
2. There is one student who have neutral thinker (2.8%).
3. There are two student who have idealist thinker (5.5%).
4. There are thirty student who have analyst thinker (83.4%).
5. There are two student who have idealist-analyst thinker (5.5%)

Appendix 12

The Data of Dominant Student's Thinking Style and English Achievement

No.	Name	Thinking Style	English Achievement
1	AIP	22	68
2	ACFM	21	69
3	ATH	20	71
4	AYP	24	72
5	AS	23	70
6	APR	23	71
7	CAP	24	72
8	DSK	18	68
9	DW	19	67
10	FV	24	72
11	HFHTP	20	68
12	IBP	19	68
13	IHJ	24	72
14	IZM	24	70
15	LW	19	67
16	MPH	24	71
17	MCAS	18	68
18	MHAM	21	70
19	MSS	20	69
20	NRM	22	68
21	R	23	71
22	RAR	19	69
23	RH	24	70
24	RH	19	69
25	SMAP	23	72
26	SW	21	70
27	VA	19	68
28	WR	21	69
29	YENS	23	70
30	ZT	24	71

Appendix 13

Normality Test for the Dominant Thinking Style (X)

Xi	Zi	F(Zi)	S(Zi)	F(Zi)-S(Zi)	|F(Zi)-S(Zi)|
18	-1,643630406	0,050126285	0,033333333	0,01679295	0,016792951
18	-1,643630406	0,050126285	0,066666667	-0,01654038	0,016540382
19	-1,174021719	0,120193163	0,1	0,02019316	0,020193163
19	-1,174021719	0,120193163	0,133333333	-0,01314017	0,01314017
19	-1,174021719	0,120193163	0,166666667	-0,0464735	0,046473503
19	-1,174021719	0,120193163	0,2	-0,07980684	0,079806837
19	-1,174021719	0,120193163	0,233333333	-0,11314017	0,11314017
19	-1,174021719	0,120193163	0,266666667	-0,1464735	0,146473503
20	-0,704413031	0,240587797	0,3	-0,0594122	0,059412203
20	-0,704413031	0,240587797	0,333333333	-0,09274554	0,092745537
20	-0,704413031	0,240587797	0,366666667	-0,12607887	0,12607887
21	-0,234804344	0,407180298	0,4	0,0071803	0,007180298
21	-0,234804344	0,407180298	0,433333333	-0,02615304	0,026153035
21	-0,234804344	0,407180298	0,466666667	-0,05948637	0,059486369
21	-0,234804344	0,407180298	0,5	-0,0928197	0,092819702
22	0,234804344	0,592819702	0,533333333	0,05948637	0,059486369
22	0,234804344	0,592819702	0,566666667	0,02615304	0,026153035
23	0,704413031	0,759412203	0,6	0,1594122	0,159412203
23	0,704413031	0,759412203	0,633333333	0,12607887	0,12607887
23	0,704413031	0,759412203	0,666666667	0,09274554	0,092745537
23	0,704413031	0,759412203	0,7	0,0594122	0,059412203
23	0,704413031	0,759412203	0,733333333	0,02607887	0,02607887
24	1,174021719	0,879806837	0,766666667	0,11314017	0,11314017
24	1,174021719	0,879806837	0,8	0,07980684	0,079806837
24	1,174021719	0,879806837	0,833333333	0,0464735	0,046473503
24	1,174021719	0,879806837	0,866666667	0,01314017	0,01314017
24	1,174021719	0,879806837	0,9	-0,02019316	0,020193163

24	1,174021719	0,879806837	0,933333333	-0,0535265	0,053526497
24	1,174021719	0,879806837	0,966666667	-0,08685983	0,08685983
24	1,174021719	0,879806837	1	-0,12019316	0,120193163

Mean : 21.5
Standard Deviation : 2.12943
The High Score (Lo) : 0.159412203
Ltable : 0.161

Because Lo is lower than Lt or (0.159) < (0.161), it can be concluded that the questionnaire is normal distribution.

Appendix 14

Normality Test for the English Achievement (Y)

Yi	Zi	F(Zi)	S(Zi)	F(Zi)-S(Zi)	|F(Zi)-S(Zi)|
67	-1,68461286	0,046031644	0,033333333	0,012698311	0,012698311
67	-1,68461286	0,046031644	0,066666667	-0,020635022	0,020635022
68	-1,052883038	0,146197301	0,1	0,046197301	0,046197301
68	-1,052883038	0,146197301	0,133333333	0,012863967	0,012863967
68	-1,052883038	0,146197301	0,166666667	-0,020469366	0,020469366
68	-1,052883038	0,146197301	0,2	-0,053802699	0,053802699
68	-1,052883038	0,146197301	0,233333333	-0,087136033	0,087136033
68	-1,052883038	0,146197301	0,266666667	-0,120469366	0,120469366
68	-1,052883038	0,146197301	0,3	-0,153802699	0,153802699
69	-0,421153215	0,336821603	0,333333333	0,003488269	0,003488269
69	-0,421153215	0,336821603	0,366666667	-0,029845064	0,029845064
69	-0,421153215	0,336821603	0,4	-0,063178397	0,063178397
69	-0,421153215	0,336821603	0,433333333	-0,096511731	0,096511731
69	-0,421153215	0,336821603	0,466666667	-0,129845064	0,129845064
70	0,210576608	0,583391166	0,5	0,083391166	0,083391166
70	0,210576608	0,583391166	0,533333333	0,050057833	0,050057833
70	0,210576608	0,583391166	0,566666667	0,0167245	0,0167245
70	0,210576608	0,583391166	0,6	-0,016608834	0,016608834
70	0,210576608	0,583391166	0,633333333	-0,049942167	0,049942167
70	0,210576608	0,583391166	0,666666667	-0,0832755	0,0832755
71	0,84230643	0,800191774	0,7	0,100191774	0,100191774
71	0,84230643	0,800191774	0,733333333	0,06685844	0,06685844
71	0,84230643	0,800191774	0,766666667	0,033525107	0,033525107
71	0,84230643	0,800191774	0,8	0,000191774	0,000191774
71	0,84230643	0,800191774	0,833333333	-0,03314156	0,03314156
72	1,474036253	0,929764085	0,866666667	0,063097418	0,063097418
72	1,474036253	0,929764085	0,9	0,029764085	0,029764085

72	1,474036253	0,929764085	0,933333333	-0,003569249	0,003569249
72	1,474036253	0,929764085	0,966666667	-0,036902582	0,036902582
72	1,474036253	0,929764085	1	-0,070235915	0,070235915

Mean : 69.66666667

Standard Deviation : 1.582955188

The High Score (Lo) : 0.153802699

Ltable : 0.161

Because Lo is lower than Lt or (0.153) < (0.161), it can be concluded that the score of English achievement is normal distribution.

Appendix 15

Linearity Test between the Dominant Thinking Style and English Achievement (X – Y)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,78769888
R Square	0,62046953
Adjusted R Squar	0,60691487
Standard Error	0,99245752
Observations	30

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	45,08745247	45,08745	45,7754	2,3939E-07
Residual	28	27,5792142	0,984972		
Total	29	72,66666667			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	57,0773131	1,86954934	30,52998	0,00	53,24771489	60,90691122	53,24771489	60,90691122
X Variable 1	0,58555133	0,086546409	6,76575	0,00	0,408269051	0,76283361	0,408269051	0,76283361

The value significant F is 2.39 and the Ftable for level significant 0.05 is 3.32. It means that Fo < Ft or (2.39 < 3.32) or P-value (Probability value) lower than significant 0.05. The result for linearity test between Dominant Student's thinking style and English Achievement is linear.

Appendix 16

Hypothesis Testsing

N	X	Y	X^2	Y^2	XY
1	22	68	484	4624	1496
2	21	69	441	4761	1449
3	20	71	400	5041	1420
4	24	72	576	5184	1728
5	23	70	529	4900	1610
6	23	71	529	5041	1633
7	24	72	576	5184	1728
8	18	68	324	4624	1224
9	19	67	361	4489	1273
10	24	72	576	5184	1728
11	20	68	400	4624	1360
12	19	68	361	4624	1292
13	24	72	576	5184	1728
14	24	70	576	4900	1680
15	19	67	361	4489	1273
16	24	71	576	5041	1704
17	18	68	324	4624	1224
18	21	70	441	4900	1470
19	20	69	400	4761	1380
20	22	68	484	4624	1496
21	23	71	529	5041	1633
22	19	69	361	4761	1311
23	24	70	576	4900	1680
24	19	69	361	4761	1311
25	23	72	529	5184	1656
26	21	70	441	4900	1470
27	19	68	361	4624	1292
28	21	69	441	4761	1449
29	23	70	529	4900	1610
30	24	71	576	5041	1704
∑	645	2090	13999	145676	45012

The correlation between the dominant student's thinking stylein learning and English Achievement the statistic number entered to Product Moment formula is

$$r_{xy} = \frac{N\sum XY - (\sum x)(\sum y)}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y^2 - (\sum Y)^2\}}}$$

where :

r_{xy} : the coefficient of correlation between X and Y

N : the number of the students

$\sum X$: the sum of the scores of each number

$\sum Y$: the sum of the score of each student

$$r_{xy} = \frac{N\sum XY - (\sum x)(\sum y)}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y^2 - (\sum Y)^2\}}}$$

$$= \frac{30.45012 - (645)(2090)}{\sqrt{\{30.13999 - (645)^2\}\{30.145676 - (2090)^2\}}}$$

$$= \frac{1350360 - 1348050}{\sqrt{\{419970 - 416025\}\{4370280 - 4368100\}}}$$

$$= \frac{2310}{\sqrt{\{3945\}\{2180\}}}$$

$$= \frac{2310}{\sqrt{8600100}}$$

$$= \frac{2310}{2932.59}$$

= 0.787

Based on the calculation, it is gotten the r_{xy} is 0.787 then it related to the r_{table} with N = 30 and the significantly 5% is 0.361. so it can be compare that r_{xy} is higher than r_{table} (0.787>0.361). it means that there is a positive correlation between the dominant student's thinking style and English achievement and Ha is accepted.

Appendix 17

The Items Score of Thinking Style Questionnaire

N	Score of Each Items																											Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
1	2	2	2	4	2	2	1	3	2	4	4	4	3	2	2	4	4	3	1	1	4	4	3	4	3	3	3	2	78
2	4	1	2	4	1	2	3	4	1	4	3	4	3	2	2	1	1	2	3	1	2	2	3	4	3	4	4	3	73
3	4	3	4	1	2	1	4	3	3	3	3	4	3	3	2	1	3	1	1	1	2	4	4	3	3	2	1	2	71
4	1	2	2	1	1	4	1	3	2	4	4	4	1	1	2	3	2	3	4	3	4	4	4	4	4	2	2	3	75
5	2	3	2	1	1	4	3	4	3	4	4	4	4	1	1	4	4	3	4	1	2	4	4	1	1	3	3	4	79
6	2	1	2	3	2	3	2	4	3	3	4	4	4	3	1	3	4	2	2	2	1	2	4	4	4	4	3	2	78
7	3	3	3	2	1	1	3	2	2	4	4	4	4	2	4	4	1	1	1	1	3	3	4	3	4	4	3	2	76
8	2	3	3	3	2	4	3	3	3	3	4	3	3	2	2	4	2	3	3	3	3	3	3	3	4	2	3	3	82
9	3	4	4	4	1	1	2	4	4	4	4	4	1	2	4	4	2	4	2	3	3	3	4	4	4	2	3	4	88
10	2	4	3	4	2	3	2	2	3	3	4	3	4	1	1	2	3	1	1	1	3	3	3	2	3	1	2	2	68
11	3	2	2	2	1	3	2	3	3	2	3	4	4	1	3	3	1	3	1	1	2	1	4	3	3	4	3	2	69
12	2	3	2	2	2	3	2	4	3	4	4	2	4	3	1	4	2	4	4	4	2	4	3	2	4	3	2	3	82
13	4	4	4	2	1	4	3	1	4	4	4	4	4	3	3	4	3	1	4	2	2	2	4	4	4	2	4	1	86
14	4	1	3	4	2	2	2	4	4	4	3	4	4	2	4	2	3	1	3	1	4	4	3	3	3	3	2	1	80
15	4	3	2	3	4	2	2	3	1	4	3	4	4	4	4	3	2	4	1	1	2	3	3	2	3	2	3	1	77
16	4	2	1	4	4	2	4	2	3	4	4	4	4	4	2	1	3	1	2	3	2	4	4	4	4	4	2	4	86
17	4	2	1	3	2	4	4	4	4	4	4	4	4	4	2	1	1	1	3	1	4	3	4	4	4	3	3	3	85
18	3	3	4	1	2	1	3	3	1	3	2	4	3	3	4	3	1	1	1	1	2	2	4	3	3	2	3	2	68
19	4	4	3	3	2	1	2	3	4	4	4	4	4	2	2	3	4	1	2	1	2	1	4	4	4	1	1	2	76
20	4	4	2	1	1	2	3	2	3	4	3	3	2	2	3	3	4	3	1	3	2	3	3	2	3	1	4	3	74
21	3	2	3	3	2	4	4	4	4	3	4	4	4	4	2	3	3	4	2	1	2	4	3	3	4	2	2	3	86
22	2	4	4	2	1	1	3	4	4	1	4	4	4	4	3	4	3	1	2	1	1	2	2	3	3	2	3	4	76
23	2	1	2	2	3	2	3	2	1	4	4	3	2	1	3	3	1	3	4	1	1	1	3	3	3	4	3	4	69
24	1	2	3	3	2	1	3	3	2	4	3	4	2	2	4	4	2	3	4	4	1	2	4	3	4	1	4	3	78
25	1	2	1	4	4	3	3	3	3	4	4	4	2	3	3	1	2	1	2	3	4	4	4	4	3	3	3	2	80
26	4	4	2	2	2	3	4	3	2	4	4	2	2	3	3	1	2	1	2	1	1	2	3	3	3	3	4	4	74
27	2	2	2	4	2	2	2	4	3	4	4	4	2	1	4	4	3	4	1	2	3	4	4	4	4	4	3	2	84
28	2	4	4	4	1	1	4	4	4	4	1	4	1	3	3	4	4	4	4	4	4	4	4	4	1	1	4	4	90
29	3	4	2	4	1	3	2	2	3	2	4	3	4	4	1	2	2	1	1	2	3	3	3	3	4	2	3	3	74
30	4	4	4	3	4	1	2	2	4	3	4	4	1	1	3	4	2	2	1	4	4	3	4	4	4	2	2	3	83
31	3	3	3	2	1	3	4	4	3	3	4	4	2	3	2	2	1	1	3	1	3	3	4	4	3	1	1	1	72
32	2	2	3	2	1	3	3	3	2	3	2	3	3	2	2	3	1	3	2	3	4	4	2	2	1	2	4	4	71
33	1	2	2	2	2	2	3	2	2	2	4	4	4	3	1	3	1	3	2	1	4	4	3	3	3	4	3	3	73
34	4	4	2	1	1	1	4	3	2	4	4	4	4	4	4	4	1	1	2	2	1	2	3	3	3	1	2	3	74
35	4	2	2	3	2	3	3	4	2	4	3	4	3	3	1	1	4	2	2	2	4	3	4	4	4	2	2	3	80
36	4	4	2	3	3	2	2	1	1	4	4	4	4	1	3	1	2	4	1	1	2	3	4	4	4	2	2	3	75

Appendix 18

Table r value

df = (N-2)	Tingkat signifikansi untuk uji satu arah				
	0.05	0.025	0.01	0.005	0.0005
	Tingkat signifikansi untuk uji dua arah				
	0.1	0.05	0.02	0.01	0.001
1	0.9877	0.9969	0.9995	0.9999	1.0000
2	0.9000	0.9500	0.9800	0.9900	0.9990
3	0.8054	0.8783	0.9343	0.9587	0.9911
4	0.7293	0.8114	0.8822	0.9172	0.9741
5	0.6694	0.7545	0.8329	0.8745	0.9509
6	0.6215	0.7067	0.7887	0.8343	0.9249
7	0.5822	0.6664	0.7498	0.7977	0.8983
8	0.5494	0.6319	0.7155	0.7646	0.8721
9	0.5214	0.6021	0.6851	0.7348	0.8470
10	0.4973	0.5760	0.6581	0.7079	0.8233
11	0.4762	0.5529	0.6339	0.6835	0.8010
12	0.4575	0.5324	0.6120	0.6614	0.7800
13	0.4409	0.5140	0.5923	0.6411	0.7604
14	0.4259	0.4973	0.5742	0.6226	0.7419
15	0.4124	0.4821	0.5577	0.6055	0.7247
16	0.4000	0.4683	0.5425	0.5897	0.7084
17	0.3887	0.4555	0.5285	0.5751	0.6932
18	0.3783	0.4438	0.5155	0.5614	0.6788
19	0.3687	0.4329	0.5034	0.5487	0.6652
20	0.3598	0.4227	0.4921	0.5368	0.6524
21	0.3515	0.4132	0.4815	0.5256	0.6402
22	0.3438	0.4044	0.4716	0.5151	0.6287
23	0.3365	0.3961	0.4622	0.5052	0.6178
24	0.3297	0.3882	0.4534	0.4958	0.6074
25	0.3233	0.3809	0.4451	0.4869	0.5974
26	0.3172	0.3739	0.4372	0.4785	0.5880
27	0.3115	0.3673	0.4297	0.4705	0.5790
28	0.3061	0.3610	0.4226	0.4629	0.5703
29	0.3009	0.3550	0.4158	0.4556	0.5620
30	0.2960	0.3494	0.4093	0.4487	0.5541
31	0.2913	0.3440	0.4032	0.4421	0.5465
32	0.2869	0.3388	0.3972	0.4357	0.5392
33	0.2826	0.3338	0.3916	0.4296	0.5322
34	0.2785	0.3291	0.3862	0.4238	0.5254
35	0.2746	0.3246	0.3810	0.4182	0.5189
36	0.2709	0.3202	0.3760	0.4128	0.5126
37	0.2673	0.3160	0.3712	0.4076	0.5066

38	0.2638	0.3120	0.3665	0.4026	0.5007
39	0.2605	0.3081	0.3621	0.3978	0.4950
40	0.2573	0.3044	0.3578	0.3932	0.4896
41	0.2542	0.3008	0.3536	0.3887	0.4843
42	0.2512	0.2973	0.3496	0.3843	0.4791
43	0.2483	0.2940	0.3457	0.3801	0.4742
44	0.2455	0.2907	0.3420	0.3761	0.4694
45	0.2429	0.2876	0.3384	0.3721	0.4647
46	0.2403	0.2845	0.3348	0.3683	0.4601
47	0.2377	0.2816	0.3314	0.3646	0.4557
48	0.2353	0.2787	0.3281	0.3610	0.4514
49	0.2329	0.2759	0.3249	0.3575	0.4473
50	0.2306	0.2732	0.3218	0.3542	0.4432

(Source: www.prima.lecturer.pens.ac.id)

Apenddix 19

NILAI KRITIS UNTUK UJI LILIEFORS

	Taraf nyata α				
	0.01	0.05	0.10	0.15	0.20
n = 4	0.417	0.381	0.352	0.319	0.300
5	0.405	0.337	0.315	0.299	0.285
6	0.364	0.319	0.294	0.277	0.265
7	0.348	0.300	0.276	0.258	0.247
8	0.331	0.285	0.261	0.244	0.233
9	0.311	0.271	0.249	0.233	0.223
10	0.294	0.258	0.239	0.224	0.215
11	0.284	0.249	0.230	0.217	0.206
12	0.275	0.242	0.223	0.212	0.199
13	0.268	0.234	0.214	0.202	0.190
14	0,261	0.227	0.207	0.194	0.183
15	0.257	0.220	0.201	0.187	0.177
16	0.250	0.213	0.195	0.182	0.173
17	0.245	0.206	0.289	0.177	0.169
18	0.239	0.200	0.184	0.173	0.166
19	0.235	0.195	0.179	0.169	0.163
20	0.231	0.190	0.174	0.166	0.160
25	0.200	0.173	0.158	0.147	0.142
30	0.187	0.161	0.144	0.136	0.131
n > 30	1.031	0.886	0.805	0.768	0.736

(source: https://mahdi47.files.wordpress.com)

Appendix 20

Table of the F Distribution

Critical values of F for the 0.05 significance level:

	1	2	3	4	5	6	7	8	9	10
1	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54	241.88
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.39	19.40
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14
10	4.97	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98
11	4.84	3.98	3.59	3.36	3.20	3.10	3.01	2.95	2.90	2.85
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49
17	4.45	3.59	3.20	2.97	2.81	2.70	2.61	2.55	2.49	2.45
18	4.41	3.56	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35
21	4.33	3.47	3.07	2.84	2.69	2.57	2.49	2.42	2.37	2.32
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.30
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.38	2.32	2.28
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.26
25	4.24	3.39	2.99	2.76	2.60	2.49	2.41	2.34	2.28	2.24
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27	2.22
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25	2.20
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24	2.19
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22	2.18
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.17
31	4.16	3.31	2.91	2.68	2.52	2.41	2.32	2.26	2.20	2.15
32	4.15	3.30	2.90	2.67	2.51	2.40	2.31	2.24	2.19	2.14
33	4.14	3.29	2.89	2.66	2.50	2.39	2.30	2.24	2.18	2.13
34	4.13	3.28	2.88	2.65	2.49	2.38	2.29	2.23	2.17	2.12
35	4.12	3.27	2.87	2.64	2.49	2.37	2.29	2.22	2.16	2.11

36	4.11	3.26	2.87	2.63	2.48	2.36	2.28	2.21	2.15	2.11
37	4.11	3.25	2.86	2.63	2.47	2.36	2.27	2.20	2.15	2.10
38	4.10	3.25	2.85	2.62	2.46	2.35	2.26	2.19	2.14	2.09
39	4.09	3.24	2.85	2.61	2.46	2.34	2.26	2.19	2.13	2.08
40	4.09	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.08
41	4.08	3.23	2.83	2.60	2.44	2.33	2.24	2.17	2.12	2.07
42	4.07	3.22	2.83	2.59	2.44	2.32	2.24	2.17	2.11	2.07
43	4.07	3.21	2.82	2.59	2.43	2.32	2.23	2.16	2.11	2.06
44	4.06	3.21	2.82	2.58	2.43	2.31	2.23	2.16	2.10	2.05
45	4.06	3.20	2.81	2.58	2.42	2.31	2.22	2.15	2.10	2.05
46	4.05	3.20	2.81	2.57	2.42	2.30	2.22	2.15	2.09	2.04
47	4.05	3.20	2.80	2.57	2.41	2.30	2.21	2.14	2.09	2.04
48	4.04	3.19	2.80	2.57	2.41	2.30	2.21	2.14	2.08	2.04
49	4.04	3.19	2.79	2.56	2.40	2.29	2.20	2.13	2.08	2.03
50	4.03	3.18	2.79	2.56	2.40	2.29	2.20	2.13	2.07	2.03
51	4.03	3.18	2.79	2.55	2.40	2.28	2.20	2.13	2.07	2.02
52	4.03	3.18	2.78	2.55	2.39	2.28	2.19	2.12	2.07	2.02
53	4.02	3.17	2.78	2.55	2.39	2.28	2.19	2.12	2.06	2.02
54	4.02	3.17	2.78	2.54	2.39	2.27	2.19	2.12	2.06	2.01
55	4.02	3.17	2.77	2.54	2.38	2.27	2.18	2.11	2.06	2.01
56	4.01	3.16	2.77	2.54	2.38	2.27	2.18	2.11	2.05	2.01
57	4.01	3.16	2.77	2.53	2.38	2.26	2.18	2.11	2.05	2.00
58	4.01	3.16	2.76	2.53	2.37	2.26	2.17	2.10	2.05	2.00
59	4.00	3.15	2.76	2.53	2.37	2.26	2.17	2.10	2.04	2.00
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	1.99
61	4.00	3.15	2.76	2.52	2.37	2.25	2.16	2.09	2.04	1.99
62	4.00	3.15	2.75	2.52	2.36	2.25	2.16	2.09	2.04	1.99
63	3.99	3.14	2.75	2.52	2.36	2.25	2.16	2.09	2.03	1.99
64	3.99	3.14	2.75	2.52	2.36	2.24	2.16	2.09	2.03	1.98
65	3.99	3.14	2.75	2.51	2.36	2.24	2.15	2.08	2.03	1.98
66	3.99	3.14	2.74	2.51	2.35	2.24	2.15	2.08	2.03	1.98
67	3.98	3.13	2.74	2.51	2.35	2.24	2.15	2.08	2.02	1.98
68	3.98	3.13	2.74	2.51	2.35	2.24	2.15	2.08	2.02	1.97
69	3.98	3.13	2.74	2.51	2.35	2.23	2.15	2.08	2.02	1.97
70	3.98	3.13	2.74	2.50	2.35	2.23	2.14	2.07	2.02	1.97
71	3.98	3.13	2.73	2.50	2.34	2.23	2.14	2.07	2.02	1.97
72	3.97	3.12	2.73	2.50	2.34	2.23	2.14	2.07	2.01	1.97
73	3.97	3.12	2.73	2.50	2.34	2.23	2.14	2.07	2.01	1.96
74	3.97	3.12	2.73	2.50	2.34	2.22	2.14	2.07	2.01	1.96
75	3.97	3.12	2.73	2.49	2.34	2.22	2.13	2.06	2.01	1.96
76	3.97	3.12	2.73	2.49	2.34	2.22	2.13	2.06	2.01	1.96
77	3.97	3.12	2.72	2.49	2.33	2.22	2.13	2.06	2.00	1.96
78	3.96	3.11	2.72	2.49	2.33	2.22	2.13	2.06	2.00	1.95
79	3.96	3.11	2.72	2.49	2.33	2.22	2.13	2.06	2.00	1.95
80	3.96	3.11	2.72	2.49	2.33	2.21	2.13	2.06	2.00	1.95
81	3.96	3.11	2.72	2.48	2.33	2.21	2.13	2.06	2.00	1.95
82	3.96	3.11	2.72	2.48	2.33	2.21	2.12	2.05	2.00	1.95
83	3.96	3.11	2.72	2.48	2.32	2.21	2.12	2.05	2.00	1.95
84	3.96	3.11	2.71	2.48	2.32	2.21	2.12	2.05	1.99	1.95
85	3.95	3.10	2.71	2.48	2.32	2.21	2.12	2.05	1.99	1.94

86	3.95	3.10	2.71	2.48	2.32	2.21	2.12	2.05	1.99	1.94
87	3.95	3.10	2.71	2.48	2.32	2.21	2.12	2.05	1.99	1.94
88	3.95	3.10	2.71	2.48	2.32	2.20	2.12	2.05	1.99	1.94
89	3.95	3.10	2.71	2.47	2.32	2.20	2.11	2.04	1.99	1.94
90	3.95	3.10	2.71	2.47	2.32	2.20	2.11	2.04	1.99	1.94
91	3.95	3.10	2.71	2.47	2.32	2.20	2.11	2.04	1.98	1.94
92	3.95	3.10	2.70	2.47	2.31	2.20	2.11	2.04	1.98	1.94
93	3.94	3.09	2.70	2.47	2.31	2.20	2.11	2.04	1.98	1.93
94	3.94	3.09	2.70	2.47	2.31	2.20	2.11	2.04	1.98	1.93
95	3.94	3.09	2.70	2.47	2.31	2.20	2.11	2.04	1.98	1.93
96	3.94	3.09	2.70	2.47	2.31	2.20	2.11	2.04	1.98	1.93
97	3.94	3.09	2.70	2.47	2.31	2.19	2.11	2.04	1.98	1.93
98	3.94	3.09	2.70	2.47	2.31	2.19	2.10	2.03	1.98	1.93
99	3.94	3.09	2.70	2.46	2.31	2.19	2.10	2.03	1.98	1.93
100	3.94	3.09	2.70	2.46	2.31	2.19	2.10	2.03	1.98	1.93

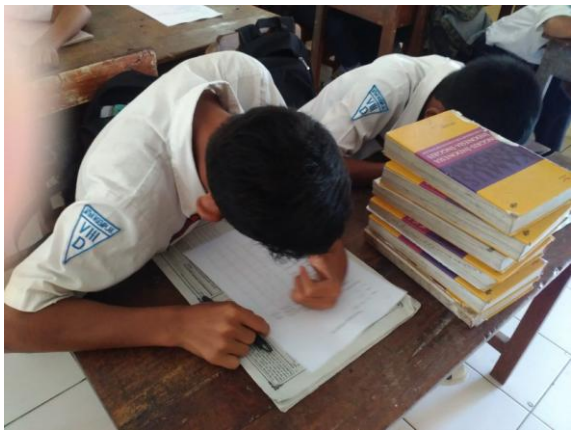
Critical values of F for the 0.01 significance level:

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	4052.19	4999.52	5403.34	5624.62	5763.65	5858.97	5928.33	5981.10	6022.50	6055.85
2	98.50	99.00	99.17	99.25	99.30	99.33	99.36	99.37	99.39	99.40
3	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.35	27.23
4	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66	14.55
5	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.16	10.05
6	13.75	10.93	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87
7	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62
8	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81
9	10.56	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26
10	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85
11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54
12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30
13	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10
14	8.86	6.52	5.56	5.04	4.70	4.46	4.28	4.14	4.03	3.94
15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.90	3.81
16	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69
17	8.40	6.11	5.19	4.67	4.34	4.10	3.93	3.79	3.68	3.59
18	8.29	6.01	5.09	4.58	4.25	4.02	3.84	3.71	3.60	3.51
19	8.19	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52	3.43
20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46	3.37
21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40	3.31
22	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26
23	7.88	5.66	4.77	4.26	3.94	3.71	3.54	3.41	3.30	3.21
24	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26	3.17
25	7.77	5.57	4.68	4.18	3.86	3.63	3.46	3.32	3.22	3.13
26	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.18	3.09
27	7.68	5.49	4.60	4.11	3.79	3.56	3.39	3.26	3.15	3.06
28	7.64	5.45	4.57	4.07	3.75	3.53	3.36	3.23	3.12	3.03
29	7.60	5.42	4.54	4.05	3.73	3.50	3.33	3.20	3.09	3.01
30	7.56	5.39	4.51	4.02	3.70	3.47	3.31	3.17	3.07	2.98
31	7.53	5.36	4.48	3.99	3.68	3.45	3.28	3.15	3.04	2.96
32	7.50	5.34	4.46	3.97	3.65	3.43	3.26	3.13	3.02	2.93

33	7.47	5.31	4.44	3.95	3.63	3.41	3.24	3.11	3.00	2.91
34	7.44	5.29	4.42	3.93	3.61	3.39	3.22	3.09	2.98	2.89
35	7.42	5.27	4.40	3.91	3.59	3.37	3.20	3.07	2.96	2.88
36	7.40	5.25	4.38	3.89	3.57	3.35	3.18	3.05	2.95	2.86
37	7.37	5.23	4.36	3.87	3.56	3.33	3.17	3.04	2.93	2.84
38	7.35	5.21	4.34	3.86	3.54	3.32	3.15	3.02	2.92	2.83
39	7.33	5.19	4.33	3.84	3.53	3.31	3.14	3.01	2.90	2.81
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89	2.80
41	7.30	5.16	4.30	3.82	3.50	3.28	3.11	2.98	2.88	2.79
42	7.28	5.15	4.29	3.80	3.49	3.27	3.10	2.97	2.86	2.78
43	7.26	5.14	4.27	3.79	3.48	3.25	3.09	2.96	2.85	2.76
44	7.25	5.12	4.26	3.78	3.47	3.24	3.08	2.95	2.84	2.75
45	7.23	5.11	4.25	3.77	3.45	3.23	3.07	2.94	2.83	2.74
46	7.22	5.10	4.24	3.76	3.44	3.22	3.06	2.93	2.82	2.73
47	7.21	5.09	4.23	3.75	3.43	3.21	3.05	2.92	2.81	2.72
48	7.19	5.08	4.22	3.74	3.43	3.20	3.04	2.91	2.80	2.72
49	7.18	5.07	4.21	3.73	3.42	3.20	3.03	2.90	2.79	2.71
50	7.17	5.06	4.20	3.72	3.41	3.19	3.02	2.89	2.79	2.70
51	7.16	5.05	4.19	3.71	3.40	3.18	3.01	2.88	2.78	2.69
52	7.15	5.04	4.18	3.70	3.39	3.17	3.01	2.87	2.77	2.68
53	7.14	5.03	4.17	3.70	3.38	3.16	3.00	2.87	2.76	2.68
54	7.13	5.02	4.17	3.69	3.38	3.16	2.99	2.86	2.76	2.67
55	7.12	5.01	4.16	3.68	3.37	3.15	2.98	2.85	2.75	2.66
56	7.11	5.01	4.15	3.67	3.36	3.14	2.98	2.85	2.74	2.66
57	7.10	5.00	4.15	3.67	3.36	3.14	2.97	2.84	2.74	2.65
58	7.09	4.99	4.14	3.66	3.35	3.13	2.97	2.84	2.73	2.64
59	7.09	4.98	4.13	3.66	3.35	3.12	2.96	2.83	2.72	2.64
60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63
61	7.07	4.97	4.12	3.64	3.33	3.11	2.95	2.82	2.71	2.63
62	7.06	4.97	4.11	3.64	3.33	3.11	2.94	2.81	2.71	2.62
63	7.06	4.96	4.11	3.63	3.32	3.10	2.94	2.81	2.70	2.62
64	7.05	4.95	4.10	3.63	3.32	3.10	2.93	2.80	2.70	2.61
65	7.04	4.95	4.10	3.62	3.31	3.09	2.93	2.80	2.69	2.61
66	7.04	4.94	4.09	3.62	3.31	3.09	2.92	2.79	2.69	2.60
67	7.03	4.94	4.09	3.61	3.30	3.08	2.92	2.79	2.68	2.60
68	7.02	4.93	4.08	3.61	3.30	3.08	2.91	2.79	2.68	2.59
69	7.02	4.93	4.08	3.60	3.30	3.08	2.91	2.78	2.68	2.59
70	7.01	4.92	4.07	3.60	3.29	3.07	2.91	2.78	2.67	2.59
71	7.01	4.92	4.07	3.60	3.29	3.07	2.90	2.77	2.67	2.58
72	7.00	4.91	4.07	3.59	3.28	3.06	2.90	2.77	2.66	2.58
73	7.00	4.91	4.06	3.59	3.28	3.06	2.90	2.77	2.66	2.57
74	6.99	4.90	4.06	3.58	3.28	3.06	2.89	2.76	2.66	2.57
75	6.99	4.90	4.05	3.58	3.27	3.05	2.89	2.76	2.65	2.57
76	6.98	4.90	4.05	3.58	3.27	3.05	2.88	2.76	2.65	2.56
77	6.98	4.89	4.05	3.57	3.27	3.05	2.88	2.75	2.65	2.56
78	6.97	4.89	4.04	3.57	3.26	3.04	2.88	2.75	2.64	2.56
79	6.97	4.88	4.04	3.57	3.26	3.04	2.87	2.75	2.64	2.55
80	6.96	4.88	4.04	3.56	3.26	3.04	2.87	2.74	2.64	2.55
81	6.96	4.88	4.03	3.56	3.25	3.03	2.87	2.74	2.63	2.55
82	6.95	4.87	4.03	3.56	3.25	3.03	2.87	2.74	2.63	2.55

83	6.95	4.87	4.03	3.55	3.25	3.03	2.86	2.73	2.63	2.54
84	6.95	4.87	4.02	3.55	3.24	3.03	2.86	2.73	2.63	2.54
85	6.94	4.86	4.02	3.55	3.24	3.02	2.86	2.73	2.62	2.54
86	6.94	4.86	4.02	3.55	3.24	3.02	2.85	2.73	2.62	2.53
87	6.94	4.86	4.02	3.54	3.24	3.02	2.85	2.72	2.62	2.53
88	6.93	4.86	4.01	3.54	3.23	3.01	2.85	2.72	2.62	2.53
89	6.93	4.85	4.01	3.54	3.23	3.01	2.85	2.72	2.61	2.53
90	6.93	4.85	4.01	3.54	3.23	3.01	2.85	2.72	2.61	2.52
91	6.92	4.85	4.00	3.53	3.23	3.01	2.84	2.71	2.61	2.52
92	6.92	4.84	4.00	3.53	3.22	3.00	2.84	2.71	2.61	2.52
93	6.92	4.84	4.00	3.53	3.22	3.00	2.84	2.71	2.60	2.52
94	6.91	4.84	4.00	3.53	3.22	3.00	2.84	2.71	2.60	2.52
95	6.91	4.84	4.00	3.52	3.22	3.00	2.83	2.70	2.60	2.51
96	6.91	4.83	3.99	3.52	3.21	3.00	2.83	2.70	2.60	2.51
97	6.90	4.83	3.99	3.52	3.21	2.99	2.83	2.70	2.60	2.51
98	6.90	4.83	3.99	3.52	3.21	2.99	2.83	2.70	2.59	2.51
99	6.90	4.83	3.99	3.52	3.21	2.99	2.83	2.70	2.59	2.51
100	6.90	4.82	3.98	3.51	3.21	2.99	2.82	2.69	2.59	2.50

(source: https: //docs.google.com)

Appendix 21

The Student's Pictures