**THE CORRELATION BETWEEN THE STUDENTS’ CRITICAL THINKING AND THEIR ABILITY IN WRITING OF ANALYTICAL EXPOSITION TEXT**

**(The Study of Fourth Semester Students of English Study Program at State Islamic Institute (IAIN) Bengkulu at Academic Year 2019/2020)**

**THESIS**

***Submitted in Partial of the Requirements for the degree of SarjanaPendidikan (S.Pd) English Educational Program***



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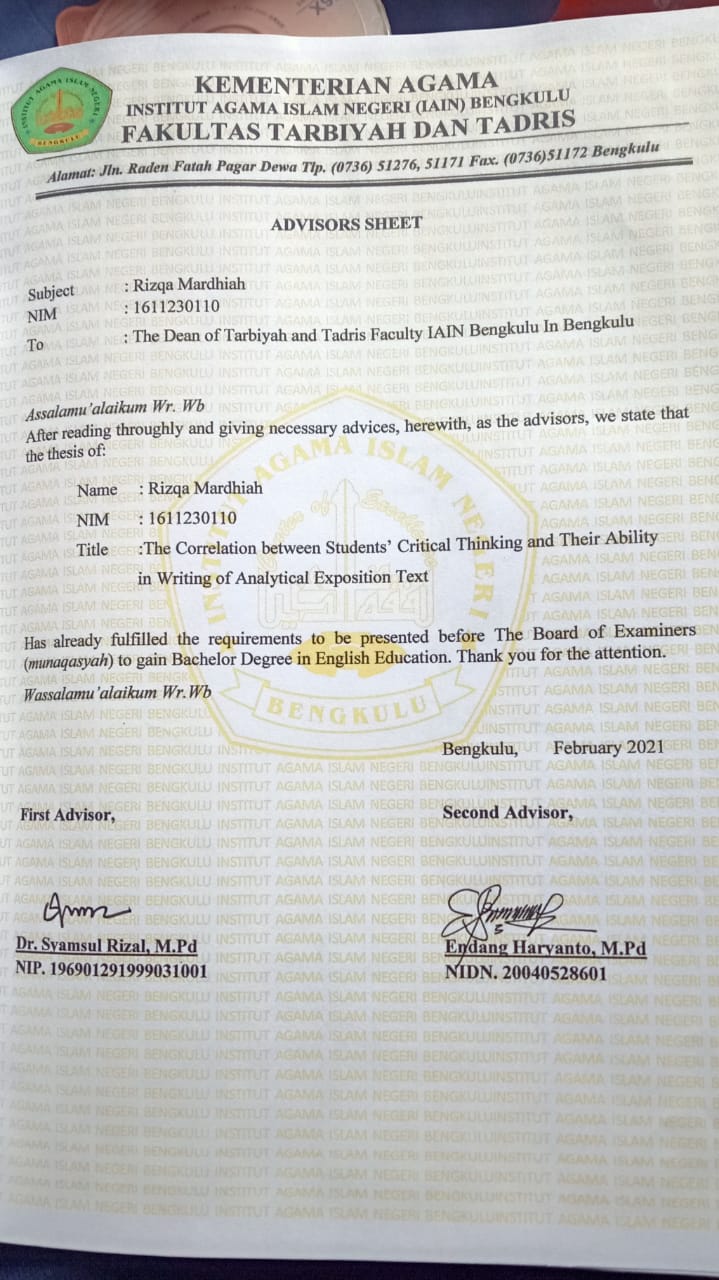
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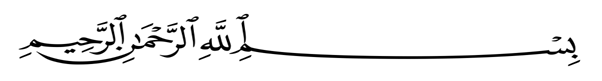
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**MOTTOS**



لَايُكَلِّفُ اُ للهُ نَفْسًا اِلَّاوُ سُعَهَا

“Allah tidakakanmembebaniseseorangmelainkansesuaidengankesanggupannya”

“Yesterday is History, Tomorrow is a Mystery, But Today is a Gift”

“When you have never made ​​a mistake, it means you have not tried anything”

(RizqaMardhiah)

**DEDICATION**

With gratitude and all my love, this thesis is dedicated to:

* For both of my unconditional love, my beloved parents, Mr.EdyNovriadi, and Mrs.RusydaUlfah. For my beloved grandmother, Mrs. YurnitaHarisun. Thank you very much for your support, pray, and patience to make my dream come true. You are the greatest gift that God sent to me.
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* My Advisor I, Dr. Syamsul Rizal, M.Pd, and my Advisor II, EndangHaryanto, M.Pd. Thank you very much for your suggestions, corrections, and ideas during the process of writing this thesis.
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* My beloved almamater IAIN Bengkulu.

**PRONOUNCEMENT**

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I hereby sincerely state that the thesis titled “The Correlation between Students’ Critical Thinking and Their Ability in Writing of Analytical Exposition Text (The Study of Fourth Semester Students of English Study Program at State Islamic Institute (IAIN) Bengkulu at Academic Year 2019/2020)” 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 the academic sections in the form of repealing my thesis and academic degree.

Bengkulu, February 2021

Stated by,

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**ACKNOWLEDGMENT**

Alhamdulillah, all praises be to Allah, the single power, the Lord of the universe, master of the day of judgment, God all mighty, for all blessings and mercies so the researcher was able to finish this thesis entitled*“The Correlation between Students’ Critical Thinking and Their Ability in Writing of Analytical Exposition Text (The Study of Fourth Semester Students of English Study Program at State Islamic Institute (IAIN) Bengkulu at Academic Year 2019/2020)”*. Peace be upon Prophet Muhammad SAW, the great leader and good inspiration of world revolution. The researcher is sure that this thesis would not be completed without the helps, supports, and suggestions from several sides. Thus, the researcher would like to express his deepest thanks to all of those who had helped, supported, and suggested him during the process of writing this thesis. This goes to:

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

Bengkulu, February 2021 The researcher,

RizqaMardhiah

NIM. 1611230110

**ABSTRACT**

**RizqaMardhiah, 2021. *The Correlation between the Students’ Critical Thinking and their Ability in Writing of Analytical Exposition Text (The Study of Fourth Semester Students of English Studyd Program at State Islamic Institute (IAIN) Bengkulu at Academic Year 2019/2020)*.Faculty of Tarbiyah and Tadris.**

**Advisor 1: Dr.Syamsul Rizal, M.Pd2: EndangHaryanto, M.Pd**

Based on the critical thinking theory according to Ennis, students must be able to think critically to analyze relevant facts and arguments that can support their writing and think rationally. The explanation of the theory of critical thinking above, it appears that the ability to think criticallyis related to the ability in writing. Therefore, the purpose of this research was to find out whether there is a relationship between critical thinking and writing ability of analytical exposition text in fourth semester students of English study program at IAIN Bengkulu. The sampling technique used simple random sampling and 30 students from 2 classes were taken. The method is quantitative method. Data were collected using tests. To test the correlation, the researcher used the Pearson Product Moment Correlation formula and SPSS 25. The results of this research were characterized by a correlation coefficient (rxy) of 0.552. This means that there is a moderate (medium) relationship between critical thinking and the ability to write analytical exposition text because this value is included in the *r* interpretive value scale between 0.40-0.59. The hypothesis accepted in this study is an alternative (H1), while the null hypothesis (H0) is rejected. In conclusion, it shows that there is a positive correlation between critical thinking and the ability to write analytical exposition text.

***Keywords: Critical Thinking, Ability to Write Analytical Exposition Text.***

**ABSTRAK**

**RizqaMardhiah, 2021. *HubunganantaraBerpikirKritisdanKemampuanMenulisTeksEksposisiAnalitispadaMahasiswaJurusanBahasaInggris Semester Empat di IAIN Bengkulu.*Skripsi Program StudiPendidikanBahasaInggris.FakultasTarbiyahdanTadris.**

**Pembimbing 1: Dr.Syamsul Rizal, M.Pd2: EndangHaryanto, M.Pd**

BerdasarkanteoriberpikirkritismenurutEnnis, siswaharusmampuberpikirkritisuntukmenganalisisfaktadanargumenrelevan yang dapatmendukungtulisanmerekadanberpikirsecaraberalasan. Penjelasanteoriberpikirkritisdi atas, terlihatbahwakemampuanberpikirkritisberkaitandengankemampuanmenulis. Olehkarenaitu, tujuanpenelitianiniadalahuntukmenemukanapakahterdapathubunganantaraberpikirkritisdankemampuanmenulistekseksposisianalitispadasiswa semester empatjurusanbahasaInggris di IAIN Bengkulu.Teknikpengambilansampel yang digunakanadalah simple random sampling danada 30 siswadari 2 kelas yang diambil.Metode yang digunakanadalahmetodekuantitatif.Data diambilmenggunakantes.Untukmengujikorelasi, penelitimenggunakanrumus*Pearson Product Moment Correlation*dan SPSS 25.Hasilpenelitianiniditandaidengannilaikoefisiensikorelasi (rxy) sebesar 0.552.Ituberartiadanyahubungan yang sedang (medium) antaraberpikirkritisdankemampuanmenulistekseksposisianalitiskarenanilaitersebuttermasukkedalamskalanilai*r*tafsirantar 0.40-0.59.Hipotesis yang diterimadalampenelitianiniadalahalternatif (H1), sedangkanhipotesisnoll (H0) ditolak.Kesimpulannya, menunjukkanbahwaadakorelasipositifantaraberpikirkritisdankemampuanmenulistekseksposisianalitis.

***KataKunci: BerpikirKritis, KemampuanMenulisTeksEksposisiAnalitis.***

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**CHAPTER I**

**INTRODUCTION**

1. **Background of the Research**

Writing plays an important role in our life as a tool for people in the global community exchange of information or communication bridges with clarity and is shown through face-to-face language to give time and money. As we know that global citizens are bigdiversity with different cultures and languages ​​makes a great community in need of interactioneach other in an easy way. This interaction does not only occur in the form of spoken languagebut also written language. Since ancient times, writing has been a means of record keepinginformation in the past such as important events, symbols, stories, culture, laws, and etc.Information transmission can be passed down from past generations to future generations on the form of reporting analysis or evidence such as past technology, ancient calendars, historynation. Problems with problems getting information or solving information from the ancient and analyzes it which fits past information into context 21 centuries. Furthermore, it is also evident since ancient times; writing has becometools in human communication. Writing also provides many benefits for our lives todaysuch as recording and presenting information, training our minds to think critically andsystematic and easy reports.

Writing is an important skill that students must master in English. Writing can help students develop their language competence. Writing is a process for transferring information from writer to reader to share information. In addition, the purpose of learning writing skill is to make students be able to communicate in English through writing. According to Yokhontova argues writing requires certain skills which include sentence structure, grammar and punctuation.[[1]](#footnote-2)

Writing is the main ability needed by EFL (English Foreign Language) students; they bring challenges to master it. Being a burden to get writing skills in a short time. Especially for EFL students in Indonesia where there are differences in contrast between Language and English such as; structural or grammatical terms, collocation, culture and tastes. In addition, they need the ability to change the meaning from the context of Language to English because avoiding their writing will be ambiguous. Therefore, EFL students in Indonesia need writing accuracy to fill their writing weaknesses such as lack of grammar knowledge, low motivation, and cultural context. Therefore, an increase in student writing accuracy is the main aim of teaching and learning about EFL writing in Indonesia.

Writing skills are very necessary for students because writing skills are an important part of communication. Through writing, students can transfer information and knowledge, and share their ideas with others. In addition, good writing skills enable students to clearly communicate their message to the reader. Writing is the process of communicating ideas in written form. In writing, various factors influence the writing process, such as content, vocabulary, ideas, organization, use of language and mechanics in writing.

According to Heaton, writing skills are complex and sometimes difficult to teach, requiring mastery not only of grammatical and theoretical device, but also of conceptual and judgmental elements.[[2]](#footnote-3) Meanwhile, writing is often considered the most difficult activity among the four language skills in English. This is because the process of writing requires a set of competencies. Writing not only requires mastery of linguistics such as grammar, vocabulary, pronunciation, intonation, etc. But it also requires conceptual assessment and critical thinking. The more competent students produce longer, more complex and more accurate texts than those students with a lower degree of competence”

However, writing can be a challenging skill for students to learn. This is due to the fact that writing is different from other language skills. not a skill that students can naturally acquire.[[3]](#footnote-4) Students are required to have some instructions so that they can write. In addition, they also need to pay attention to several things so that they can write effectively. In this case, in order to write effectively, written ideas and information must be developed in a good organization; errors in writing must be minimized, therefore accuracy is prioritized so that the meaning of the writing is clear; vocabulary, grammar patterns, and sentence structures used must also be considered.

One genre of teaching materials that researcher finds interesting to be investigated is an analytical exposition text. Analytical exposition text allows the writer to describe his ideas about a particular problem to convince the reader to understand the meaning contained in the writing. In this situation, the writer not only states his beliefs; the writer tries to present a time of meaning in the form of an argument. To write analytical exposition text, students need to improve their thinking and reasoning abilities which involve comparing and differentiating information, categorizing information, inferring information and making decisions.

Analytical exposition text is considered difficult to learn by students. This is a text that provides complicated information including evidence and facts that support the idea of the text. It makes students work hard to provide concrete data and more knowledge to convince readers that ideas are important. Furthermore, in writing analytical exposition texts, students must also be careful with the generic structure of analytical exposition texts. Students must bring their thoughts into the topics to be developed. It is important to make them focus on the topic to be developed and make arguments related to the topic itself. They must be able to arrange ideas until they have meaning in paragraphs or text. To write analytical exposition texts, students are required to think critically in developing analytical exposition text in writing.

In order to write analytical exposition, the students need to increase the thinking and reasoning skill that involved comparing and contrasting information, categorizinginformation, inferring information and decision making. Then, critical thinking is the ability to think clearly and form of a judgment. There are several processes that the writer must doin writing of exposition text such as finding, connecting, elaborate, evaluating the ideas inpiece of papers to gain the critical writing master piece. Critical thinking is needed in language learning.[[4]](#footnote-5) To find out how teachers, students and others consider critical thinking because they need to stay in touch with common sense thinking in the process of theorizing and developing definition statements or in achieving a good relationship between learning and teaching. Critical thinking is the ability to think clearly and form judgments. There are several processes that the writer has to do in writing exposition text such as finding, connecting, describing, evaluating ideas on a piece of paper to get the main work of critical writing. To make critical writing, writers need critical thinking to describe their ideas such as processing to gather information, make judgments, and then elaborate information to provide clear and reasonable arguments and evidence to the reader. Kanik state that if students are to perform in a highly technical society, they must be prepared with life-long learning and critical thinking skill is necessary to obtain and process information in an ever changing world.[[5]](#footnote-6)

Kurfiss argues that it underlines three sides of critical thinking.[[6]](#footnote-7) That is declarative knowledge (facts and concepts or disciplines field), procedural knowledge (how to reason, ask, and present knowledge about discipline), and metacognition (able to evaluate the results of thought process). Specifically, "Metacognition is aware of one's thoughts when someone does a particular task and then uses this awareness to control what a person does. The concept of critical thinking raises more general questions about the nature of knowledge and reasoning.

On the one hand, think and reason can be seen as general cognitive processing abilities that are readily transferable in various topics and contexts.[[7]](#footnote-8) Without this kind of intellectual skill, students' views about around them will not exist. Sometimes, critical thinking influences people to process the information they get. How can they know what it is information is true or not if it cannot process information in our cognitive the process of what is happening around.

According to Paul & Elder, a critical thinker is able to write something substantive.[[8]](#footnote-9) Critical thinkers understand the importance of writing for learning. Critical thinkers are able to clearly and accurately express and evaluate their own ideas as well as those expressed by others. Critical thinkers use writing as an important tool to express ideas in depth and permanently. Furthermore, that a person cannot know what they are thinking about, except by writing down ideas or ideas that are thought. One important element of the ability to write analytical exposition text is the fact that is accompanied by the opinions of the experts.

The accuracy of the facts and opinions presented by the writer depends on the mutually supportive relationship between the facts found and the writer’s opinion. Presentation of facts and opinions in writing of analytical exposition text requires critical thinking from the writer. According to Ennis, the students should be able to think critically to analyze relevant facts and arguments that may support their writing and to think in a reasoned way.[[9]](#footnote-10) This is because without critical thinking, the writer is difficult to judge the accuracy of the facts obtained so that the writer cannot give a strong argument. Based on the above theoretical thinking, it can be seen that the ability to think critically has a connection with the writing ability of analytical exposition text.

Based on the findings above, the researcher tried to conduct this research into critical thinking and writing ability of analytical exposition text.

1. **Identification of the Problem**

Based on the background of the study above, several problems identified are as follow:

* + - 1. There are several things to consider when students want to write effectively, such as gathering ideas and information, vocabulary, grammar patterns, and sentence structure of their writing, but some students do not have that awareness when they are going to or are writing.
      2. In writing, to write well and effectively, students must have extensive knowledge about the material to be written, which can be obtained through reading and critical thinking about what they are going to write, but there are still some students who do not understand to develop their writing because their lack of ability to think critically in writing.

1. **Limitation of the Problem**

Based on the identification of the problems above, there are some factors contributestudents’ writing achievement such as students’ critical thinking, grammar knowledge, students’ focus, students’ lack interest in writing. Nevertheless, these problems will be limitedon the relationship between students’ critical thinking, and their writingability of analytical exposition text.

1. **Formulation of the Research**

Based on the problem above, the problem of this research is formulated as the following: Is there any relationship between students' critical thinking and writing ability of analytical exposition text of the fourth semester students of English Study Program at State Islamic Institute Bengkulu in academic year 2019/2020?

1. **Objective of the Research**

The objective of this research to obtain the evidence about whether or not there is relationship between students' critical thinking and writing ability of analytical exposition text of the fourth semester students of English Study Program at State Islamic Institute Bengkulu in academic year 2019/2020.

1. **Significance of the Research**

The result of this research is expected to be useful for:

1. Lecturers:

The results of research can be used by lecturers to find out the character of students writing and their level of critical thinking. Lecturers can improve their teaching and learning process through several media and methods that can help students improve their critical thinking through writing.

1. Students:

The result of this research will tell the students, particularly the fourth semester students of English Study Program at State Islamic Institute Bengkulu in academic year 209/2020, the information in terms of their critical thinking in relation to their writing ability of analytical exposition text.

1. Other Researchers:

The result of this research will be useful for other researchers who will conduct the research in the same field. The results will give them more information about students' critical thinking and factors in writing analytical exposition text.

1. **Definition of Key Terms**

To avoid misunderstanding and misinterpretation about the title of this research, it would be better for researcher to explain the variables used in this research are defined as follows:

* + - 1. Critical Thinking

Critical thinking is the mental process involving the activity to investigate ideas as well as to find out the meaning of the ideas and to judge the power of the meaning of the ideas whether or not it is defensible.[[10]](#footnote-11)

* + - 1. Writing Ability of Analytical Exposition Text

Writing is an activity intended to observe the knowledge and feeling of a writer about something, which, then the result is communicated to her readers.[[11]](#footnote-12)Analytical exposition text is a text type which clearly focuses students on the purpose of argument; that is, putting forward a viewpoint and providing evidence to support it.[[12]](#footnote-13)

**CHAPTER II**

**LITERATURE REVIEW**

1. **The Concept of Writing Ability**
   * + 1. **Definition of Writing Ability**

The term ability is defined as a skill or strength. Meaning of writing Ability is the skill of expressing ideas, thoughts, and feelings to others in writingsymbols to make other people or readers understand the ideas conveyed.[[13]](#footnote-14) On the other words, writing skills are special abilities that help writers express their thoughtswords in meaningful form and mentally interact with the message.Writing is one of the four main language skills. This is generally considered an active or productive language skill. Because with writing, people can convey ideas to other people.

Writing is a combination of process and product of discovering ideas, putting them on paper and working with them until they are presented in manner that is polished and comprehensible to readers.[[14]](#footnote-15) As a result, writing is a language skill by combining productive processes and skills that can be used to develop thoughts and ideas. According to Browne, writing is complex activity involving many skills to determine ideas and to transfer the ideas onto a piece of paper clearly and comprehensibly for the readers.[[15]](#footnote-16)

Writing is a complete process that involves writers to think critically in expressing their thoughts in written form. To make a good writing must follow several processes such as planning, evaluation, and revision. To express ideas clearly, it is important for writers to follow the writing process. Therefore, writing is not easy so writing skills must be trained step by step. Raimes states that writing is a skill in which we express ideas, feelings, and thoughts that are arranged in words, sentence and paragraph by using eyes, brain and hand.[[16]](#footnote-17) Meanwhile, Langan states that writing is a skill that can be learned and developed through practices.[[17]](#footnote-18)

Based on the explanation above, it can be concluded that writing ability is an activity that involves several steps to convey ideas to paper. When writers write, they try to convey things in their minds to readers through the writing they write. Then, writing is also a skill that can be learned and developed through practice which means "the more often you practice writing, the better the ability to write".

Based on the theoretical study, the indicator in this research is the students' writing ability which is an activity that includes several stages to put ideas into a written work. The students try to express the ideas that are on their mind.

* + - 1. **Writing Process**

To have good writing skills, there are several processes that must be mastered by the writer. Every writing process has its own meaning and purpose. Therefore, so that writers can make effective writing, each writing process must be done very carefully.

Oshima and Hogue propose the four steps in the writing process they are: comprising creating ideas, organizing ideas, writing a rough draft, and polishing the rough draft by editing and making any revisions needed.[[18]](#footnote-19)

In line with Oshima and Houge’s above, Anderson states that there are four steps in writing process. They are: discovering (students must explore and gather their ideas and information and choose ideas and group and arrange the ingredients), drafting (students must get their thoughts on paper in the form of sequential sentences, paragraphs, and sections), revising (during the revision stage, students correct their ideas in their composition. Often students stop the writing process as soon as they finish the rough draft, believing that after their ideas are recorded, the writing task is finished), and polishing (students must check writing for effective and precise words, sentences that have variations).[[19]](#footnote-20)

* + - 1. **Characteristics of Good Writing**

The quality of writing is considered important to get a good writing. Besides that, it is also related to the elements that make up the writing, for example the choice of words used, the order in which they are arranged, and usage.

Hughes states, there are five aspects of good writing. They are: grammar (grammatically correct writing includes aspects that can produce a quality writing in English using appropriate tenses and words), vocabulary (vocabulary is used to arrange several words into sentences. A standardized or qualified writing has rich, appropriate, and effective vocabulary), mechanic (mechanic is related to spelling, punctuation, capitalization, and paragraphing), fluency (fluency in writing equals coherence. That is, a sentence is logically connected in another), and organization (good organization is well-linked. Fluently expressed, clearly stated, well-organized, and logically sequenced ideas).[[20]](#footnote-21)

Moreover, Hairston mentions that there are some characteristics of good writing, they are: significant (a writing which is considered as a significant work is if it can fulfill the readers need. that is, readers can not only enjoy while they are reading but can also learn something from what is written), clear (a clear article provides a clear explanation to the reader. so they get the point or idea contained in the writing quickly, without having to reread them again), unified and well organized (a unified and well organized writing is developed coherently. That is, each sentence in the paragraph develops the main idea of ​​the paragraph and relates it to the sentence before and after it. In other words, it develops in a logical order), economical (wordiness cannot be found in economical writing. that is, a writer conveys and expresses his ideas directly to the point), adequately develop (an adequately develop writing make the reader to read it easily because it is provided and supported by important points that allow them to understand it well), and grammatically acceptable (the error was not found because the writing was grammatically acceptable because the standard or formal language and appropriate punctuation and spelling were applied and used well).[[21]](#footnote-22)

In conclusion, based on the explanation above, to make a good writing has the characteristics as follows: a knowledge provided to the reader, so that they will be interested in reading it, the correct sequence is given to develop ideas between sentences or paragraphs, the ideas of writing are stated clearly and directly to the point, and grammar or correct use is used well and right.

1. **The Concept of Critical Thinking**
   * + 1. **Definition of Critical Thinking**

Critical thinking may be considered as a complex activity since it involves many aspects to consider. Therefore, there are some experts who explain about critical thinking. Ennis state critical thinking is reasonable, reflective thinking that is focused on deciding what to believe or do.[[22]](#footnote-23) It can be considered that critical thinking is disciplined process conceptually active and skilled, applying, analyzing, synthesizing, and evaluating information collected from, or produced by, observation, experience, reflection, reasoning, or communication as a guide for believing or acting.

Moore and Parker state that critical thinking is the activity of evaluating specific claims through considering arguments plausibly.[[23]](#footnote-24) Furthermore, Ruggeiro explains that critical thinking is the mental process involving the activity to investigate ideas and to judge the power of the meaning of the ideas whether or not it is defensible.[[24]](#footnote-25) So, to think critically one must logically consider the problems found by investigating and making interpretations, and evaluating the weaknesses and strengths of the problems found.

Meanwhile, Cottrell states, critical thinking is defined as “a cognitive activity, associated with using the mind”.[[25]](#footnote-26) It can be concluded that critical thinking is an activity where a person engages the mind to overcome the things that are found.

From this, we can see that critical thinking is a form of assessment, especially assessment that is purposeful and reflective. In using one's critical thinking to make decisions or solve problems judging what to believe or what to do, but doing so in a reflective way. Such a state requires critical thinking, for it is only through an understanding of the underlying information structures that we can develop changes and expansions that can rationally be supported by what we already know. Critical thinking is best understood as the ability of thinkers to fill their own thoughts.In conclusion, critical thinking can be considered as an ability and activity that uses the mind to think, criticize, analyze, and evaluate people or things carefully, not only from the negative side, but also from the positive side. This is carried out through a series of processes ranging from investigating ideas to making an assessment of the strength of the meaning of these ideas.

* + - 1. **The Characteristic of Critical Thinking**

To solve the problem to get the valid information. The writer needs thinking skills to help him think logically to get the truth or the right answer. Critical thinking becomes the right answer to deal with certain situations that have great information provided for the writer.

S. Ferret, suggest the following fifteen characteristics of a critical thinker. They are: ask related questions of the issues, assess statements and arguments, able to admit a lack of understanding or information, have a sense of curiosity, interested in finding new solution, able to define clearly a set of criteria for analyzing ideas, willing to examine beliefs, assumptions, and opinions and weigh them against facts, listen carefully to others and are able to give feedback, suspend judgment until all facts have been gathered and considered, look for evidence to support assumptions and beliefs, able to adjust opinions when new facts are found, look for evidence, examine problems closely, are able to reject information that is incorrect or irrelevant, and see that critical thinking is a lifelong process of self-assessment.[[26]](#footnote-27)

Paul & Elder, one of the leading researchers in critical thinking also mentions some of the characteristics of critical thinking as follows: find out the crucial question and problems, and clearly formulating them, collect and evaluating relevant information, using abstract ideas to interpret it effectively, after finding well-reasonable conclusion and solution, testing them against relevant criteria and standards, having open minded thought by recognizing and assessing to assumption, implication and consequences, and find out the solution of the complex problems thought effective discussion with others.[[27]](#footnote-28)

From the characteristic mentioned above, it can be concluded that the writer needs to see logically what will happen next or what will happen next. Then, it's time to look at the implications and consequences of the reason for the correct conclusion. The implication is what the author has done based on interpretation with logical arguments which is an evaluation of certain ideas. The consequence relates to actions with what the writer is interpreting.

It can be concluded that a good critical thinker must have the ability to evaluate information, examine and analyze evidence and think openly. A cultivated critical thinker could be expresses in words as “reasonable person”. Such people always try to evaluate and criticize information, problems, and evidence before making decisions, judgments, and conclusions.

* + - 1. **Critical Thinking Process**

The process of critical thinking comes from the activity of thinking itself. Ruggiero states that there are some thinking activities where described in Table 2.1 as follows:

**Table 2.1 Basic Activities in Critical Thinking**[[28]](#footnote-29)

|  |  |  |
| --- | --- | --- |
| **No.** | **Activity** | **Definition** |
| 1. | Investigation | Finding evidence that is, data that will answer key questions about the issues. |
| 2. | Interpretation | Deciding what the evidence means. |
| 3. | Judgment | Reaching a conclusion about the issue. |

Based on Table 2.1 above, the critical thinking process includes the activity of investigation which is included in activities to obtain evidence relating to the matters arise, the activity of interpretation or activities to determine the meaning of evidence obtained from investigations conducted previously. All of the three activities are carried out in stages and each one starts from the investigation to judgment.

Based on the explanation above, there are at least three activities that are included in the process of critical thinking, namely investigation, interpretation, and judgment. In this case, the investigation is an activity, basically a priority, which aims to find the evidence or information about a problem or matters arises. Furthermore, it goes on to the next step or activity, namely meaningful interpretation to interpret or determine the meaning of evidence or information from previous investigations. The last one is judgment, which is to making inferences or drawing conclusions from the data or evidence and information obtained in previous activities, namely investigation and interpretation of the problem.

* + - 1. **The Benefit of Critical thinking in Writing**

Critical thinking has a function to develop students' understanding to gain deeper understanding below the surface of the subjects they are learning and engage in critical analysis in them. Cottrell stated that the depth understanding came through direct experience, practice and experimentation had to be replaced, at time, by critical analysis of the work of the other people. Critical thinking can help people more easily deal with their lives. The ability to think clearly, critically and rationally is very important because that ability is needed in making decision, solving problems or evaluating some problems that cannot be separated from human life.

According to Paul and Elder, there are some benefits things related to critical thinking as follows: bringing a clear and accurate formulation and vital questions problems, having an effective interpretation of the idea and information, making reasonable conclusions and solutions related to relevant criteria and standards, thinking inclusively or open minded, and having an effective communication with other in certain complex problem.[[29]](#footnote-30)

In short, the ability of critical thinking is certainly beneficial for many aspects of human life such as education, the workplace, political and social life. Having critical thinking can help people to solve problems or deal with any situation that requires them to analyze a situation or many aspects to avoid loss and the best solution or decision carefully and accurately. This will be a big disadvantage that people do not use critical thinking in their decision making where large amounts of information will be collected easily. This is also an opportunity for huge losses for us to make mistakes without critical thinking.

* + - 1. **Assessment of Critical Thinking**

The purpose of assessing critical thinking is to find out the extent of students' ability in critical thinking. Also to develop students' ability to think their way content, using discipline skills in reasoning, questioning, investigating, observing and illustrate, compare and connect, find complexity, and explore perspectives.

Relevant assessment of critical thinking is a relevant tool for expressing individual thought skills for courses or programs in many disciplines. According to Bensley&Murtagh namely: (1) understanding critical thinking as a multidimensional construct, (2) select the goals, objectives, and outcomes important for assessment, (3) align the assessment with an instructional focus, (4) take an authentic task-oriented approach to assessment, (5) use the best and most appropriate actions, (6) make assessments that are sensitive to change over time, (7) frequently assess, include assessments and feedback into instructions, (8) interpret the results of the assessment carefully and apply the results appropriately.[[30]](#footnote-31)

The test or assessment must also reflect the context and performance of the authentic problem which means the test or assessment must be based on simulations that approach the real world problems and problems. Tests or assessments must also use unstructured problems, which are more explanation means that test questions must require students to go beyond what is available information in assignmentsto draw conclusions or make evaluations. Assessing critical thinking skills poses challenges similar to those of others measurement context. A standard instrument that uses multiple choice items to measure limited aspects of critical thinking might meet reliability standards, but this standard the instrument is vulnerable to criticism of construction.

In this research, using multiple choice questions from Lauren Starkey, and how the assessment will be made like:

Score = 0

**Table 2.2 Score from Critical Thinking**

|  |  |
| --- | --- |
| **Score** | **Category** |
| 68 – 100  34 - 67  0 – 33 | Good  Enough  Less |

1. **The Concept of Analytical Exposition Text**
   * + 1. **Definition of Analytical Exposition Text**

Analytical exposition text is text that describes the author's ideas about surrounding phenomena. To convince readers or listeners that something is upthat, of course, it is worth paying attention to analyzing a topic and convincing readers about itthis opinion is correct and supported by arguments.[[31]](#footnote-32)Analytical exposition is the type of oral or written text intended for convinces the listener or reader that something is happening. To make stronger persuasion, the speaker or writer gives several arguments as fundamental reason why something happened. This type of text can be found at scientific books, journals, magazines, newspaper articles, or academic speeches lectures, research reports, etc. Exposition text is text that addresses a problem or problem.

Exposition text can be divided into two types; they are analytical and hortatory texts. Analytical exposition is a text that is not accompanied by a suggestion, but a hortatory exposition text is a text that is accompanied by a suggestion about a problem or something that should or should not be done. Analytical exposition is used to persuade the readers that the idea that the idea is important matter.[[32]](#footnote-33) That is, this text is influential to bring the reader to do or not do something related to the case that is happening. In this text, the researcher thinks that the analytical exposition text is the text that tells the author's explanatory text about the case.

Based on the above statement it can be concluded that the analytical exposition is a type of text that highlights the author's idea about a particular case and is aimed at it persuade the reader to agree with the proposed idea.

* + - 1. **Generic structure of Analytical Exposition Text**

Gerot and Wignel state that the structure of the analytical exposition text consists of thesis, argument, and reiteration.[[33]](#footnote-34) Thesis (Introducing the topic and indicating the writer’s point of view); Arguments (Explaining the argument to support the writer’s position. The number of arguments may vary, but each argument must be supported by evidence and explanation); Reiteration (Restating the writer’s point of view or to strengthen the thesis. We can use the following phrase to make conclusion in reiteration).

* + - 1. **Language Features of Analytical Exposition Text**

Language features are text characteristics. Each genre has a difference language features. This determines the type of text that is recognized. Its features are presented in various ways. Gerot and Wignell stated that it was significant the analytical features of the analytical text exposition. They are: focus on human and non-human generic participants, using relational process, using simple present tense, use words that express the writer's thoughts or feelings, using internal conjunction, use causal conjunctions or cause and effect.[[34]](#footnote-35)

Based on the explanation above, it can be concluded that analytical exposition is a type of text that highlights the writer's ideas about a particular case and is aimed at convince the reader to agree with the proposed idea.

* + - 1. **Writing Assessment of Analytical Exposition Text**

The purpose of assessing students' writing analytical exposition text is to find out the extent of students' ability in writing and describe the extent students understand about analytical exposition text.

According to Jacobs there are five components write.[[35]](#footnote-36) Namely: First, content (very important for researchers in Indonesia have the ability to think creatively and develop thinking, not included all irrelevant information). Second, organization (written form must be full of fluent expressions, clearly stated ideas, good organized, logically, sorted, and cohesive). Third, vocabulary (very important in writing and vocabulary needs to be mastered by researcher). Fourth, language use (language use is very important, because writing well isn't easy. It takes practice, as well as revision and editing. The last, mechanics (mechanics is writing like show convention mastery, good spelling, punctuation, uppercase letters, and paragraphs).

The generic structure of analytical exposition usually has three components that have been mentioned by Gerrot and Wignell.[[36]](#footnote-37) They are: First, the thesis statement is the researcher introduces the main topic or idea will be discussed. Thesis is always presented at the first paragraph of the analytical exposition text. Next, the argument is the researcher presents an argument or opinion to support the researcher's opinion main idea. Usually in analytical exposition texts there are more than two arguments. Repetition is the last piece of analytical exposition text. Finally, repetition contains a statement returning from the main idea in the first sentence clusters. That is also called the conclusion of the whole text.

In this research, there are indicators that there will be five indicators: content, organization, vocabulary, language use, and mechanics. And analytical exposition text indicators such as: thesis statement, argument, and repetition. In conclusion, students must understand analytical text expositions well to enhance them writing analytical exposition text consists of writing and indicators the analytical exposition text component as follows:

**Table 2.3**

**Indicators of Writing of Analytical Exposition Text**

|  |  |
| --- | --- |
| **Variable** | **Indicators** |
| Writing of analytical exposition text | 1. Content 2. Organization 3. Vocabulary 4. Language use 5. Mechanic |

The score percentage of writing based on five components can be drawn as follows:

Content 30%

Organization 20%

Vocabulary 20%

Language use 25%

Mechanics 5%

Total = 100%

**Table 2.4 Standard of Each Element**

|  |  |
| --- | --- |
| **Score** | **Categorization** |
| 87.5 – 100 | Excellent |
| 75 – 87.4 | Very Good |
| 62.5 – 74. 9 | Good |
| 50 – 62.4 | Fair |
| 37.5 – 9.9 | Poor |
| 25 – 37.4 | Very poor |

According to Brown the product assessment focuses on assessing the final composition of students,[[37]](#footnote-38) while Hyland stating that writing products can be assessed through using several valuation methods.[[38]](#footnote-39) Analytic assessment rubric, many like a checklist, allows for separate evaluations of each factor. The analytic tagging scheme is designed in an attempt to make it explicit about their impression. This uses the measured item criteria. The items measured are: relevance, and content adequacy, organization of composition, cohesion, vocabulary adequacy for objectives, grammar accuracy, and mechanical accuracy for spelling and punctuation marks.

1. **Previous Study**

The first research was taken in An International journal by AzizollahDabaghi (2013) Department of English University of Isfahan, Iran entitled *“Differential Effects of Critical Thinking in Argumentative and Narrative written task performance”.[[39]](#footnote-40)* Regarding narrative tasks, only significant negatives a correlation was observed between drawing conclusions and both a measure of accuracy of narrative tasks. With regard to argumentative task, correlation analysis shows a negative relationship between three measures of argumentative task fluency and student scores on subscale draw conclusions. The results of the complexity steps are revealed that the syntactic complexity of the resulting argument is influenced by the ability of students to deduce, interpret evidence, and evaluate argument. Finally, regarding the accuracy of the show, that it was found that only the Acknowledging Assumptions were significant, but negative, the relationship to the percentage of error-free clauses and error-free T unit percentage.

The second research was conducted by Ahmad Sugianto*“The Relationship between Critical Thinking Ability and Writing Ability (A Correlational Study of the Sixth Semester Students of State Islamic University, Jakarta”.[[40]](#footnote-41)*This research aimed to find out whether or not there is any significant relationship between critical thinking ability and writing ability. The study used correlational design which carried out two kinds of instruments, they are: critical thinking test and writing test. The data was analyzed using Pearson Product Moment correlation which the research finding showed that there is a significant correlation between students’ critical thinking ability and the writing ability of the students of English education department of UIN Jakarta.

The third research was conducted by Nader Assadi, HaniefDavatgar, and ParinazJafari*“The Effect of Critical Thinking an Enhancing Writing among the Iranian EFL Learners”.[[41]](#footnote-42)*It was carried out to find out whether critical thinking has effects on learners’ writing. The result of this research showed that critical thinking instruction had effects on learners’ writing. In this case is showed that the participants from the experimental group had the higher scores in post-test than the control group.

In conclusion, this research has some similarity with the previous study above, it is the same critical thinking ability, and the differences is this research focused on investigating correlation between critical thinking and writing ability of analytical exposition text.

**Table 2.5 Previous Studies**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Researcher** | **Research Objectives** | **Methods** | **Results** |
| 1 | AzizollahDabaghi | To compares the differential role of critical thinking in learners’ performance on argumentative and narrative written tasks. | * correlation analysis * 70 participants * Using test * Analyzed using complexity, accuracy, fluency. | The correlation analysis showed negative relationships between the three measures of argumentative task fluency and students’ score on the Drawing Inferences subscale. |
| 2 | Ahmad Sugianto | To find out whether or not there is any significant relationship between critical thinking ability and writing ability. | * Correlational design * 60 participants * Using test * Analyzed using Pearson Product Moment correlation. | There is a significant correlation between students’ critical thinking ability and the writing ability of the students of English education department of UIN Jakarta. |
| 3 | Nader Assadi, HaniefDavatgar, and ParinazJafari, | To find out whether critical thinking has effects on learners’ writing. | * Experimental study * 60 participants (control and experimental group) | The study concluded that critical thinking instruction had effects on learners writing, it showed that the participants from the experimental group had the higher scores in posttest than the control group. |
| 4. | RizqaMardhiah | To obtain the evidence about whether or not there is relationship between students’ critical thinking and writing ability of analytical exposition text. | * Quantitative research correlation design. * 30 participants using random sampling technique. * Analyzed use linearity, normality and Pearson Product Moment Correlation Coefficient. | There is significance relationship between students critical thinking and writing ability of analytical exposition text at the fourth semester of the English Study Program at State Islamic Institute Bengkulu in the academic year 2019/2020. |

In conclusion, this research has some similarity with the previous study. This study has some similarity since it has the same independent variable (critical thinking). However, there are some differences among each other. This study is more focused on investigating correlation between critical thinking and writing ability of analytical exposition text.

1. **Research Hypothesis**

This research proposes an alternative hypothesis (H1) and null hypothesis (H0) as follow:

1. Alternative Hypothesis (H1): There is a relationship between students' critical thinking and writing ability of analytical exposition text of the fourth semester students of English Study Program at State Islamic Institute Bengkulu in academic year 2019/2020.
2. Null Hypothesis (H0): There is no relationship between students' critical thinking and writing ability of analytical exposition text of the fourth semester students of English Study Program at State Islamic Institute Bengkulu in academic year 2019/2020.

**CHAPTER III**

**RESEARCH METHOD**

1. **Time and Place of the Study**

This research was conducted in State Islamic Institute (IAIN) Bengkulu academic year 2019/2020. The research has been conducted in the fourth semester since 10 November to 22 December 2020.

1. **Research Design**

In this research, the researcher was used a quantitative research correlation design. It was employed to describe and to measure the relationship between two variables covering an independent variable critical thinking and a dependent variable writing ability in analytical exposition text by using correlational analysis. Pallant state correlation analysis is used to describe the strength and direction of the linear relationship between two variables.[[42]](#footnote-43)Ary states that quantitative research uses objective measurement and statistical analysis of numeric data to understand and explain phenomena.[[43]](#footnote-44)

Correlation method is a method of which the goal is to describe the relation between two or more events or characteristics. According to Creswell state the correlation is a statistical test to determine the tendency or pattern for two (or more) variables or two sets of data to vary consistently.[[44]](#footnote-45) In addition, correlational research involves collecting data to determine whether and at what level of relationship is expressed as a correlation coefficient.

1. **Subject of the Research**
   * + 1. **Population**

Population is all the number of subject.[[45]](#footnote-46) In this research, the population of this research is the students of fourth semester of English Study Program at State Islamic Institute (IAIN) Bengkulu at Academic Year 2019/2020). Which consists of 5 classes and there are 150 students.

**Table 3.1 Population of the Research**

|  |  |  |
| --- | --- | --- |
| **No.** | **Class** | **Number of Students** |
| 1. | IV A | 32 |
| 2. | IV B | 32 |
| 3. | IV C | 29 |
| 4. | IV D | 29 |
| 5. | IV E | 28 |
| **Total** | | **150** |

**2. Sample**

Sample is the part of population which will be investigated. According to Gay, Mills and Airasian, for descriptive method research, at least 10% of the population, for a relatively small population at least 20%, while for correlation research required a sample of 30 respondents.[[46]](#footnote-47) Because this research is a correlation, the sample of this research was 30 students. To have a sample that represents well, the researcher using a simple random sampling technique. According to Sugiyono, Simple Random Sampling is taking members of the sample from the population which is done randomly withoutpay attention to the existing strata in the population.[[47]](#footnote-48)In this research, two classes were determined as participants of this research. In this case, 30 students from IV C and TBI IV E classes were selected and being the subjects of this research.

1. **Technique of Data Collection**

To collect the data the researcher has used tests as the techniques. According to Cohen et al, test is subject to item analysis.[[48]](#footnote-49) In this research, tests were conducted to measure critical thinking and writing ability of analytical exposition text. To get the data, the test was conducted online using the WhatsApp application.

1. **Research Instruments**

In this research, there are two instruments for collect the data that is administered to the participants (students of fourth semester of English Study Program at State Islamic Institute (IAIN) Bengkulu). The first instruments were critical thinking test and the second instrument is instruction that ask students to write analytical exposition text which is will be used to measure students' writing ability. Those instruments are used to achieve research objectives; to find out the correlation between those variables. Below is specific information about the research instruments:

* + - 1. Critical Thinking Test

Critical thinking is a cognitive process for thinking clearly and rationally like identifying, question and evaluate what to do or what to believe or any subject, content or a problem where the thinker improves the quality of their thinking by analyzing skillfully, assess and reconstruct it.

The blueprint for the critical thinking test can be seen clearly in the following table.

**Table 3.2**

**Blueprint of Critical Thinking Test**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No** | **Aspect** | **Cognitive Level** | **Indicators** | **Item Numbers** | **Total** |
| 1 | Recall previous information | C1 (Remembering) | The ability to recall the previous information. | 3,8,10 | 3 |
| 2 | Reasoning effectively | C2 (Understanding) | The ability to use variation type of reasoning as appropriate to the situation. | 1,11,12,14,15,16,20 | 7 |
| 3 | Using system thinking | C3 (Applying) | The ability to analyze and applying how parts of a whole interact with each other to produce overall outcomes in complex system. | 6,9,13,17 | 4 |
| 4 | Making judgments and decisions | C4 (Analyzing) | The ability to analyze effectively, evaluate evidence, synthesize and draw conclusion based on the best analysis. | 4,5,7,19 | 4 |
| 5 | Solving problems | C5 (Evaluation) | The ability to solve different kinds on non-familiar problem which identify for clarify various point of views and lead to better solution based on the evaluation effectively. | 2,18 | 2 |

*(source: Critical Thinking Skill Success, Starkey, 2004)*

* + - 1. Test of Writing Analytical Exposition Text

This test is provided to determine students' writing ability in analytical exposition text. There are two topics will be given to participant in this test, and participants only choose one of these topics. Operationally, an analytical exposition was measured by asking the participants to write a text which consisted of thesis, arguments and conclusion. Then, writing ability of analytical exposition text in this research refers to students’ scores of writing test.

The way to collect on the students writing ability of analytical exposition text. The open-ended essay test obtained as test for this variable.

**Table 3.3**

**The Blue Print of Writing Test**

|  |  |  |
| --- | --- | --- |
| **Aspect and Basic of Competence** | **Indicators** | **Item number** |
| Writing creating an analytical exposition text related factual issue that focus on social function, generic structure, language features and logical sequencing context. | Format and content:   * The use language features of chosen genre mostly adhered to text * Developed idea of text * Sense of topic given and relevant to assigned topic   Organization and coherence:   * Organized text which use proper generic structure * Logical progression of content contributes to fluency * Unified paragraphs * Effective use of transitions and reference   Sentence construction and vocabulary:   * Using and effective use of a wide variety of sentences * Effective use of a wide variet of lexical item and word form mastery * Effective choice of idiom | **1** |
| The sum of item test | | 1 item test |

*(Source: Jacob at Developing by Sara Cushing Weigle, 2002)*

1. **Research Procedure**

The procedure of this research test chronologically described as follows:

1. Test of Critical Thinking
   * + - 1. Firstly, the researcher looks for participants who will participate in the study according to the amount in the study sample.
         2. After getting all the participants, the researchers created a group in the WhatsApp application by entering each of the participant's mobile numbers.
         3. Next, the researcher explains what needs to be done, and sends the question file to the WhatsApp group and asks the participants to open the file that has been sent.
         4. Next, the researcher explains how to work on the questions that have been sent.
         5. The researcher gave a time limit to work on the problem within one day.
         6. After the participants have completed all the questions, participants are asked to send back the questions that have been done into the WhatsApp group and the results will be analyzed by the researcher.
2. Test of Writing Ability in Analytical Exposition Text.
3. The writing ability test in analytical exposition text is given in the same time with the question of the critical thinking test.
4. Before giving file of analytical exposition text, the researcher will explain a little about the procedure in writing analytical exposition text.
5. After finishing explaining the procedures of the analytical exposition text. Then the researcher sent the question file.
6. The participants were asked to read the directions before working on the questions and the participants were free to choose one of the five topics given.
7. The participants were asked to write an analytical exposition text in the same time period as working on a critical thinking problem that is one day with an essay length of at least 200 words.
8. After the participant completes the writing test, participants are asked to send back the questions that have been made to the WhatsApp group and the results will be analyzed by the researcher.
9. **Data Description**

Distribution of Frequency Data

In distribution of frequency data, the score from students’ perceptions of critical thinking and writing ability of analytical exposition text were analyzed. SPSS statistics program was used to get the result of frequency data.

Descriptive Statistics

In descriptive statistics, a number of sample, the score of minimal, the score of maximal, mean, standard deviation and standard error of mean were obtained. Descriptive statistics have got from the score of critical thinking and writing ability of analytical exposition text test. Then, SPSS statistics program was used to get the result of descriptive statistics.

**H. Technique of Data Analysis**

Analysis was used to answer the research problem; the data collected then analyzed and interpreted in connection with the research design. According to David Nunan, quantitative research describes a research problem through a description of trends or a need for an explanation of the relationship among variables by collecting numeric data from a large number of people using instruments with preset questions and responses.[[49]](#footnote-50)

In this research, after the data of students' critical thinking and writing ability in analytical exposition text have been collected, the scores of the two tests are analyzed to determine whether or not there is a correlation between the two variables contained in this research. Finally, this analysis can be used to check the truth or wrong of this research hypothesis. In this research, parameter statistics are used to calculate data. Therefore, as a requirement in parameter statistics in correlation research, the linearity distribution and normality distribution of the data must be checked first.

**Test of Linearity**

Linearity test aims to determine whether the two significant variables have a linear relationship or not. If the score is higher than o.05, the two variables are linear. This test is used as a prerequisite in correlation analysis.

The descriptions of the formula above are explained as follows:

Ŷ: regression line

a: a regression

b: b regression

In addition, to find out the regression line, the variance analysis table was used in this research.

**Test of Normality**

Normality test was used to determine whether the sample data has been drawn from normally distributed population or not. The data is obtained from students' test. Flynn states that values less than 0.05 indicates that the data are non-normal[[50]](#footnote-51). In measuring normality test, the researcher was used Shapiro-Wilk testbecause the sample taken is less than 50 samples. Using SPSS 25 software application.

**Test of Pearson Product Moment Correlation Coefficient**

To find out the correlation between two variables, Pearson Product Moment Correlation Coefficient is used. In addition, computer software (Microsoft Office Excel 2010 and SPSS version 20) is used to assist the researcher in analyzing the data of this research. Below, is the formula to find the Pearson Product Moment Correlation Coefficient value.

rxy­ =

Where:

rxy = the coefficient correlation between X and Y

N = total sample

∑X = total score X

∑Y = total score Y

∑XY = total calculation between X and Y

Meanwhile, the hypotheses were analyzed using t-tests. The t-test is used to see the difference in scores between two variables (critical thinking and writing ability in analytical exposition text). After getting the result of t-value, then the t-value is consulted to the t-table for interpretation. The formula was tested of t-value:

t =

The descriptions of the formula above are explained as follows:

t: the t-value

r: correlation coefficient value

n: number or sum of the participants

Furthermore, to find out how much the contribution of the dependent variable to the independent variable, it can be known by formula below.

The descriptions of the formula above are explained as follows:

R: value of determinant coefficient

r: value of correlation coefficient

In addition, to find out the level of correlation of two variables (critical thinking and writing ability in analytical exposition text), the rxy can also be interpreted with the table of r score interpretation as presented in the following table below.

**Table 3.4**

**Table of r Score Interpretation[[51]](#footnote-52)**

|  |  |  |
| --- | --- | --- |
| **No.** | **The “r” Score** | **Interpretation** |
| 1. | 0.90 – 1.00 | Very high |
| 2. | 0.70 – 0.89 | High |
| 3. | 0.40 – 0.69 | Moderate |
| 4. | 0.20 – 0.39 | Low |
| 5. | 0.00 – 0.19 | Very low |

The table 3.2 above represents the interpretation of the correlation coefficient value (rxy). If the value (rxy) is between 0.90 – 1.00, that means the two variables analyzed have a very high correlation; while if the rxy range of scores obtained between 0.00 – 0.19, it can be interpreted that the correlation between the two variables analyzed is very low.

1. **Statistical Hypothesis**

The non-directional (two-tail) test was used in terms of the statistical hypotheses, which is presented as follows:

H1: r 0 or if *rxy>rt,* H1 is accepted, and H0 is rejected.

H0: r = 0 or if *rxy<rt,* H0 is accepted, and H1 is rejected.

The descriptions of the formula above are explained as follows:

1. Research hypothesis (H1): There is a relationship between students' critical thinking and writing ability of analytical exposition text of the fourth semester students of English Study Program at State Islamic Institute Bengkulu in academic year 2019/2020.
2. Null Hypothesis (H0): There is no relationship between students' critical thinking and writing ability of analytical exposition text of the fourth semester students of English Study Program at State Islamic Institute Bengkulu in Academic Year 2019/2020.

**CHAPTER IV**

**RESULT AND DISCUSSION**

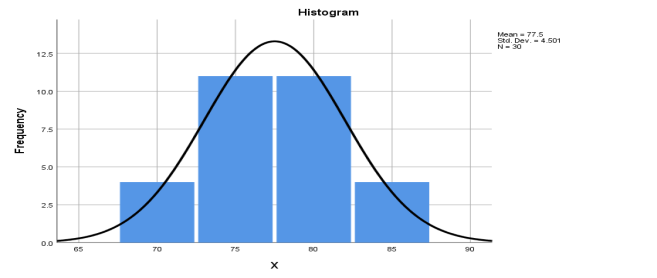
1. **Result**

To get the data of the result of this research, the researcher used one kind of instruments in collecting data, they were critical thinking test and writing ability of analytical exposition text test,The research focused on two variables; critical thinking (X) and writing ability of analytical exposition text (Y) .The research was conducted at State Islamic Institute (IAIN) Bengkulu in which 4th semester students of English study program by WhatssApp Application. Because of the COVID-19 pandemic which caused research not to be carried out by face-to-face or class attendance. Therefore, researcher chose to use the WhatssApp Application to retrieve data by creating groups. because the WhatssApp Application is easier to access by students than other Online Applications. The problem was limitedon the relationship between students’ critical thinking, and their writingability of analytical exposition text and the research question is to know there is any relationship between students' critical thinking and writing ability of analytical exposition text of the fourth semester students of English Study Program at State Islamic Institute Bengkulu in academic year 2019/2020.

After completing the data collection and data analysis, the result of the research was explained from the result of linearity test, normality test, and Pearson of product moment correlation test Based on the data calculation that provide the general description of dissemination research finding data, the description of research finding data is provided as follows: the data description of each variables are provided in the form of frequency distribution, total score, average score, standard deviation, mode, median, maximum and minimum score.

1. **Critical Thinking**

Critical thinking is one of the variables measured in this research. This variable was measured through testing students’ critical thinking. The test used standard test of critical thinking that is created by Starkey (2004) with 20 questions. To give visualization of the data distribution of critical thinking, the histogram of frequency distribution with the probability normal curve formed is presented in figure 4.1 as follows:



**Figure 4.1**

**Histogram of Critical Thinking Score**

Figure 4.1 shows that the critical thinking data is normally distributed. This is indicated by the histogram which resembles the symmetrical and bell-shaped graphical representation. Furthermore, to describe the more detail data, the descriptive statistics of students’ critical thinking score is provided below:

**Table 4.1**

**Descriptive Statistics of Critical Thinking Data**

|  |  |  |
| --- | --- | --- |
| **Statistics** | | |
| X | | |
| N | Valid | 30 |
| Missing | 0 |
| Mean | | 77.50 |
| Std. Error of Mean | | .822 |
| Median | | 77.50 |
| Mode | | 75a |
| Std. Deviation | | 4.501 |
| Variance | | 20.259 |
| Range | | 15 |
| Minimum | | 70 |
| Maximum | | 85 |
| Sum | | 2325 |
| a. Multiple modes exist. The smallest value is shown | | |

Based on the data in the Table 4.1 above, the central tendency distribution of critical thinking data of the 30 fourth semester students of English Study Program are indicated by the mode, mean, median, minimum, and maximum scores. In this case, it is found that the most frequently score (Mode) of critical thinking data is 75. Next, the middle point in the data distribution (Median) found is 77.50. Besides, the average score is shown by the (Mean) score 77.50. Meanwhile, the lowest score (Minimum) found is 70, and the highest score (Maximum) found is 85.

In addition, the dispersion of variability distribution of critical thinking data is shown by the score of range, standard deviation and variances. Based on the table 4.1 above, the range score between maximum and minimum scores found is 15. The next, standard deviation score found is 4.501. Meanwhile, the percentage of the comparison between standard deviation and the mean score is shown by the variance 20.259.

In this research, the researcher created a frequency distribution to summarize the data from students’ critical thinking scores. The frequency distribution is a list that contains grouped data arranged according to certain interval class. Data obtained from, R = 85-70 = 15. For number of classes, K = 1+3, 3 log n = 1+3, 3 (30) = 4, with class length P = R/K = 15:4 = 3. The table of frequency distribution as follows:

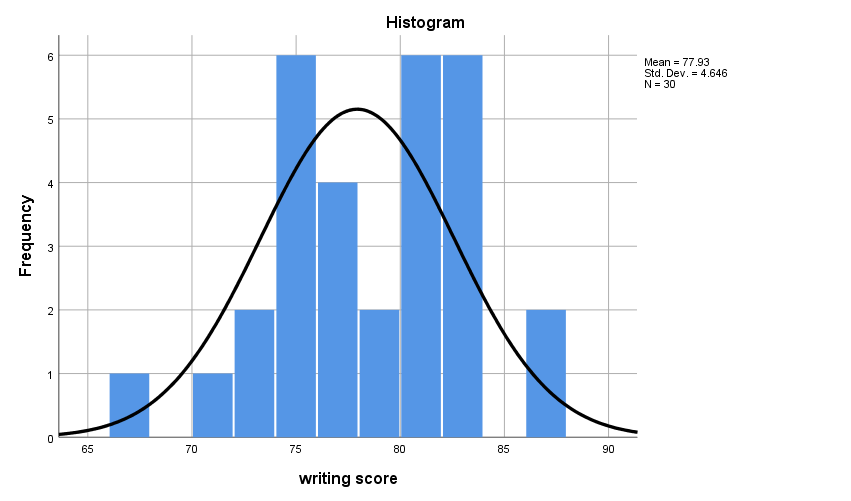
**Table 4.3**

**Frequency Distribution of Students Critical Thinking**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Interval Class** | **Frequency** | **Relative Class** | **Cumulative Frequency**  **( < )** | **Cumulative Frequency**  **( > )** | **Midpoint** |
| 1 | 70-73 | 4 | 1,4 % | 4 | 30 | 71,5 |
| 2 | 74-76 | 11 | 3,7 % | 14 | 26 | 75 |
| 3 | 77-80 | 11 | 3,7 % | 25 | 15 | 78,5 |
| 4 | 81-85 | 4 | 1,4 % | 29 | 4 | 83 |
| Jumlah 30 100% | | | | | | |

**2. Writing Ability of Analytical Exposition Text**

The writing ability of analytical exposition text of the fourth semester students is determined from the students’ responses in the test of written English (independent essay). To give visualization of the data distribution of critical thinking, the histogram of frequency distribution with the probability normal curve formed is presented in figure 4.2 as follows:



**Figure 4.2**

**Histogram with Normal Curve Writing Ability of Analytical Exposition Text**

Figure 4.2 shows that the writing ability of analytical exposition text is normally distributed. This is indicated by the histogram which resembles the symmetrical and bell-shaped graphical representation. Furthermore, to describe the more detail data, the descriptive statistics of students’ writing ability of analytical exposition text score is provided below:

**Table 4.3**

**Descriptive Statistics of Writing Ability of Analytical Exposition Text**

|  |  |  |
| --- | --- | --- |
| **Statistics** | | |
| Writing (Y) | | |
| N | Valid | 30 |
| Missing | 0 |
| Mean | | 77.93 |
| Std. Error of Mean | | .848 |
| Median | | 78.00 |
| Mode | | 74a |
| Std. Deviation | | 4.646 |
| Variance | | 21.582 |
| Range | | 20 |
| Minimum | | 67 |
| Maximum | | 87 |
| Sum | | 2338 |
| a. Multiple modes exist. The smallest value is shown | | |

Based on the data in the Table 4.3 above, the central tendency distribution of writing ability of analytical exposition text data of the 30 fourth semester students of English Study Program are indicated by the mode, mean, median, minimum, and maximum scores. In this case, it is found that the most frequently score (Mode) of writing ability of analytical exposition text data is 74. Next, the middle point in the data distribution (Median) found is 78.00. Besides, the average score is shown by the (Mean) score 77.93. Meanwhile, the lowest score (Minimum) found is 67, and the highest score (Maximum) found is 87.

In addition, the dispersion of variability distribution of writing ability of analytical exposition text data is shown by the score of range, standard deviation and variances. Based on the table 4.3 above, the range score between maximum and minimum scores found is 20. The next, standard deviation score found is 4.646. Meanwhile, the percentage of the comparison between standard deviation and the mean score is shown by the variance 21.582.

In this research, the researcher created a frequency distribution to summarize the data from students’ critical thinking scores. The frequency distribution is a list that contains grouped data arranged according to certain interval class. Data obtained from, R = 87-67 = 20. For number of classes, K = 1+3, 3 log n = 1+3, 3 (30) = 4, with class length P = R/K = 20:4 = 5. The table of frequency distribution as follows:

**Table 4.4**

**Frequency Distribution of Students Writing Ability of Analytical Exposition Text**

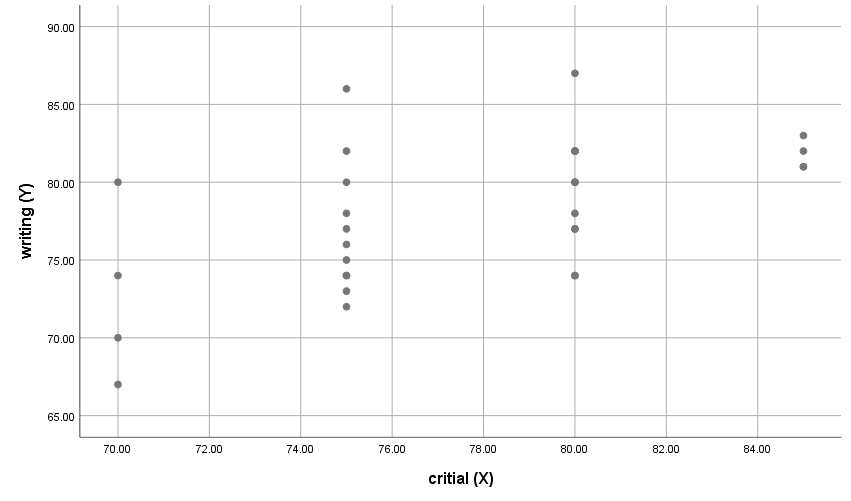
|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Interval Class** | **Frequency** | **Relative Class** | **Cumulative Frequency**  **( < )** | **Cumulative Frequency**  **( > )** | **Midpoint** |
| 1 | 67-71 | 2 | 0,6 % | 2 | 30 | 69 |
| 2 | 72-76 | 9 | 3 % | 11 | 28 | 74 |
| 3 | 77-81 | 11 | 36,6 % | 22 | 17 | 79 |
| 4 | 82-87 | 8 | 2,6 % | 30 | 5 | 84 |
| Jumlah 30 | | | | | | |

1. **Data Analysis and Testing Hypotheses**
2. **Data Analysis**

Before the data is analyzed, the linearity and normality distribution of the data sets of the two variables are tested first. The explanation of test of linearity and normality distribution are presented as follows:

1. Test of Linearity

The linearity of the critical thinking and writing ability of analytical exposition text data sets is tested through examining the scattered diagram represented in Figure 4.3 as follows:



**Figure 4.3**

**Scattered Diagram of the Linearity between CT and WA**

The scatter diagram in figure 4.3 above reveals that the critical thinking and writing ability of analytical exposition text tend to have a linear relationship as the dots in that diagram shows an indication as a linear line. Moreover, it can be concluded that there is a positive relationship between critical thinking and writing ability of analytical exposition text for the dots in that scattered diagram shows an indication that the data starts from the down left side to the up right side of the diagram.

Besides, the result of the scattered diagram represented in figure 4.3 above is also confirmed by the result of ANOVA between two variables as follows:

**Table 4.5**

**ANOVA Table**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **ANOVA Table** | | | | | | | |
|  | | | Sum of Squares | df | Mean Square | F | Sig. |
| critical (X) \* writing (Y) | Between Groups | (Combined) | 369.583 | 14 | 26.399 | 1.817 | .132 |
| Linearity | 179.311 | 1 | 179.311 | 12.343 | .003 |
| Deviation from Linearity | 190.272 | 13 | 14.636 | 1.007 | .489 |
| Within Groups | | 217.917 | 15 | 14.528 |  |  |
| Total | | 587.500 | 29 |  |  |  |

Based on the data in the table 4.5above, the significance value (Sig.), from the output above, the deviation from linearity Sig value is obtained. It reveals that the significance of the linearity is 0.489 is higher than the level of significance 0.05. In addition, it can be concluded that there is a significant linear relationship between the Critical Thinking (X) and Writing (Y) variables.

1. Test of Normality

The normality distribution of critical thinking and writing ability of analytical exposition text data was tested using SPSS software. It is done in order to know whether the populations from which the samples are taken are normally distributed or not. It is important because normal data is an underlying assumption in parametric testing. The result normality test is presented as follows:

**Table 4.6**

**Test of Normality**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Tests of Normality** | | | | | | |
|  | Kolmogorov-Smirnova | | | Shapiro-Wilk | | |
| Statistic | df | Sig. | Statistic | Df | Sig. |
| critical (X) | .211 | 30 | .002 | .883 | 30 | .003 |
| writing (Y) | .138 | 30 | .147 | .973 | 30 | .619 |
| a. Lilliefors Significance Correction | | | | | | |

Based on table 4.6 above, at the 99% level of confidence (*p*(Sig.)>0.01), it appears to be no problem regarding to the normally distribution. In this case, the test shows that the asymptotic significance of two variables obtained is higher than the 99% level of confidence (CT(X) = 0.03>0.01), (WA(Y) = 0.619>0.01), so H0 is accepted. In other words, the critical thinking data and writing ability of analytical exposition text data are normally distributed. However, inconsistency result of the critical thinking and writing ability of analytical exposition text data set is found as the level of significance is lowered to the 95% level of confidence. It is found that the critical thinking asymptotic significance is lower than the 95% level of confidence (0.03<0.05); thus, H0 is rejected. Consequently, the critical thinking data set is considered as not normally distributed. Meanwhile, at the 95% level of confidence, the data distribution of the writing ability of analytical exposition text is found to be consistent (*p*>0.05 or 0.619>0.05); therefore, H0 is accepted. In other words, the writing ability of analytical exposition text data set is normally distributed

By examining the normality distribution test results above, the evaluation for the risks to create errors in hypothesis testing to coefficient correlation indicating the inter-rater reliability is necessary to consider. firstly, a type I error is feasible to create since the 95% level of confidence (*p*>0.05) has a higher chance to reject the alternative-hypothesis which states that the data is not normally distributed, in fact in reality the data distribution is normal. Meanwhile, type II errors are likely to occur as the level of confidence is increased to 99% in which the alternative-hypothesis is accepted. In fact in reality the data is not normally distributed. despite having the possibility to make a type 1 error or a type 2 error, the parametric statistics (Pearson Product Moment Correlation) is preferred to be used since this takes some considerations the critical thinking data set is considered to be normally distributed due to the fact that its represented histogram resembles a symmetrical and bell-shaped graphical representation (Figure 4.1), as well as confirmed by the result of the Shaphiro-Wilks W test at the 99% level of confidence.

Because of the fact that both of the data sets of critical thinking and writing ability of analytical exposition text tends to be linear and normally distributed, the parametric statistic (Pearson Product Moment Correlation) can be used to find out the correlation coefficient between critical thinking and writing ability of analytical exposition text. The correlation coefficient for both of the variables is symbolized with *rxy*. The calculation of *rxy*is presented as follows:

N = 30

rxy=

rxy= 0,552

The scores of N, ∑X, ∑Y, ∑XY, ∑X², ∑Y² above see in Appendix 4.

To make sure the result of the calculation above, the Pearson Product Moment in SPSS statistic calculation is conducted to know whether the calculation that has been calculated manually is correct or not to make sure that there is no mismatching calculation between score that the researcher counted. The calculation of Pearson Product Moment is described as follow:

**Table 4.6**

**SPSS Pearson Correlation**

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlations** | | | |
|  | | Critical | Writing |
| critical | Pearson Correlation | 1 | .552\*\* |
| Sig. (2-tailed) |  | .002 |
| N | 30 | 30 |
| writing | Pearson Correlation | .552\*\* | 1 |
| Sig. (2-tailed) | .002 |  |
| N | 30 | 30 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | |

The results of those two calculations (manual calculation and SPSS calculation) are same in which show the value of rxy0.552. It meansthat there is no mismatch in the process of calculating the data. From the calculation above, it is found that rxy is 0.552. Table 4.6 revealed that there was a significant correlation between students’ critical thinking and writing ability of analytical exposition text. The Pearson correlation (0.552>0.05) which means H1 is accepted. The next step is to find the significance of variables by calculating rxy is tested by significance test formula (see in Appendix 10).

1. **Test of Hypothesis**

To test hypothesis, the correlation coefficient from the calculation (rxy) which is converted to t obtained (to) is compared to t table (tt). In the term of the statistical hypotheses, these can be portrayed as follows:

1. If to<tt = Ho is accepted. It means there is no correlation between students’ critical thinking and writing ability in analytical exposition text.
2. If to >tt= Ho is rejected. It means there is a correlation between student critical thinking and writing ability in analytical exposition text.

To determine the t table, degree of freedom (df) is required. To obtain the score of degree of freedom, the following formula see in Appendix 10.

After the degree of freedom is determined. It is found that the value of t table (tt) using the level of significance or 𝑎= 5%, in other words the corresponding confidence level of 95%, is 1.701 (see in Appendix 5). Based on the both value of t obtained (to) = 3.505 and the t table (tt) = 1.701, the hypothesis is analyzed that the value of t obtained is higher than t table (to >tt, or 3.505 > 1.701). It is interpreted that ho is rejected which means that there is a correlation between students critical thinking and writing ability in analytical exposition text.

1. **Determination of Coefficient**

Coefficient determination is interpreted as the amount contribution of the variable x to variable y. It is obtained by the following formula see in Appendix 10.

This means that the contribution of X or students critical thinking is 74% towards Y or student writing ability in analytical exposition text. The other contributions are given by other variables.

1. **Discussions**

In order to strengthen the value of this study the interpretation were made based on the result of data analysis. This research was conducted through quantitative method using correlational design. First of all, the aims of this study were to find out: The correlation between students’ critical thinking and writing ability of analytical exposition text and the limitation on the critical thinking and writingability of analytical exposition text.

. Based on the research questions, there were also hypothesis formulated to be tested in this research. Then, the result was found after applying statistical analysis correlation using Pearson Product Moment correlation. According to findings, the students' critical thinking was positively correlated with their writing ability of analytical exposition text. According to Ruggiero points out that abundance of ideas will appear and flow as critical thinking ability is employed in writing.[[52]](#footnote-53) So, writing must go hand in hand with their mind and hand. Writers do know how to express their opinions and learning the rudimentary of complex grammar of exposition.

In line with ability of critical thinking to decide what to do or claim the truth. The writer will become quite proficient at delivery extremely effective written arguments. Then, critical thinking is seen as cognitive skill which is related to the success of writing ability on analytical exposition text since writing process needs critical thinking in reasoning, evaluation, and persuading. Writing accuracy is build up from the correctness of writer’s use of language system is, including the grammar, vocabulary and punctuation.

Based on the data description above, it is found that the students critical thinking of the fourth semester students of English study program averagely fair good. It is indicated by the average score (Mean) of students critical thinking that is 77.50. The student writing ability of analytical exposition text in average is fairly god as well. The mean score of students writing ability of analytical exposition text is 77.93. It is slightly better than score of students’ critical thinking. Meanwhile, based on the calculation of the analysis above, the score of correlation coefficient (r) which was converted to t obtained (to) is higher than score in the t table (tt). In this case, the correlation coefficient (t) found is 3.505; while the t table (tt) score in the significant of 0.05 % (5%) is 1.701. Therefore, theto= 3.505 >tt = 1.701. Moreover, based on the calculation of determination coefficient (R), critical thinking has 74% contribution towards writing ability of analytical exposition text. In other words, the writing ability of analytical exposition text is influenced by 74% of the students’ critical thinking and 26% by other factors. Based on the table of r score interpretation in table 3.4, that the students critical thinking has moderate (medium) correlation with their writing ability of analytical exposition text. It is interpreted that a correlation exists between the two variables.

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This is line with the theory of writing analytical exposition it is not skill that can stand alone. Some variables affect the success of writing ability. In this research, it was confirmed that students’ writing ability of analytical exposition is determined by their critical thinking. So, it is justified that this research can state writing ability on analytical exposition text needs critical thinking.Critical thinking is good for students because using these thinking skills will helpstudents do problem solving or get valid information easily. More and more students are awarecritical thinking, they become more logical to think and also improve their writing more critical and effective. When a person has these skills, they will have a wide scope cognitive skills and intellectual dispositions to identify, analyze and evaluate information to overcome personal perceptions and bias to claim truth about what to believe or do. This is in line with Fahim and Mirzaii's statement stated that the ability to write analytical exposition text depends on critical thinking.[[53]](#footnote-54)Therefore, this research found a correlation between students' critical thinking and their writing ability and these variables were analyzed statistically and theoretically.

Students' critical thinkinghas an important role in developing writing ability. By writing, students try to convey their thoughts and knowledge into paper. There will be the vast amount of information they need to analyze what's important and what's not. In this process, critical thinking is associated with students' reasoning or capacity to be rational thinking to identify, analyze and evaluate large amounts of information. In critical writing, the writer will use cognitive skills to evaluate information or describe it and write in English. Communicating ideas or through others with a rational and smooth transition with low worst possible writing. So, critical thinking and writing ability cannot be separated to produce critical writing. Especially, in writinganalytical exposition text in which the writer tries to persuade the writer through their critical writing.

In short, based on the data analysis, the researcher found that the students' critical thinking and writing ability of analytical exposition text showed fair correlation. Finally, this research found there was a significant correlation between students' critical thinking and writing ability of analytical exposition text of the fourth semester students of IAIN Bengkulu.

The result of this research, there are similarities and differences with previous studies, there are:

* AzizollahDabaghi (2013) Department of English University of Isfahan, Iran. With the research question*“to compares the differential role of critical thinking in learners’ performance on argumentative and narrative written tasks”* that is there is differences with this research, where in this research there is a positive correlation between variables, while in the research of AzizollahDabaghi there is a negative correlation between variables.
* Ahmad Sugianto(2014) Teachers Training SyarifHidyatullah State Islamic University, Jakarta. With the research question *“to find out whether or not there is any significant relationship between critical thinking ability and writing ability”* that there are similarities with this research, where the same is equal positively correlated between variables. But, in Ahmad Sugianto the correlation is at a high level whereas in this research it is at a moderate level.
* Nader Assadi, HaniefDavatgar, and ParinazJafari (2013) with the research question *“to find out whether critical thinking has effects on learners’ writing”* that is there is differences with this research, where in this research is to find correlation between variables, while in the research of Nader, Hanief, and Parinaz is to find the effect on variables.

1. **Limitations**

In concluding this study, there were some challenges which lead this study to have some limitations. First, because due to the COVID-19 pandemic, the results of data collection were less conducive, because in online data collection, namely using the WhatsApp application, this allowed participants to imitate or plagiarize answers from other participants and also get answers from the internet. Especially in writing essays, participants can view essays on the internet from a given topic. So that the result is not one hundred percent of the participant's work.

Second, there are some difficulties were found in terms of looking for some participants. Also, there was only limited time to administer the instrument. In this case, the participants had some courses to attend as wellas there were some tests they should take.

Another shortcoming found was the difficulty to access and look some references. While, the researcher was research this thesis during the pandemic COVID-19 it makes more difficult to search the references and do the research.

**CHAPTER V**

**CONCLUSION AND SUGGESTION**

1. **Conclusion**

Based on the findings and interpretations on the previous chapter, it can be concluded that:

There was a significant correlation between students critical thinking and writing ability of analytical exposition text. The correlation coefficient or the r-obtained (0,552) was higher than the r-table (0,361). It means that the result indicated that there was a positive and significant correlation between students' critical thinking and writing ability of analytical exposition text. Then the level of probability (p) significance (sig.2-tailed) was .002. It means that p (.552) was lower than .05. It means that the higher critical thinking is the higher writing ability and the lower critical thinking, the lower writing ability will be. . The findings showed that the null hypothesis (H0) was rejected and the alternative hypothesis (H1) was accepted.

Based on the findings, it can be concluded that the students' critical thinking gives a dominant effect to the writing ability of analytical exposition text. In this case, the other factors would give more dominant effect through it. It can be assumed that the higher this critical thinking by the students, the better the result of writing ability. it means that the students who have good critical thinking will have good writing ability and the students with bad critical thinking will have bad writing ability.Because the students who have good critical thinking ability will have good writing ability. Moreover, if you think more critically, you will further develop ideas in writing which will get good writing attainment.

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1. **Suggestion**

Based on the conclusion above, the researcher would like to give some suggestions as follows:

1. For the Lecturers

The findings of this research prove that there is a moderate relationship between critical thinking and the ability to write analytical exposition text. Therefore, this research may become a reference for lecturers to serve as a method of learning.

1. For the Students

Based on the research results, critical thinking contributes to someone's writing. Students who learn English can improve their writing ability from their critical thinking skill.

1. For the Other Researchers

The research can be a contribution to the research in education which is intended to find out the correlation of two variables. In this case, critical thinking and writing. They can use it as a comparison with other studies in educational research.

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**A**

**P**

**P**

**E**

**N**

**D**

**I**

**C**

**E**

**S**

**Appendix 1**

**Test of Critical Thinking**

1. Every Monday, your teacher gives you a quizon the reading he assigned for the weekend.Since he typically assigns at least 50 pages oftextbook reading, the quizzes are difficult andyou have not gotten good grades on them sofar. Which answer represents the best idea fortroubleshooting this problem and improvingyour grades?
2. Ask for the assignment earlier in the week
3. Schedule in more time on Saturday andSunday for reading and studying
4. Get up an hour earlier on Monday morningto go over the reading
5. Get a good night’s sleep and eat a goodbreakfast before the quiz
6. Which one of the following is NOT an exampleof a persuasion technique?
7. Tigress jeans are available at your localMega Mart store.
8. The very best mothers serve LonghornChili-in-a-can.
9. “Vote for me, and I promise our schools will improve. My opponent just wants tocut the school budget!”
10. Our tires not only look better, but they ridebetter, too.
11. Which is a sound argument?
12. I had a dream that I got a D on my biologytest, and it came true. If I want to do betternext time, I need to have a more positivedream.
13. Beth wanted to become a better driver, soshe took a driving class and studied theMotor Vehicles manual. Her driving reallyimproved.
14. After a strong wind storm last October, all ofthe leaves were off the trees. That is when Ilearned that wind is what makes the leaves fall.
15. When Max realized he was getting a cold,he started taking Cold-Go-Away. In fourdays, he felt much better, thanks to theCold-Go-Away.
16. Which answer best represents a situation thathas been decided by emotion alone?
17. You hate the winter, so even though youcan’t afford it, you take a vacation to the

Bahamas.

1. The school shuts down after a bomb threat.
2. Your company’s third-quarter earningswere much higher than predicted.
3. You need a new mixer, so you watch the adsin your newspaper, and buy one when itgoes on sale.
4. What statement represents a judgment insteadof a fact?
5. My presentation was excellent. I am suremy boss will promote me now.
6. My presentation was excellent. The clientsall told me they liked it.
7. My presentation was excellent. It won anaward from management.
8. My presentation was excellent. It was citedas such on my peer evaluation.
9. What should you NOT rely on when making ajudgment call?
10. Intuition
11. common sense
12. gossip
13. past experience
14. Which of these situations does NOT requireproblem solving?
15. After you get your new computer home,you find that there is no mouse in the box.
16. When you get your pictures back frombeing developed, you realize that they aresomeone else’s.
17. Everyone on your team wants to celebrateat the Burger Palace, but you just ate therelast night.
18. Your boss asks you to finish a report fortomorrow morning, but it is your son’sbirthday and you promised you would takehim to the ball game tonight.
19. What is wrong with the “logic” of the followingstatement?“How can you believe his testimony? He is aconvicted felon!”
20. The fact that the person testifying was convicted of a crime does not mean he is lying.
21. A convicted felon cannot testify in a courtof law.
22. The person speaking has a bias againstcriminals.
23. The person speaking obviously did notattend law school.
24. Which of the following is a sound argument?
25. I got an A on the test. I was really tired lastnight, though, and I barely studied. To keepgetting A’s, I need to stop studying so hard.
26. Your car is not running well. You just triedthat new mechanic when you needed an oilchange. I bet he is the reason you are having car trouble.
27. I have not vacuumed in weeks. There isdust and dirt all over my floors, and myallergies are acting up. If I want a cleanerhouse, I need to vacuum more frequently.
28. The Boston Red Sox have not won a worldseries in almost one hundred years. Theywon the American League playoffs in 2003.The Red Sox will lose the series.
29. What is the best conclusion for the argumentthat begins, “The other eight people in myclass . . .”?
30. Like meatballs, so I should too.
31. Live in apartments on the south side oftown, so I should live there too.
32. Who studied Jorge’s notes got D’s, so I willget a D too.
33. Who met the new principal like him, so Ishould too.

Read the paragraph and answer the following twoquestions.

I always knew I wanted to be a marine biologist. WhenI was six, my parents took me to an aquarium, and I washooked. But it was in college, when I got to work on an ocean research cruise, which I decided to specialize inoceanography. The trip was sponsored by the PlanktonInvestigative Service, and our goal was to collect asmany different types of the microscopic plants and animals as we could, in order to see what, if any, impactthe increased number of fishermen had on the marineecosystem. Our group was divided into two teams, eachresponsible for gathering a different type of plankton.Working with the phytoplankton, especially the blue green algae, was fascinating. We measured the chlorophyll in the water to determine where, and in whatquantity the phytoplankton were. This worked wellbecause the water was so clear, free of sediment andcontaminants.

1. What is phytoplankton?
2. Another name for chlorophyll
3. A microscopic plant
4. A microscopic animal
5. A type of fish
6. The author says her group was investigatingwhether more fishermen in the area of studyhad…
7. A positive impact on the local economy.
8. Depleted the supply of fish.
9. Made more work for marine biologists.
10. A negative impact on the health of the surrounding waters.
11. What is the most important reason for evaluating information found on the Internet?
12. Authors who publish on the Internet aretypically less skilled than those who publishin print.
13. Web writers are usually biased.
14. Anyone can publish on the Internet; thereis no guarantee that what you are reading istruthful or objective.
15. Information found in print is almostalways more accurate than that found onthe Internet.
16. What is wrong with the following argument?

“We should not change our grading system tonumbers instead of letters. The next thing youknow, they will take our names away and referto us by numbers, too!”

1. The conclusion is too extreme.
2. There is nothing wrong with the argument.
3. Students should not have a say in the typeof grading system for their schools.
4. It does not explain why they want to get ridof letter grades.
5. Which phrase is an example of hyperbole?
6. In a perfect world, there would be no war.
7. That outfit would scare the skin off a cat.
8. You are not the world’s best cook.
9. He drives almost as fast as a racing driver.
10. Why is the statement below not an example of a problem solving?

"Our manager criticizes our work today because he has a problemat home"

1. The speaker can spend too much time knowinghow to help the manager.
2. The speaker is making assumptions about the cause of the criticism thatcan't be right.
3. The speaker is making assumptions about how well his job.
4. The speaker is too worried about the results of his work.
5. Which statement is not an example of prejudice or imitation?
6. Sheri will not try this donut. He said that everyone whoeating donuts ends up being fat and unhealthy.
7. There is no vegetable shop in this city that speaks English
8. I don't believe he will show off at work in his clothing suit. Hedefinitely buys it at Midnight sale at Matahari Department store.
9. My uncle left his house as he wanted. I do not believehow generous he is.
10. What is wrong with this argument?

“You think we need a new regulation to controlair pollution? I think we have already got toomany regulations. Politicians just love to passnew ones, and control us even more than theyalready do. It is suffocating. We definitely donot need any new regulations.”

1. The person speaking doesn’t care about theenvironment.
2. The person speaking has changed thesubject.
3. The person speaking is running for political office.
4. The person speaking does not understandpollution.
5. You read a story in the newspaper about salarynegotiations involving public transportationworkers. The workers are threatening to go onstrike tomorrow if their demands for higherwages and better benefits are not met. What represents an inference made from this scenario?
6. Health insurance premiums are veryexpensive.
7. The cost of gas will make ticket pricesincrease in the next few weeks.
8. People who ride the bus should look forpossible alternative transportation.
9. Employers never like to meet salarydemands.
10. Evidence shows that the people who live in theAntarctic score higher on happiness surveysthan those who live in Florida. Which is thebest conclusion that can be drawn from thisdata?
11. Floridians would be happier if they movedto the Antarctic.
12. People in colder climates are happier thanthose in warmer climates.
13. There are only happy people in the Antarctic.
14. Those in the Antarctic who scored high ona happiness survey probably like snow.

Adaptation from (Critical thinking skill success, Starkey, 2004)

**Appendix 2**

**Test of Writing Ability in Analytical Exposition Text**

**Name :**

**Class :**

**Instruction :**

1. Write an analytical exposition text based on the topic *global warming,the unhealthy fast food, cramming is bad, the importance of pre-marriage education and teaching English in early childhood is important.* You are free to choose only one of them
2. Your essay should consist of generic structure of analytical exposition text:

* Thesis Statement
* Arguments (at least two arguments)
* Reiteration

1. Remember to include the language features of analytical exposition text:

* Using Simple Present Tense
* Use word that link argument, such as firstly, secondly, in addition, furthermore
* It contains these phrases:
* From the fact above…
* Personally believe…
* Therefore, my conclusion is…
* In conclusion…

1. Write an analytical exposition text at least 200 words
2. Your essay will be scored based on these considerations:

* Organization
* Content
* Vocabulary
* Language Use
* mechanics

**Appendix 3**

**Assessment Rubric of Writing Test**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Participant:** | | | **Topic:** | **Date:** | |
| **Aspect** | **Score Scale** | **Criteria** | | | **Score** |
| **Content** | **30-27** | **Excellent to very good:** knowledge, substantive, thorough, development of thesis, relevant to assign topic | | |  |
| **26-22** | **Good to average:** some knowledge of subject, adequate range, limited development of thesis, mostly relevant to topics but lacks detail | | |  |
| **21-17** | **Fair to poor:** limited knowledge of subject, little substance, inadequate development topic | | |  |
| **15-13** | **Very poor:** does not show knowledge of subject, not substantive, not pertinent, or not enough to evaluate | | |  |
| **Organization** | **20-18** | **Excellent to very good:** fluent expression, ideas clearly stated/supported, succinct, well-organized, logical sequencing, cohesive | | |  |
| **17-14** | **Good to average:** somewhat choppy, loosely organized but main ideas stand out, limited support, logical but incomplete sequencing | | |  |
| **13-10** | **Fair to poor:** non-fluent, ideas confused or disconnected, lacks logical sequencing and development | | |  |
| **9-7** | **Very poor:** does not communicate, no organization, or not enough to evaluate | | |  |
| **Vocabulary** | **20-18** | **Excellent to very good:** sophisticated range, effective word/idiom choice and usage, or form mastery, appropriate register | | |  |
| **17-14** | **Good to average:** adequate range, occasional errors of word/idiom, word choice, usage, but meaning not obscured | | |  |
| **13-10** | **Fair to poor:** limited range, frequent errors of word/idiom form, choice, usage, meaning confused or obscured | | |  |
| **9-7** | **Very poor:** essentially translation, little knowledge of English vocabulary, idioms, word form, or not enough to evaluate | | |  |
| **Language use** | **25-22** | **Excellent to very good:** effective complex construction, few errors of agreement, tense, number, word order/function, article, pronouns, preposition | | |  |
| **21-18** | **Good to average:** effective but simple construction, frequent errors of negation, agreement, tense, number, word order/function, articles, pronouns, prepositions but meaning seldom obscured | | |  |
| **17-11** | **Fair to poor:** major problems in simple/complex construction, frequent errors of negation, agreement, tense, number, word order/function, articles, pronouns, prepositions and/or fragments, run-ons, deletions, meaning confused or obscured | | |  |
| **10-5** | **Very poor:** virtually no mastery of sentence construction rules, dominated by errors, does not communicate, or not enough to evaluate | | |  |
| **Mechanics** | **5** | **Excellent to very good:** demonstrates mastery of conventions, few errors of spelling, punctuation, capitalization, paragraphing | | |  |
| **4** | **Good to average:** occasional errors of spelling, punctuation, capitalization, paragraphing, but meaning to obscured | | |  |
| **3** | **Fair to poor:** frequent errors of spelling, punctuation, capitalization, paragraphing, poor handwriting, meaning confused or obscured | | |  |
| **2** | **Very poor:** no mastery of conventions, dominated by errors of spelling, punctuation, capitalization, paragraphing, handwriting illegible, or not enough to evaluate | | |  |
| **Total Score** | | | | |  |

Adaptation from Jacob et al developing by Sara Cushing Weigle, 2002.

**Appendix 4**

**Table Calculation**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Participants** | **X** | **Y** | **XY** | **X2** | **Y2** |
| Student 1 | 70 | 70 | 4900 | 4900 | 4900 |
| Student 2 | 75 | 77 | 5775 | 5625 | 5929 |
| Student 3 | 80 | 80 | 6400 | 6400 | 6400 |
| Student 4 | 75 | 82 | 6150 | 5625 | 6724 |
| Student 5 | 75 | 74 | 5550 | 5625 | 5476 |
| Student 6 | 80 | 74 | 5920 | 6400 | 5476 |
| Student 7 | 75 | 75 | 5625 | 5625 | 5625 |
| Student 8 | 75 | 80 | 6000 | 5625 | 6400 |
| Student 9 | 80 | 77 | 6160 | 6400 | 5929 |
| Student 10 | 80 | 82 | 6560 | 6400 | 6724 |
| Student 11 | 75 | 73 | 5475 | 5625 | 5329 |
| Student 12 | 85 | 81 | 6885 | 7225 | 6561 |
| Student 13 | 75 | 74 | 5550 | 5625 | 5476 |
| Student 14 | 80 | 80 | 6400 | 6400 | 6400 |
| Student 15 | 75 | 78 | 5850 | 5625 | 6084 |
| Student 16 | 80 | 82 | 6560 | 6400 | 6724 |
| Student 17 | 80 | 77 | 6160 | 6400 | 5929 |
| Student 18 | 85 | 83 | 7005 | 7225 | 6889 |
| Student 19 | 75 | 76 | 5700 | 5625 | 5776 |
| Student 20 | 75 | 72 | 5400 | 5625 | 5184 |
| Student 21 | 70 | 74 | 5180 | 4900 | 5476 |
| Student 22 | 70 | 67 | 4690 | 4900 | 4489 |
| Student 23 | 85 | 81 | 6885 | 7225 | 6561 |
| Student 24 | 80 | 82 | 6560 | 6400 | 6724 |
| Student 25 | 80 | 74 | 5920 | 6400 | 5476 |
| Student 26 | 75 | 86 | 6450 | 5625 | 7396 |
| Student 27 | 80 | 78 | 6240 | 6400 | 6084 |
| Student 28 | 70 | 80 | 5600 | 4900 | 6400 |
| Student 29 | 80 | 87 | 6960 | 6400 | 7569 |
| Student 30 | 85 | 82 | 6970 | 7225 | 6724 |
| N = 30 | ∑X = 2325 | ∑Y = 2338 | ∑XY = 181480 | ∑X2 = 180775 | ∑Y2 = 182834 |

**Appendix 5**

**TitikPersentaseDistribusi t (df = 1 - 40)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Pr df** | **0.25 0.50** | **0.10 0.20** | **0.05 0.10** | **0.025 0.050** | **0.01 0.02** | **0.005 0.010** | **0.001 0.002** |
| 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 29 30 31 32 33 34 35 36 37 38 39 40 | 1.00000 0.81650 0.76489 0.74070 0.72669 0.71756 0.71114 0.70639 0.70272 0.69981 0.69745 0.69548 0.69383 0.69242 0.69120 0.69013 0.68920 0.68836 0.68762 0.68695 0.68635 0.68581 0.68531 0.68485 0.68443 0.68404 0.68368 0.68335 0.68304 0.68276 0.68249 0.68223 0.68200 0.68177 0.68156 0.68137 0.68118 0.68100 0.68083 0.68067 | 3.07768 1.88562 1.63774 1.53321 1.47588 1.43976 1.41492 1.39682 1.38303 1.37218 1.36343 1.35622 1.35017 1.34503 1.34061 1.33676 1.33338 1.33039 1.32773 1.32534 1.32319 1.32124 1.31946 1.31784 1.31635 1.31497 1.31370 1.31253 1.31143 1.31042 1.30946 1.30857 1.30774 1.30695 1.30621 1.30551 1.30485 1.30423 1.30364 1.30308 | 6.31375 2.91999 2.35336 2.13185 2.01505 1.94318 1.89458 1.85955 1.83311 1.81246 1.79588 1.78229 1.77093 1.76131 1.75305 1.74588 1.73961 1.73406 1.72913 1.72472 1.72074 1.71714 1.71387 1.71088 1.70814 1.70562 1.70329 1.70113 1.69913 1.69726 1.69552 1.69389 1.69236 1.69092 1.68957 1.68830 1.68709 1.68595 1.68488 1.68385 | 12.70620 4.30265 3.18245 2.77645 2.57058 2.44691 2.36462 2.30600 2.26216 2.22814 2.20099 2.17881 2.16037 2.14479 2.13145 2.11991 2.10982 2.10092 2.09302 2.08596 2.07961 2.07387 2.06866 2.06390 2.05954 2.05553 2.05183 2.04841 2.04523 2.04227 2.03951 2.03693 2.03452 2.03224 2.03011 2.02809 2.02619 2.02439 2.02269 2.02108 | 31.82052 6.96456 4.54070 3.74695 3.36493 3.14267 2.99795 2.89646 2.82144 2.76377 2.71808 2.68100 2.65031 2.62449 2.60248 2.58349 2.56693 2.55238 2.53948 2.52798 2.51765 2.50832 2.49987 2.49216 2.48511 2.47863 2.47266 2.46714 2.46202 2.45726 2.45282 2.44868 2.44479 2.44115 2.43772 2.43449 2.43145 2.42857 2.42584 2.42326 | 63.65674 9.92484 5.84091 4.60409 4.03214 3.70743 3.49948 3.35539 3.24984 3.16927 3.10581 3.05454 3.01228 2.97684 2.94671 2.92078 2.89823 2.87844 2.86093 2.84534 2.83136 2.81876 2.80734 2.79694 2.78744 2.77871 2.77068 2.76326 2.75639 2.75000 2.74404 2.73848 2.73328 2.72839 2.72381 2.71948 2.71541 2.71156 2.70791 2.70446 | 318.30884 22.32712 10.21453 7.17318 5.89343 5.20763 4.78529 4.50079 4.29681 4.14370 4.02470 3.92963 3.85198 3.78739 3.73283 3.68615 3.64577 3.61048 3.57940 3.55181 3.52715 3.50499 3.48496 3.46678 3.45019 3.43500 3.42103 3.40816 3.39624 3.38518 3.37490 3.36531 3.35634 3.34793 3.34005 3.33262 3.32563 3.31903 3.31279 3.30688 |

**Appendix 6**

**Descriptive Statistics of Critical Thinking**

|  |  |  |
| --- | --- | --- |
| **Statistics** | | |
| critical (X) | | |
| N | Valid | 30 |
| Missing | 30 |
| Mean | | 77.50 |
| Std. Error of Mean | | .822 |
| Median | | 77.50 |
| Mode | | 75a |
| Std. Deviation | | 4.501 |
| Variance | | 20.259 |
| Range | | 15 |
| Minimum | | 70 |
| Maximum | | 85 |
| Sum | | 2325 |
| a. Multiple modes exist. The smallest value is shown | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **critical (X)** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | 70 | 4 | 6.7 | 13.3 | 13.3 |
| 75 | 11 | 18.3 | 36.7 | 50.0 |
| 80 | 11 | 18.3 | 36.7 | 86.7 |
| 85 | 4 | 6.7 | 13.3 | 100.0 |
| Total | 30 | 50.0 | 100.0 |  |
| Missing | System | 30 | 50.0 |  |  |
| Total | | 60 | 100.0 |  |  |

**Appendix 7**

**Descriptive Statistics of Writing Ability of Analytical Exposition Text**

|  |  |  |
| --- | --- | --- |
| **Statistics** | | |
| writing (Y) | | |
| N | Valid | 30 |
| Missing | 30 |
| Mean | | 77.93 |
| Std. Error of Mean | | .848 |
| Median | | 78.00 |
| Mode | | 74a |
| Std. Deviation | | 4.646 |
| Variance | | 21.582 |
| Range | | 20 |
| Minimum | | 67 |
| Maximum | | 87 |
| Sum | | 2338 |
| a. Multiple modes exist. The smallest value is shown | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **writing (Y)** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | 67 | 1 | 1.7 | 3.3 | 3.3 |
| 70 | 1 | 1.7 | 3.3 | 6.7 |
| 72 | 1 | 1.7 | 3.3 | 10.0 |
| 73 | 1 | 1.7 | 3.3 | 13.3 |
| 74 | 5 | 8.3 | 16.7 | 30.0 |
| 75 | 1 | 1.7 | 3.3 | 33.3 |
| 76 | 1 | 1.7 | 3.3 | 36.7 |
| 77 | 3 | 5.0 | 10.0 | 46.7 |
| 78 | 2 | 3.3 | 6.7 | 53.3 |
| 80 | 4 | 6.7 | 13.3 | 66.7 |
| 81 | 2 | 3.3 | 6.7 | 73.3 |
| 82 | 5 | 8.3 | 16.7 | 90.0 |
| 83 | 1 | 1.7 | 3.3 | 93.3 |
| 86 | 1 | 1.7 | 3.3 | 96.7 |
| 87 | 1 | 1.7 | 3.3 | 100.0 |
| Total | 30 | 50.0 | 100.0 |  |
| Missing | System | 30 | 50.0 |  |  |
| Total | | 60 | 100.0 |  |  |

**Appendix 8**

**Test of Linearity**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **ANOVA Table** | | | | | | | |
|  | | | Sum of Squares | df | Mean Square | F | Sig. |
| critical (X) \* writing (Y) | Between Groups | (Combined) | 369.583 | 14 | 26.399 | 1.817 | .132 |
| Linearity | 179.311 | 1 | 179.311 | 12.343 | .003 |
| Deviation from Linearity | 190.272 | 13 | 14.636 | 1.007 | .489 |
| Within Groups | | 217.917 | 15 | 14.528 |  |  |
| Total | | 587.500 | 29 |  |  |  |

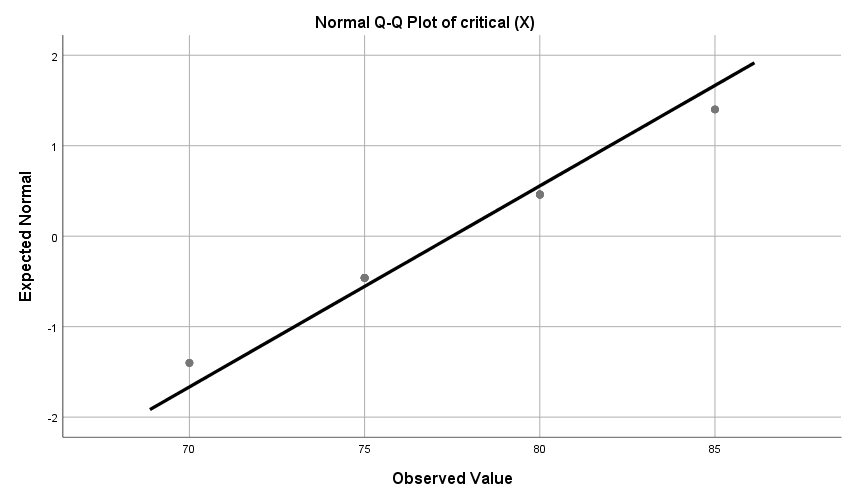
|  |  |  |  |
| --- | --- | --- | --- |
| **Report** | | | |
| critial (X) | | | |
| writing (Y) | Mean | N | Std. Deviation |
| 67 | 70.00 | 1 | . |
| 70 | 70.00 | 1 | . |
| 72 | 75.00 | 1 | . |
| 73 | 75.00 | 1 | . |
| 74 | 76.00 | 5 | 4.183 |
| 75 | 75.00 | 1 | . |
| 76 | 75.00 | 1 | . |
| 77 | 78.33 | 3 | 2.887 |
| 78 | 77.50 | 2 | 3.536 |
| 80 | 76.25 | 4 | 4.787 |
| 81 | 85.00 | 2 | .000 |
| 82 | 80.00 | 5 | 3.536 |
| 83 | 85.00 | 1 | . |
| 86 | 75.00 | 1 | . |
| 87 | 80.00 | 1 | . |
| Total | 77.50 | 30 | 4.501 |

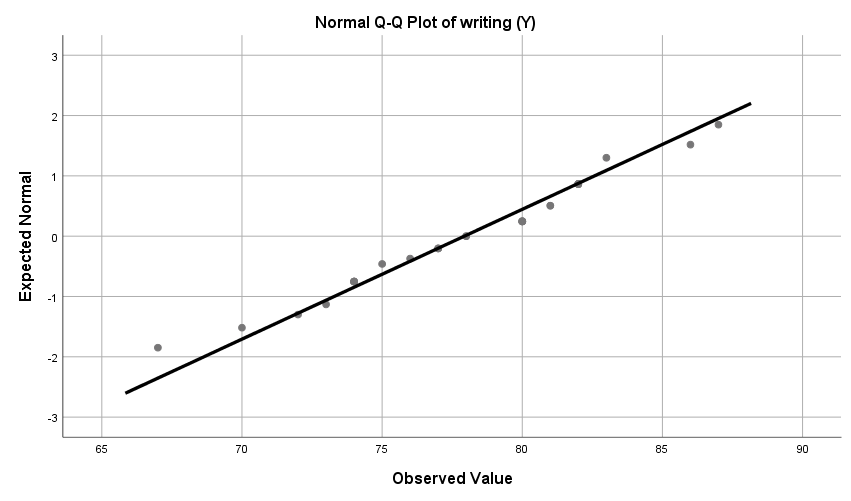
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Measures of Association** | | | | |
|  | R | R Squared | Eta | Eta Squared |
| critial (X) \* writing (Y) | .552 | .305 | .793 | .629 |

**Appendix 9**

**Test of Normality**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Tests of Normality** | | | | | | |
|  | Kolmogorov-Smirnova | | | Shapiro-Wilk | | |
| Statistic | df | Sig. | Statistic | df | Sig. |
| critical (X) | .211 | 30 | .002 | .883 | 30 | .003 |
| writing (Y) | .138 | 30 | .147 | .973 | 30 | .619 |
| a. Lilliefors Significance Correction | | | | | | |





**Appendix 10**

**T obtained (to), Degree of Freedom (df), and Formula Contribution**

T obtained (t0)= tcount =

tcount = t value

r =0.552

n = 30

Therefore, it is caculated that:

*t* =

*t* =

*t* =

*t* = 3.505

Degree of Freedom (df):

*df = n* – 2

*df*= 30 – 2

*df*= 28

Formula of the contribution variable X and Y as follow:

*R* = *r*2 x 100%

*R* = 0.5522 x 100%

*R* = 0.74 x 100%

*R* = 74%

**Appendix 11**

**Validity Test of Critical Thinking (X)**

The calculated value contained in the *Corrected Item-Total Correlation* column to be found in the result of the data. The validity decision of the items is done by comparing the value of rcountand rtable(0,361)to find out valid and invalid items. If rcount>rtable that item is valid.

**Item-Total Statistics**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Explanation |
| X 1 | 16.37 | 8.309 | .524 | Valid |
| X 2 | 16.33 | 8.920 | .291 | Invalid |
| X 3 | 16.37 | 8.447 | .469 | Valid |
| X 4 | 16.37 | 8.516 | .441 | Valid |
| X 5 | 16.33 | 8.437 | .498 | Valid |
| X 6 | 16.33 | 8.782 | .350 | Invalid |
| X 7 | 16.27 | 8.340 | .643 | Valid |
| X 8 | 16.37 | 7.964 | .662 | Valid |
| X 9 | 16.30 | 9.045 | .249 | Invalid |
| X 10 | 16.30 | 8.700 | .411 | Valid |
| X 11 | 16.33 | 8.506 | .468 | Valid |
| X 12 | 16.33 | 8.230 | .587 | Valid |
| X 13 | 16.30 | 8.562 | .476 | Valid |
| X 14 | 16.27 | 8.202 | .717 | Valid |
| X 15 | 16.30 | 9.597 | -.011 | Invalid |
| X 16 | 16.27 | 8.823 | .386 | Valid |
| X 17 | 16.27 | 8.961 | .312 | Invalid |
| X 18 | 16.20 | 8.924 | .502 | Valid |
| X 19 | 16.27 | 8.616 | .496 | Valid |
| X 20 | 16.30 | 8.769 | .378 | Valid |

Based on the statistical calculation above, it means the 5 items was explained invalid. The invalid items were number 2,6,9,15,17. On the other hand, there are 15 of valid items that have an rcounthigher than rtable. The valid items were number 1,3,4,5,7,8,10,11,12,13,14,16,18,19,20.

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