

# AN ANALYSIS OF CRITICAL THINKING SKILLS THROUGH ARGUMENTATIVE ESSAY WRITING

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## **Abstract:**

*The information about the present students' critical thinking is essential as the initial data of their critical thinking skills for improvement. Unavailability of such tests in the medical record department, Faculty of Health and Technique Bandung University encouraged the researcher to use language learning, particularly argumentative essay writing, as the medium to measure the skills. This study aims to investigate level of critical thinking skills through argumentative essay writing and analyze perception of students on a language learning that requires critical thinking skills. The respondents are second-semester students from the medical record department, numbering 35 taken purposively. Essay writing test and questionnaire were distributed to collect the data. The resulting essays were rated according to the argumentative essay rubric and then categorized into five categories: very high, high, mediocre, low, and very low. The information from the questionnaire was used to support the finding. The analysis result showed that the students' critical thinking, as implied in the essay, is still at a mediocre level, and only 35% scored above the mediocre level. The students faced difficulties supporting the ideas with relevant and credible arguments and creating constructive suggestions or solutions. It was also revealed that students with high and very high critical thinking skills preferred more language learning activities that require high-order thinking and vice versa.*



**Keyword:** Critical thinking; high order thinking; language learning; argumentative writing

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## **INTRODUCTION**

Critical thinking skills, as stated in the Ministerial Regulation of Education, Culture, Research and Technology, are one of the graduate competency standards for every program study at the University. This skill becomes essential for 21<sup>st</sup> century learning in which the students, as lifelong learners, are prepared to face complex and vast challenges within a dynamic society. The learners in Education 4.0 are to be equipped with high-order thinking skills, one of which is critical thinking, so that they can deal with problems in life resulting in vast development in many areas including education. Wagner (2010) and Frydenberg (2011) emphasized the

importance of critical thinking for 21<sup>st</sup> Century Skills education. Teaching and learning should produce quality human resources with critical thinking.

According to Glaser (Hitchcock, 2011), critical thinking is an attitude that tends to seriously consider the problems and subjects that come within the range of one's experience, which needs the knowledge of the methods in logical inquiry and reasoning. Critical thinking also requires a continual effort to assess any belief or intended form of knowledge in establishing the evidence and conclusions. Critical thinking, in Bloom Taxonomy, is grouped into higher-order cognitive dimensions that encourage the ability to analyze, synthesize, evaluate, and create (Anderson & Krathwol, 2001). Leveling up the learners' critical thinking skills in teaching and learning process within Indonesia's education system has been the concern and achievement expected in university program study.

The broader involvement of the study program provided by University can accelerate the establishment of critical thinking skills among students. Many Studies were conducted previously to find the need to develop critical thinking in the teaching and learning. Hayati (2019) showed that there was a significant correlation between critical thinking and students' academic achievement. The writer revealed the learners' critical thinking by giving essay questions in Biology. In line with this, Suparni (2020) emphasized the importance of Integrative - Interconnected Learning Material to develop critical thinking. She found that the designed material connected with other fields such as religion and integrated in students' center learning contributed more to improving critical thinking.

Especially in language learning, McKinley (2013) mentioned that argument-based writing trained students optimally in critical thinking. Writing encourages the students to think and analyze, which are included in critical thinking skills. The writer will use his ability to identify and analyze problems, explain and propose arguments or refutations, and provide solutions. This process needs a high-order thinking called critical thinking. Similarly, Sharadgah et al. (2019) proved the significant correlation between critical thinking and essay writing skills. It was found that writing an argumentative essay is a powerful tool for teaching and assessing critical thinking. The research revealed that the more proficient the students are in critical thinking, the better they are at writing skills and vice versa.

To reveal these students' thinking skills, Universities usually conduct an academic potential test known as TPA in the admission process in which the verbal section is tested as one of the aspects to measure students' logical reason through language testing. This test measures whether the students have high-order thinking possibly applied in effectively and efficiently solving problems during their study period at University. However, the information revealed from the test is solely used as the passing score for students in the admission process. Lecturers have not been informed about the students' critical thinking skills, and consequently, lecturers' involvement in enhancing the skills is lacking. In line with this, the Medical Record department in the Faculty of Health and Technique Bandung University, with the mission to create graduate students who are professional, adaptive, and innovative in the medical record field and health information, stresses the involvement of faculty in enhancing the students' critical thinking skills. As initial effort to enhance the skills, prior information should be provided first as initial data of present students' critical thinking skills. Referring to this, the researcher used language learning activity as the medium for investigating this skill. This information can hopefully serve as the initial data or feedback to enhance students' critical thinking through other varied language learning activities. Other lecturers who teach different subjects can also do similar actions and promote ways to assess students' critical thinking skills.

Based on condition above, in this paper, researcher will investigate the level of critical thinking skills through argumentative essay writing and analyze perception of students on a language learning that requires critical thinking skills.

### **LITERATURE REVIEW**

Critical thinking is formed by two terms; critical and thinking. Critical is derived from the Greek term '*kritikos*', meaning 'able to judge or discern', while thinking is derived from English, meaning 'an opinion or thought', so critical thinking is a process to judge or discern an opinion based on reliable information. Ennis (2015) elaborated that critical thinking is an active and skillful process of intellectual discipline in conceptualizing, applying, analyzing, synthesizing, and evaluating information derived from observation, experience, reflection, reasoning, or communication, as a guide to belief and action.

In line with this, as the upper cognitive dimensions to remember and understand within the revised version of Bloom Taxonomy, critical thinking (Anderson & Krathwol, 2001) imposed ability to analyze, synthesize, evaluate, and apply. Klooster in Sieglova (2017) defined the critical thinking comprehensively through five key attributes. Firstly, Critical thinking requires freedom to think independently as the foundation for building confident opinion and attitude; secondly, Information is the starting point of critical thinking, not the endpoint. Consequently, the implementation of memory-based learning is no longer appropriate; thirdly, Critical thinking starts with questions and opens to seeking solutions; fourthly, Critical thinking seeks the arguments which are based on facts and evidence; lastly, Critical thinking is social thinking that encourages societies ability in dialogue, discussion, teamwork, and presentation of attitudes.

As implied above, critical thinking is neither a gift nor an inborn skill but trained. To have a critical thinking mindset, students need to learn and improve it through practice and application. Critical thinking does not mean being negative about everything, but becoming wiser in responding to or judging an opinion or condition. In an academic context, learners are exposed to experience to think critically about other people's arguments or create their own. In order to have critical thinking skills, a learner needs practice to 1) analyze by breaking the idea into components or evaluating a subject from different angles or perspectives; 2) synthesize by considering every component, trying to see the connection between the components in concluding; 3) evaluate by making reasonable judgments according to the criteria; 4) apply by putting all the components to form comprehensive responses.

Language learning and teaching also play a part in promoting establishment of critical thinking skills among learners. In addition, Sieglova (2017) argued that the establishment of critical thinking among the learners will be contributed by a set of cooperative methods for teachers and study techniques for students. Essay writing is one of which to improve critical thinking. When writing, one simply uses his mind to think by doing observation, reflecting, analyzing, and presenting the information. In critical thinking, as explained before, one will actively and skillfully conceptualize, apply, analyze, and evaluate information derived from observation, experience, reflection, reasoning, or communication as a guide to belief and action. Then, it can be inferred writing skills improvement will also improve thinking skills. Essay writing is the skill of composing short pieces of non-fiction with a clear structure and a focus on a specific topic or subject. An essay usually consists of an introduction, body paragraphs with evidence and arguments, and a conclusion. Essays can be formal or informal, academic or personal, analytical or critical, depending on the purpose and audience of the writer. As one type of essay writing, argumentative writing is intended to persuade readers of ideas based on the arguments and commonly presents the position or stand or logical reasoning to convince the audience of a

particular point of view. For example, to respond to the topic 'A woman should be given a right to do an abortion', the writer needs to elaborate reasons according to his viewpoint on whether to support or not to support the idea with arguments to persuade others to agree with the writer.

Good argumentative essay writing should answer the question or task, include a thesis statement and an argument, and relate the points by reasoning and evidence from credible sources. Problems should be firstly understood and responded appropriately to start making an argumentative writing. These are in the introduction, which describes the problems and thesis statement as the answer to the problems. Then, in a later phase, arguments will be provided as the elaboration of the thesis stated in the introduction. This argument often contains the writers' point of view or the refutation against the opposition's major points and is supported by sample, illustration, comparison, or impact (Wyrick, 1984). Evidence taken from factual information, personal experience, statistical data, or testimony supports argument. The last phase in argumentative writing is the conclusion or reiteration, which serves as a call for action, which means that the writer convinces the readers of his argument and encourages them to take a specific action suggested in the conclusion.

Obviously, seeing the process within argumentative writing, the writing will reflect the writer's critical thinking. How can the writer choose, organize and present the arguments appropriately without critical thinking skills? How can writers relate one argument to another to respond to the problems without having critical thinking skills? Therefore, Critical thinking allows well-supported arguments and counter-arguments and helps view things from multiple perspectives. A writer with critical thinking skills (Reay, 2022) will critically analyze an issue or problem from several sides, understand the facts, and ensure rational, reasonable, and well-presented arguments. He also inferred that the process to produce effective writing depends on how well the writer has developed his critical thinking skills. Furthermore, Ennis in Hidayah et al. (2017) mentioned three indicators of critical thinking skills: (1) focus on the problem, (2) reason, looking for the appropriate arguments and strong reasons, (3) inference, creating the solution or conclusion according to the arguments proposed in former phase. In other words, the indicators of critical thinking stated by Ennis represent similar stages developed in argumentative writing, as explained in this part.

## **METHODS**

A descriptive design with a qualitative approach was adopted in this study to determine students' critical thinking skills by analyzing quality of argumentative essay writing. The study involved 65 students in the second semester of the medical record department in the Faculty of Health and Technique, Bandung University. English subject was provided for them as the general basic subject for two semesters, and writing was one of the materials learned and practiced.

To collect the data, students were assigned to write an essay with the topic provided around health issues. The topic is "Is Youth Free of Risk Factors for Heart Disease". During the process, they were allowed to consult a dictionary to ensure that no one found it difficult to express things in English and to assess the library finding related references in providing the arguments. The allocated time is 30 minutes for exploring the issue and/or finding relevant sources, and 60 minutes to develop it into an essay. The resulting writings were then analyzed by referring to the argumentative essay rubric adapted from Schwalm (2007). The rubric of evaluation emphasized on several points namely introduction, main points (arguments and refutation), conclusion, organization, reference and mechanic (sentence structure, punctuation, capitalization). The detail is as follow:

Table 1: Rubric for Argumentative Essay (Schwalm, 2007)

<b>Essay Component</b>	<b>Score</b>			
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Introduction</b> (Background /problem, thesis statement)	The background or problem is unclear nor related to the topic	States the topic but lacks detail	The background or problem is stated, but not the thesis	Detailed background or problem and thesis statement
<b>Main points</b> (arguments, refutation)	Less than three main points are presented with poor ideas development. Refutation was missing or vague.	Three or more main points are presented but all lack development. The refutation paragraph is missing and/or vague.	Three or more main points are present but one or two are not developed. The refutation paragraph acknowledges the opposing view but does not summarize points.	Three or more main points are well-developed with supporting details. The refutation paragraph acknowledges the opposing view and summarizes their main points.
<b>Conclusion (reiteration)</b>	Not adequately summarized and no suggestions or opinion	Summarize the topic repetitively and with no suggestion	Summarize the topic in a similar statement and with suggestion	Summarize the topic without repeating previous sentences, and comprehensive suggestions are provided
<b>Organization</b>	Smooth development and coherence transition throughout the essay	Logically developed and coherence transition between paragraph	Unrelated and not smooth transition	Unclear and illogical, and no transition
<b>Reference</b>	No sources cited	Use sources that are not relevant	Use relevant sources, but some lack credibility	Use relevant and credible sources
<b>Mechanics</b> (Sentence structure, Punctuation, Capitalization)	Multiple incorrect sentence structures are indicated with more errors in punctuation and capitalization	A few incorrect sentence structure is indicated with more errors in punctuation and capitalization	Correct sentence structure is used with few errors in punctuation and capitalization	Correct sentence structure, punctuation, and capitalization are used

To find out students' perception of whether or not the essay writing improves critical thinking skills, questionnaires were distributed and responded according to students experience in the essay writing process.

## RESULTS AND DISCUSSION

Using the argumentative essay rubric adapted from Schwalm (2007), 35 essays were collected and rated by two evaluators. The results showed that the student skill in writing an argumentative essay is generally still in the average level or relatively high category (58,21%). The distribution of the score is as follows:

Table 2: Result of Argumentative Essay Writing

Range Score		Number of Essays
Very High	81-100	3
High	61-80	9
Mediocre	41-60	22
Low	21-40	1
Very Low	0-20	0

As shown in the above distribution of scores, only 35% of them showed good results; 9 in the high category, and 3 in the very high category. Another result (65%) showed that the students' skill in writing argumentative essays still needs to improve. Those with dominant scores were revealed in the medium level numbering 22 and 1 in the low category.

Table 3: Score of Argumentative Essay Writing According to Indicator

Indicator	Average Score
Introduction (background and thesis)	60,7
Argument	64,3
Conclusion	55,7
Organization	61,4
Use of source	52,1
Mechanic	55,0

The above table presented that the students' problem-solving skill was quite good. The introduction of the essay revealed how the students expressed their analysis of the problem and responded appropriately in the form of a thesis. In general, the students were able to state the problem and wrote that youth is not free of risk factors for heart disease in terms of some points of view like genetic and sociological. Some other students stated the thesis by differentiating between the controllable and uncontrollable risk factors of heart disease. This finding revealed that in this part the students had sufficient critical thinking skills. Their introduction in this essay would not be sufficient if they did not have enough critical thinking skills. In line with this, Wu (2021) stated that difficulties can be encountered in writing an argumentative essay with critical thinking if the writer does not have deep thinking and analysis in perceiving the problem. However, some students were unable to use their critical thinking in responding to this problem; they tended to directly respond to the question based on what they perceived without a deep thinking.

They simply wrote their reasons that risk factors for heart disease could affect everyone regardless of age.

The other finding, as shown in table 3, also showed that the awareness of students in supporting the thesis with some arguments is generally high, with an average score of 64,3, meaning that at least two or more arguments supporting the essay. The students could elaborate their points of view with samples and illustrations. Some stated in their essays that youth could have the risk factors for heart disease because, sociologically, many teenagers do a wrong diet, have high stress levels, and bad habits like smoking. They also write that genetically, youth could not be free of heart disease risk factors because it was inherited from parents, affected by older age or gender. However, as revealed in Table 2, only 35% could support the thesis statement with supporting and credible arguments, while the rest still lacked. It appeared that finding the related reference or source was still a problem. The arguments were organized well, but not all of them were taken from credible sources, and some still sounded like personal opinions or assumptions. For instance, in his writing, the student said that smoking has nothing to do with heart disease simply because the student is a smoker and has no heart disease. This sort of response is written based on the student's common sense without trying to find credible or relevant sources on whether smoking has a relation or not with heart disease. Hence, to support the thesis with related arguments and then to organize the argument to answer the problem needs critical thinking. The finding showed citing sources in the argumentative essay needs improvement. This is important as one of indicators of critical thinking skills, stated by Ennis (2015), is building basic support in which one should consider the credibility of the source in arguing. Beniche (2021) also concluded that students' good performance in argumentative writing was supported by their mastery of argumentation techniques and logical reasoning used to defend their point of view about a suggested topic. The higher the mastery in providing relevant arguments and in organizing the arguments coherently, the higher the critical thinking skills could be.

Other results showed that skill in making a conclusion or reiteration needs to be improved, with the average score reaching 55,7. Some of the students left the end part of the essay unconcluded meaning that there is no constructive solution, recommendation or suggestion in this part. In the essay, the students just mentioned that the youth is not free of risk factors for heart disease and should make the effort to avoid it. The essay did not elaborate on what effort or action to take to avoid. The writer, with high critical thinking, elaborated the conclusion with the action, for instance, 'having considered the risk factors for heart disease, as stated in the earlier part, we can concentrate our action more to controllable risks caused by habits or way life like living a healthy diet and stop smoking.' This statement presented the writer's critical thinking skills since the provision of related conclusion, suggestion, or recommendation need high-order thinking skills. Ennis (2015) said that deciding on an action to do reflected one's critical thinking. In short, the students' ability to create a solution or action based on the arguments stated in the former part could differentiate high and low critical thinking.

The dominant result of critical thinking skills, as reflected in score of argumentative essay, is affected by the general preference of the students in language learning. Most of the students (95%), based on the result of the questionnaire, are aware that writing an argumentative essay should be started with an introductory part stating background of problem and a thesis statement as general answer of the problem, continuing with main points containing arguments or refutation, and ended with conclusion. The student (80%) will also describe relevant opinions from sources and combine them with personal opinions if given a task to support the argument in essay writing. However, when the students were given the mentioned task, only 40% supported the arguments from resources, while the rest

35% looked for samples on the internet site and copied them, and 25% preferred to use their personal opinion. This result showed that the students' creativity in supporting the ideas with arguments is still lacking; 60% of them did not take their original arguments based on relevant and credible resources. They simply used their personal opinion or copied other opinions precisely as it is found and written on internet sites.

Other finding also showed that some students still prefer language learning activity that requires low order of thinking skills. As cited by Gladushyna (2019), Blooms Taxonomy stressed both knowledge and comprehension (remembering, understanding) are factual questions and do not promote critical thinking, while the higher level including analyzing, evaluating, and creating represents critical thinking. Approximately 30% chose the ELT lesson to identify tenses in a sentence and 60% to write the routine of a medical record officer with appropriate tenses. Although both mentioned language learning activities do not encourage a high order of thinking, compared to the former activity, the latter was more challenging and asked them to use higher-order thinking skills. The latter activity required the students to examine the form and apply the tense's uses in a specific context or situation, while the former asked the students to remember and understand. Meanwhile, only 10% choose the ELT writing lesson, asking their opinion whether youth is free of risk factors of heart disease or not. This activity required higher-order thinking skills than the previous two activities. This activity will require students not only to understand and apply the form and uses of tenses in the proper contexts but also, more than that, particularly to encourage the skill in analyzing the problem, evaluating and organizing the arguments, and creating the solution. The reason why students mostly preferred activities using lower-order thinking presented in the first and second activities was practicality. The students dominated by those with range scores of mediocre and low category perceived that the mentioned language learning activities are relatively easy to do (20%) and do not require them to think hard (70%). Meanwhile, few students (10%) preferred the above third activity as it was more challenging, requiring them to use their potential in thinking. Those students categorized in high and very high range score in argumentative essays belong to this group.

As implied above, students' preference for more challenging language learning has conditioned students to use higher order of thinking skills. This is in line with Neve's statement in Gladushyana (2019) that students' critical thinking can be established when classroom activities are "brain compatible": and far from the implementation of standard teacher-talking at passive group model. Within this classroom, lecturers play roles in arranging learning process, creating learning environment, and organizing favorable condition of thinking with a non-threatening climate that encourages genuine communication and respects natural thinking. Furthermore, Gladushyana suggested that students have the habits of mind thinking behavior in different contexts. English language learning, particularly, could open a space for the students to introduce and share new ideas, think logically, express and be responsible with their decisions. These sorts of conditions could make the students foster critical thinking skills. There are no rooms for rote learning based on memorizing and cramming the information in 21<sup>st</sup> century education (Beniche, Larous, & Anasse, 2021). Students in University are future leaders who should be encouraged and given the experience to sharpen critical thinking skills through the learning and teaching process. Therefore, Lecturers could create an encouraging environment, atmosphere or lesson and students could explore their critical thinking skills more in such situations.

## CONCLUSION

Referring to the finding and discussion in this study, it can be concluded the critical thinking skills reflected in argumentative result are still at a medium level. The general ability to analyze and present the problem in the form of background and thesis statement is reasonable. However, difficulty was still encountered by students, particularly in providing arguments from credible sources, relating them to one another coherently, and creating action or solution at the end. As implied in the findings, Students with high and very high critical thinking skills preferred more challenging language learning activity that requires the process of high-order thinking. In contrast, those categorized as mediocre and low critical thinking preferred language learning that requires low-order thinking. In other words, the students commonly exposed to activities that require analysis, synthesis, and evaluation could perform higher critical skills. Therefore, the creativity of lecturers, especially in language learning and that of other lecturers in other subjects is vital to enhance students' critical thinking skills.

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