Student's Critical Thinking Ability in Scientific Debate

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Critical thinking ability is an ability that is needed by students in completing their studies. This ability is one of the four skills needed in the 5.0 industry era. Critical thinking skills can be developed in scientific debate activities. This study aims to describe students' critical thinking skills in scientific debates. The research approach was chosen the qualitative approach. The type of research used is descriptive qualitative. The data sources of this research are the speeches of students from Tadulako University and Dato Karama State Islamic University from various study programs. The results showed that the students of the two universities had critical thinking skills identified in four aspects. The four aspects are focus, reason, conclusion, and clarity. These four aspects were seen in scientific debate activities when students responded to the motions submitted, both from government groups and opposition groups.

Key words: *critical thinking, scientific debate*

INTRODUCTION

The ability to think critically is one of the abilities that need to be developed from students at all levels of education, from basic education to higher education. This ability has also become one of the skills needed in the 21st century (Bialik & Fadel, 2015; Scott, 2015b; Griffin & Care, 2014).

Various efforts have been made so that students can think critically. Yulianti & Dwijananti (2010) develop students' critical thinking skills through problem-based learning. Sulistyowati (2015) improves students' critical thinking skills by giving assignments. Through these two learning models (problem-based and assignment-giving), students' critical thinking skills showed an increase.

Critical thinking skills can be developed through student debate activities in all study programs (cross-curriculum). Pudjantoro (2015) found that scientific debate can develop students' ability

to think critically, rationally, and creatively in responding to political and civic issues. Likewise with Ninghardjanti's research (2019) shows that the debate method makes a significant contribution to student activeness and critical thinking in leadership courses.

The ability to think critically that is seen in scientific debate activities in several universities, both public and private, has different goals. In addition, debates in several language versions have also been competed from junior high school to high school, and have even been introduced since elementary school.

The embodiment of debate is conveying arguments to other people so that that person agrees with the opinions expressed. In a debate, it is usually the opposite opinion that is expressed. A topic or case is raised for debate. Some of the participants became the pro group, while the other participants became the contra group.

A pro group is a group that provides government support for a topic or issue being discussed. Meanwhile, the opposing group is a group that opposes or views the opposition of an issue or topic. The two groups then argued. The group that has many supporters is the group that wins the debate. However, at a certain level, the debate is not for competition, only as a forum to train the reasoning skills of debate participants and audiences.

Definition of Debate

Debate is a formal way of communicating. Debates are built on self-confidence and self-respect in front of the public (the crowd). The ability to argue is part of the way we determine our position in public. If we can speak openly and convey our ideas and thoughts coherently and passionate way, then we have a valuable tool that can help us in our social life and future life.

The Debate has been introduced for more than 4,000 years in Egypt (2080 BC). Meanwhile, the debate as a teaching strategy has been around for more than 2,400 years by Protagoras in Athens (481-411 BC) and he is known as the "father of debate" (Combs & Bourne, 1994; Freeley & Steinberg, 2005; Huryn, 1986; Snider & Schnurer, 2002).

Debate refers to the process of considering various points of view and ending in a judgment or judgment. Its application revolves around an individual's ability to use the debate to make decisions in his or her mind. Meanwhile, for groups, the debate is used to convince others to agree with their opinion (Freeley & Steinberg, 2005).

Just as writing assignments have been included across curricula, the debate has been used successfully in a variety of disciplines including sociology, history, psychology, biotechnology, mathematics, health, dentistry, nursing, marketing, and social work. Furthermore, debates in a written format have even been used effectively in online courses (Jugdev, Markowski, & Mengel, 2004).

Benefits of Debate

The essence of the competitive debate is to assess each side of the important and controversial issues in the discourse of formal argumentation. Students who are involved in debates can sharpen their intellectual abilities so that debate is an inspirational effort in developing critical thinking skills.

Before debating, students are trained to express their ideas through research activities, discussions, case writing, and practice for competitions. Mintaraga (2002:3) argues that debate has benefits including (1) training courage and self-confidence, (2) training critical, logical, and analytical thinking, and (3) training to be polite, disciplined, and sportsmanship.

The Debate also has benefits in developing self-potential, especially the ability to think and reflect on the topics presented (Silberman, 2014:141). These two activities are an important part of critical thinking.

Critical thinking

The most important skill in learning to argue is the ability to think critically. Several debates can promote students' ability in problem-solving and innovative thinking. In addition, debate can help students to build relationships between words and ideas that make concepts more meaningful. Several studies have proven that participation in debate improves students' critical thinking. Debate is taught to synthesize broadly complex information and to exercise creativity in applying different ways of knowing.

Hassoubah (2004) states critical thinking is thinking using reason and reflection. Critical thinking activities emphasize making decisions about what to believe or do. The key to critical thinking activities according to this opinion is reasoning and reflection.

Meanwhile, Lunenburg (2011) argues that critical thinking is inseparable from thinking that produces, organizes, analyzes, synthesizes, evaluates, and transforms data/facts. According to this opinion, the key to critical thinking is the ability to generate, analyze, synthesize, evaluate, and transform.

Marzano (1989) suggests that critical thinking is an activity that makes sense, reflective thinking that is focused on decisions that are believed, done, and done. In this definition, the ability to think is the ability to reflect.

Furthermore, Facione (2011) revealed that the basic concepts of critical thinking are interpretation, analysis, evaluation, conclusion, explanation, and self-confidence. Therefore, critical thinking skills are needed when we try to understand the information that will be used to generate ideas or ideas.

Lipman (2003) suggests that aspects of critical thinking are focus, reasons, inferences, situations, clarity, and overview. Six aspects are analyzed in the scientific debate.

Meanwhile, Sihotang (2019: 55) suggests that the critical thinking element consists of eight components. The eight components are objectives, points of view, concepts, information, conclusions, questions, assumptions, and implications. Elements of critical thinking are presented in every language production, both written and spoken.

Still, in the same work, Sitohang (2019:65) also mentions that the ability to think critically has standards. The critical thinking standards are clarity, accuracy, precision, relevance, depth, breadth, logic, meaning, and fairness.

Based on the definition stated above, in the scientific debates of students throughout Central Sulawesi, the abilities analyzed include aspects of focus, reasoning, conclusion, and clarity. These four aspects emerged in student talks when responding to the motions submitted, both from government groups and opposition groups.

METHOD

This study uses a qualitative approach. The qualitative approach was chosen because this study aims to naturally observe students' speaking abilities in scientific debates. The type of research used is descriptive qualitative research. This type of research was chosen with the consideration that in qualitative descriptive research: (1) it can present student experiences in developing thinking skills through scientific debate activities and (2) researchers can observe and reflect on these experiences.

Research Subject

The subjects in this study were students enrolled in state universities in Central Sulawesi, namely Tadulako University and Dato Karama State Islamic University. The students selected in this study were determined based on the cross-sectional technique, namely representatives of each study program from different faculties.

*Data Collection Techniques and Instruments*

Data collection techniques in this study using multi-technique (Saodih, 2007:151). These techniques are observation and field notes. Both types of data collection techniques are used simultaneously. At the time of observation, the researcher carried out recording activities to record all events and utterances that occurred at the time of data collection.

The observation technique used instruments in the form of observation guidelines. In the observation guidelines, aspects that must be observed related to students' critical thinking skills

are presented. In the field recording technique used instruments in the form of video and audio recording devices as well as writing instruments, namely books, pens, erasers, and pencils.

Data analysis

The data collected through observation techniques were analyzed using the Miles and Huberman model of data flow analysis. This model was chosen because the analysis and interpretation of the data took place during the study. The following is the flow of data analysis used in the cross-curriculum speaking program research at universities throughout Central Sulawesi.
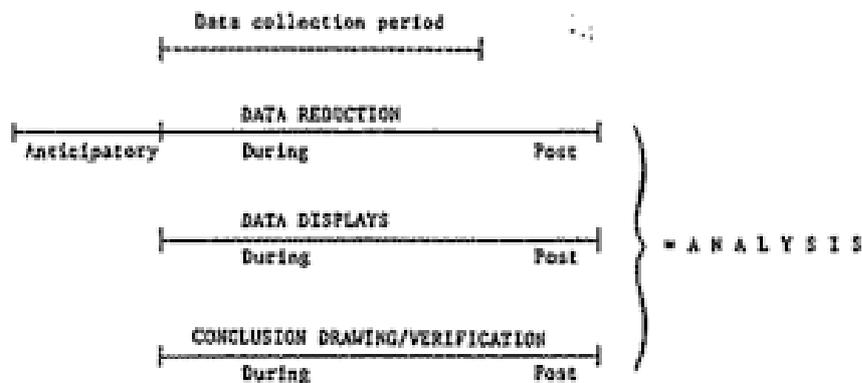
Figure 1. Data Analysis Flow

Data analysis begins with data collection. Once collected, the data was reduced. In the reduction activity, the data are selected and sorted from the source. Furthermore, grouping and coding of data are carried out. The data are grouped by elements in critical thinking. Each data that has been grouped is coded.

After the data is coded, the next step is the presentation of the data. Data are presented during and after the study. When the data that has been collected meets the adequacy, the researcher draws conclusions or verification.

RESEARCH RESULTS AND DISCUSSION

The critical thinking ability of students who take part in cross-curriculum speaking program activities can be described in general as having shown achievements according to indicators. Critical thinking skills shown when debating are focus, reason, conclusion, and clarity. These four aspects emerged in student talks when responding to the motions submitted, both from government groups and opposition groups.

Results

The scientific debate carried out in this study uses the British Parliament system. Tadulako University and UIN Daro Karama students were divided into two teams, namely the government team and the opposition team. The two teams are further divided into the opening government team, the closing government team. Likewise, the opposition team is further divided into the opening opposition team and the closing opposition team.

Both the government team and the opposition team consisted of a combination of students from UNTAD and UIN Dato Karama. This is done in order to establish good cooperation between students from different universities. In addition, students' self-confidence and courage will be honed.

Prior to the debate, the committee provided an opportunity for all participants to dig up information related to the motion being debated. The time given is approximately 15 minutes. Participants can search for information from various sources, such as online news, journals, and popular articles.

Each team is given a maximum of 7 minutes to present their arguments. When arguing, the opposing team may object or provide a response. This debate is guided by a moderator and a note-taker who is in charge of recording the important points of the arguments presented and calculating the speaking time of each participant.

The scientific debate carried out includes the following steps. First, the first speaker from the government team gave a definition of the motion given and presented the case to be discussed. Second, the first speaker from the opposition team gave a response to the government team speaker accompanied by the case. Third, the second speaker of the government team responded to the case of the first speaker of the opposition then he linked the case he brought with the case of the first speaker. Fourth, the second speaker from the opposition team responded to the cases from the first and second speakers from the government team and linked the case he brought with the case of the first speaker. Fifth, the third speaker from the government team made a response to all cases from the opposition team and gave a conclusion from the cases presented by his team. Sixth, the third speaker from the opposition team made a response to all cases from the government team and gave a conclusion from the cases presented by his team. Seventh, the third speaker from both teams gave their views on the cases of each team starting with the opposition team first and then the government team.

Discussion

The ability to think critically in terms of focus is shown by students through evidence that leads to motions. All the arguments presented remain on the topic discussed, namely "PPKM is not effective in reducing the rate of transmission of COVID-19 in Indonesia."

Based on the results of the study obtained data that not all students can show focus on the topic. The data that supports this were revealed by participants from Tadulako University, Study Program of Indonesian Language and Literature Education. This student was refuted by students from opposition groups in a statement: "Maybe we should focus first on your opinion which says that PPKM is not effective."

Based on the results of the study obtained data that students can show reasons to support arguments on the topic. The data that supports this was revealed by a participant from UIN Dato Karama Islamic Banking study program in a statement: "This board agrees that PPKM is not effective in reducing the rate of transmission of covid-19 in Indonesia because during PPKM the number of covid has not decreased it has increased in my opinion. . Places of worship are closed but people are still active and congregating." This sentence contains data in the form of reasons. The reasons presented are in the form of practical information obtained from the case-building session. Pramata (2018: 102) states that the information presented in corroborating the reasons can be divided into two, namely ideas and practical information. Practical information that appears in this sentence is that places of worship are closed but people are still active and congregating.

The Reason is one of the indicators in critical thinking because the reason is built by the results of the search for information that has gone through the process of interpretation and analysis. The information is then presented to strengthen the opinion of each team. The results of this study have similarities with Muldayanti's research (2019) which shows that critical thinking skills in scientific debate activities can be described through scientific argumentation skills, namely the warrant aspect.

Based on the results of the study obtained data that students show conclusions in arguments that support the topic. The data that supports this was revealed by a participant from Tadulako University Study Program for Indonesian Language and Literature Education in a statement: "So, what I can say is that PPKM is not effective because there is a lot of evidence that we can see, which we can pay attention to, considering that there have been many things that have happened. taken by the government from PSBB to PPKM level 4 is not a good solution."

Based on the results of the study, it was obtained data that students showed clarity in speaking when delivering arguments on the topics discussed. The data that supports this was revealed by participants from Dato Karama State Islamic University studying Islamic Economics in a statement: "When PPKM is implemented in the midst of society, many people suffer." This statement was delivered by participants from government groups. This data is in line with the opinion of Sonnreich (2012) which states that unclear disclosure will result in difficulties in understanding the comments presented (Pratama, 2018: 70-71).

CLOSING

Conclusion

Based on the results of research and discussion, it can be concluded that UNTAD and UIN Dato Karama students already have critical thinking skills. This critical thinking ability is analyzed based on four aspects, namely focus, reason, clarity, and conclusion.

Students have shown focus on the motions discussed. This focus is part of critical thinking because the focus on motions is the result of consistently interpreting, analyzing, evaluating, and inferring activities so that the conversation remains within the framework of the motions being reviewed. The reasons put forward in the student scientific debates were obtained from the activities of interpreting, analyzing, inferring various information related to the motions discussed. Clarity is shown by the use of evidence to support and strengthen opinions. The conclusion is shown by the ability of students, both from the government cover team and the closing opposition team.

Suggestion

The ability to think critically is an ability that is needed for everyone, including students. Critical thinking skills can be developed in scientific debate activities. The data that has been presented and discussed in the previous section, shows that this program needs to be designed and developed optimally. The development of this scientific debate program can be done in cross-curriculum speaking activities. In the scientific debate program, the argumentative and critical thinking skills of students from various study programs can be developed properly.

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