

Forming Critical Thinking Concepts in Students

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ABSTRACT

The concept of critical thinking that comes from an understanding of concepts can be formed through providing real examples accompanied by material explanations. This ability is a cognitive skill in translating, interpreting, and re-explaining concepts in its own way. It also refers to the ability to explain a concept that has been understood in the form of oral or written explanation to others. Students' low understanding of a concept affects students' ability to solve more complex problems. The low ability of students to think critically is reflected in the weak ability of students to rebuild a concept, provide practical examples, and apply a concept to solve problems. This study aims to prove the positive influence of students' critical thinking skills on affective learning outcomes. The research design used in this study is a causality research design. As part of quantitative research, data are obtained through random sampling. The sample taken must be completely representative because the conclusions drawn from the sample will apply to the population. Therefore, this study used a sample of 50 students. Through field tests, it was concluded that critical thinking skills can affect students' affective learning outcomes by 43,8%. The learning outcomes are illustrated by the participants the more understanding, the more sensitive, the better, and the more professional they are in doing something, as a result of learning in the affective realm.

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1. INTRODUCTION

A crucial aspect of learning is the need for understanding. This terminology is very important considering that students are not a mechanical robot that will be trained to solve certain problems, but are expected to be able to develop theories obtained and implement in accordance with the real problems faced later. This ability is a cognitive skill in translating, interpreting, and re-explaining concepts in its own way. It also refers to the ability to explain a concept that has been understood in

the form of oral or written explanation to others. Thus, understanding concepts is a type of learning outcome that is higher than just knowledge (Ariawan, 2020).

In the early stages, this understanding is formed through a process of reasoning to connect initial knowledge and something newly acquired. Experts argue that understanding of concepts can be formed through research activities on interrelated facts and realities. An important part that must be heeded is that the activity is carried out to solve a problem that is relevant to everyday life, so that students are trained to think critically from an early age (Hastings, 2017).

The concept of critical thinking that comes from understanding the concept can be formed through providing real examples accompanied by material explanations. In this section, students learn to be able to relate the essential characteristics of an understanding with relevant examples. This critical thinking concept is a cognitive ability that is very important for students to master, because it is closely related to the thinking process in solving various problems (Klaasen, 2014).

Previous research has shown that students' low understanding of a concept affects students' ability to solve more complex problems. This also affects the difficulties faced by educators, where the ideas to be built and conveyed systematically cannot succeed well. The interweaving of understanding one concept with another concept will form a network of knowledge in students. This logic of thinking means that a low understanding of one concept will have an impact on mastering other concepts (Kallet, 2019).

The low level of critical thinking that comes from understanding concepts in students is generally caused by a lack of learning activities and practice in solving a problem. At a certain period of time, it has an impact on students becoming unaccustomed to applying the theory that has been learned in practice (Putra et al., 2020). In some educational institutions, there is often a factor that causes students' low critical thinking skills, namely the application of learning methods that do not involve students to be active in forming understanding concepts. It should be suspected that this is because educators dominate learning, so students are only limited to listening, recording explanations, and doing practice questions given by teachers in the learning system. The low ability of students to think critically is reflected in the weak ability of students to rebuild a concept, provide practical examples, and apply a concept to solve problems (Van Der Watt, 2016).

Some things that can be used as indicators in students, as a form of critical thinking skills such as their ability to provide examples, classify, summarize, conclude, compare, and connect a concept in oral or written form. These indicators require students to be able to interpret a concept correctly. This weak ability will clearly have an impact on the weak ability of students to think critically, in other words students will have difficulty in explaining, giving examples, concluding, and analogizing concepts (Theron & Oliver, 2018).

Previous research has talked a lot about cognitive aspects as the largest domain of critical thinking skills. Slightly different, in this study it is precisely the affective aspect that is the main study, as an impact of critical thinking skills. This study aims to prove the positive influence of students' critical thinking skills on affective learning outcomes.

2. METHODS

The research design used in this study is a causality research design. Causality design is a research design that is prepared to examine the possibility of causal relationships between variables. In this design, generally the causal relationship can be predicted by the researcher, so that the researcher can state the classification of independent variables and dependent variables (Sugiyono, 2020). As part of quantitative research, data are obtained through random sampling. The sample taken must be completely representative because the conclusions drawn from the sample will apply to the population. Therefore, this study used a sample of 50 students.

3. RESULT AND DISCUSSION

In the table below, it appears that the R Square value obtained is 0.438. The effect of critical thinking skills on cognitive learning outcomes is 43,8%.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.661	.438	.432	7.944

The ability to think critically obtained from students' understanding of a concept has a positive effect on students' affective aspects. It is generally understood that a student's low understanding of concepts will hinder students in achieving higher cognitive abilities. Furthermore, it also affects the affective aspect, where the context of assessing affective learning outcomes carried out by teachers aims to see the level of achievement of attitude competence. This happens because low critical thinking skills hinder students from developing problem-solving skills (Kallet, 2019).

An important effort that can be made to foster critical thinking skills in students is to provide ample space for student creativity. Educators need to design learner-oriented learning. This kind of learning design minimizes excessive activities from educators who dictate understanding, questioning, and concluding their own learning material, while students are only limited to doing problems, listening, and recording teacher explanations (Pakpahan et al., 2021).

Previous research has shown that teacher-oriented learning methods are not optimal in developing students' concept understanding abilities, because it makes students become inactive in exploring knowledge independently, thus affecting the learning outcomes of students' cognitive domains. Teacher-oriented learning methods make students only focus on the transfer of knowledge, namely by recording subject matter, thus impacting on students' weak ability to understand or process information. Learning methods that prioritize student needs are the main choices that educators need to work on. Educators as classroom managers have an important role to organize the learning process and increase the potential for student learning success, including in the affective realm (Pieter et al., 2020).

The results of a learning process appear in the competencies displayed by students. This competence is also illustrated by the series of words described by students. Learning outcomes actually refer to all abilities in students obtained after going through the learning process. In learning outcomes also appear the thought process that develops in students.

In general learning outcomes include physical skills (talking about physical actions and the utilization of muscles to perform a particular activity), attitude (talking about circumstances that predispose learners to do something), and intellectual (talking about all abilities of analyzing and modifying information received). Other experts argue that the learning outcomes are illustrated by the participants the more understanding, the more sensitive, the better, and the more professional they are in doing something. All of these things are closely related to learning objectives. From these explanations, it can be concluded that learning outcomes are abilities possessed by students after going through the learning process (Blanchard, 2019). The learning outcomes can be seen from three aspects, namely cognitive, affective, and psychomotor.

The cognitive domain in learning includes: 1. Knowledge (knowledge) is the memory of special or universal things, knowing methods and processes, remembering a certain pattern, structure or setting; 2. Understanding and acceptance in communication accurately, placing the results of communication in different forms of presentation, organizing them at the same level without changing understanding and can explore; 3. Application or use of principles or methods to new situations; 4. Analysis concerning the child's ability to sort material into the parts that make it up, detect the relationship between those parts and the way the material is organized; 5. Synthesis is one

more difficult level; and 6. Evaluation is the most difficult part of the knowledge ability of learners. Attitude domains include: 1. Accepting or paying attention; 2. Respond, i.e. students engage in learning and participate; 3. Appreciation, namely the behavior of students is consistent and stable; 4. Organize, that is, form a value system that can guide behavior; 5. Implemented i.e. values have found a place in the individual. The psychomotor domain includes: 1. Imitation, where students begin to imitate the action delivered; 2. Manipulation is to display an action as taught; 3. Commonality, namely students are able to lead to improvement; (4) articulation, i.e. students can coordinate a series of actions by establishing the exact sequence between different actions; (5) Naturalization, i.e. the child has been able to perform one or a number of actions (Sullivan, 2017).

4. CONCLUSION

Through field tests, it was concluded that critical thinking skills can affect students' affective learning outcomes by 43,8%. These indicators require students to be able to interpret a concept correctly. This weak ability will clearly have an impact on the weak ability of students to think critically, in other words students will have difficulty in explaining, giving examples, concluding, and analogizing concepts. The learning outcomes are illustrated by the participants the more understanding, the more sensitive, the better, and the more professional they are in doing something, as a result of learning in the affective realm.

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