

Profile of Learning Critical Thinking Through Strategy Project Based Learning (PJBL) at SMA Negeri Parepare

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Abstract. Learning in the 21st century requires every student to have thinking skills, work habits, and character to achieve an independent and successful life. Learning must equip students with 6 competencies (Communication, Collaborative, Critical thinking, Creative, Compassion, and Computational logic). Learning in schools must be able to develop students' thinking skills, including in learning biology. Empowerment of students' critical thinking skills through integration of learning strategies is one of the efforts to train students' thinking skills. Project Based Learning (PjBL) learning strategies support the empowerment of students' critical thinking skills, needed so that students can become independent learners who can manage their own learning. This survey aims to determine the profile of biology learning that integrates critical thinking skills in senior high schools through PjBL learning strategies. The method used is a survey with a questionnaire technique. The analysis was carried out descriptively using diagrams. The results showed that learning critical thinking through PjBL learning strategies had mostly been implemented, but most of the students had difficulties in using their critical thinking skills (71.4%). In addition, the results of the survey on the implementation of critical thinking skills can be seen from 6 indicators in the form of interpretation skills (100%), analysis (100%), evaluation (100%), inference (28.6%), explication (85.7%), and self-regulation (14.3%). This shows that critical thinking learning for students at SMA Negeri Parepare still needs to be trained and improved through the use of constructivist learning strategies such as PjBL combined with cooperative learning so that all students with different academic abilities can jointly improve their critical thinking skills.

Keywords: Biology learning profile, critical thinking learning, critical thinking skill indicators.

INTRODUCTION

Learning in the 21st century demands the development of students' independence (self-regulated learning). Independent learners can organize and plan, monitor, evaluate, and reflect on their own learning, which is part of higher order thinking skills (HOTS). Learning in schools must be able to develop students' thinking skills and character, including in learning science (biology) (Anazifa and Djukri, 2017). Science education must equip students with learning that goes deeper than simply memorizing facts, students need the ability to apply their scientific knowledge in situations that require problem solving and decision making (Miller & Krajcik, 2019).



Learning is currently undergoing many changes. The empowerment of thinking skills is less than optimal and there is a significant loss of literacy and numeracy learning. The results of previous studies (Nurachima, 2020) and (Muin, 2020), revealed that students' thinking skills and understanding of essential material were low. Learning is more theoretical and individual. Learning does not provide space for students to use experience in constructing their knowledge. Study ideology should empower scientific attitudes and *HOTS* so that learning objectives are in accordance with scientific developments (Setiawati and Corebima, 2018).

This learning loss requires a quick recovery effort. Efforts can be made by selecting the appropriate learning model. Constructivist and contextual learning becomes an effective alternative for empowering *HOTS* and the character of students, such as the model PjBL learning. The PjBL model activates students through project assignments, can focus on essential materials, deep learning for mastering basic competencies and *HOTS*, and independence (Barak & Asad, 2012). Thinking skills of students will not develop by themselves in line with the development of their age and if done intentionally (Corebima, 2010).

Learning in schools is generally still conventional, the integration of critical thinking skills in learning is still limited. The results of previous studies show that critical thinking learning in schools has not been maximized. Research by Royani (2021), Nurachima (2020), Setiawati and Corebima (2019), shows that learning in schools still does not empower critical thinking skills.

Critical thinking skills are one of the factors that support successful learning. Critical thinking is an activity that uses thinking skills that involve analyzing, assessing, and creating activities. According to Sadia, (2008), critical thinking is an activity of making questions, gathering information, taking efficient actions, presenting logical arguments and drawing conclusions.

Based on the results of observations at UPT SMA Negeri 2 Parepare about learning critical thinking skills through the use of constructivist strategies, they are still not empowered. This happens because most learning is still centered on educators so that the role of educators in learning is not in accordance with scientific-based learning. Efforts that can be made to find out the level of empowering critical thinking in schools are through learning surveys related to the implementation of empowering critical thinking.



METHOD

This type of research is a descriptive research conducted to find a description of biology learning based on critical thinking skills experienced by students in biology learning at UPT SMA Negeri Parepare. The sample of this study were all educators at UPT SMA Negeri Parepare City. The research instrument was a modified questionnaire from Setiawati's (2017) questionnaire. The questionnaire uses closed and open statements using a Likert scale. The data analysis technique used is descriptive analysis using diagrams.

RESULTS AND DISCUSSION

The results of the survey on the implementation of higher order thinking empowerment (critical thinking) on students with different academic abilities in the group of high school biology subject teachers in the city of Parepare show:

1. Indicators of the use of approaches in learning show that learning using a scientific approach is low compared to contextual and constructivist approaches. These data are shown in Figure 1.

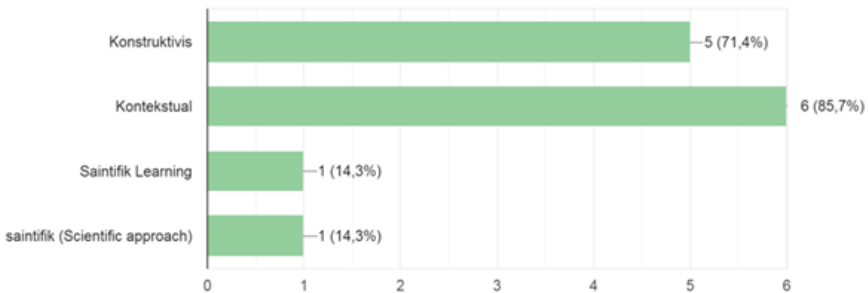


Figure 1. Learning Approach

2. The use of the PjBL learning model has been used by all respondents, but most (71.4%) stated that they found obstacles in implementing it. Generally the methods used by respondents are shown in Figure 2.



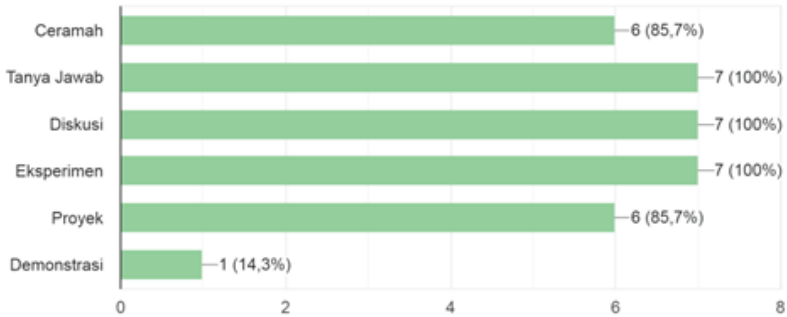


Figure 2. Learning Method

- Indicators Cooperative learning model as a cooperative learning model has been applied by all respondents in learning (100%). But for the TPS model, it is still limited. Data related to the application of cooperative learning models are shown in Figure 3.

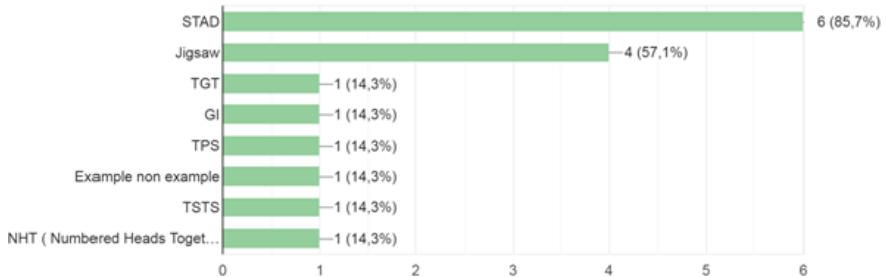


Figure 3. Types of Cooperative Learning

- Indicators of critical thinking learning. The data shows that most of the respondents (71.4%) stated that students had difficulty using their thinking skills. These data can be seen in Figure 4.



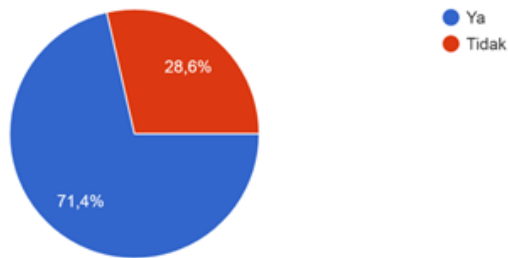


Figure 4. Implementation of Students' Critical Thinking Skills

- There are six indicators of critical thinking skills applied in schools, consisting of interpretation, analysis, evaluation, inference, explanation, and self regulation. implementation of indicators of inference and self-regulation is very low. The percentage of each indicator is shown in Figure 5.

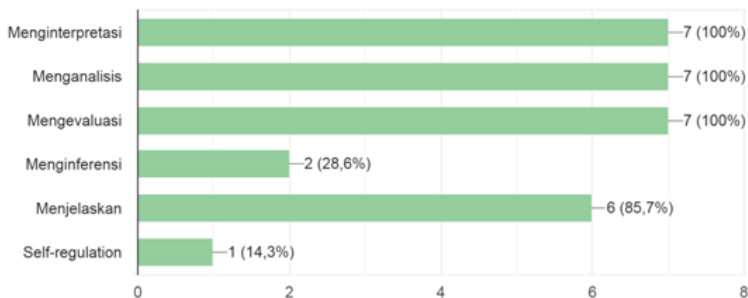


Figure 5. Implementation of indicators of critical thinking skills

The implementation of learning critical thinking skills in all senior high schools in the city of Parepare shows 2 indicators that are very low in implementation, namely indicators of inference and self-regulation. The empowerment of students' critical thinking skills is low. This can be seen in the data that most of the students seem to have difficulty using their thinking skills. According to Corebima (2010), students can only use their thinking skills if they are trained.

Project-based learning is constructive and meaningful, developing maturity, social reinvention, and reconstruction of self-knowledge and



self-esteem (Koutrouba & Karageorgou, 2013). Project-based learning makes students happy and enthusiastic. It also encourages students to have higher cognitive thinking (level of synthesis in Bloom's taxonomy) and builds students' character (Agustina, 2016). The PjBL model has a significant effect on creativity and cognitive (Sakbana, et al., 2021). The stages of PjBL learning strategies provide opportunities for students to practice their critical thinking skills. This stage consists of 6 stages, namely the determination of basic/essential questions, drivers; designing project plans; make schedule; monitor project progress; evaluate results; and evaluate experiences. (Jalaluddin, 2016; Bender, 2012). Critical thinking indicators that can be empowered by students through 6 stages of learning with this PjBL strategy are especially in the aspects of interpreting, analyzing, evaluating, inferring, explaining, and self-regulation skills.

Learning critical thinking is needed in the learning process to create a high curiosity, so that students will continue to seek information and think about how to solve the problems they face. According to Hidayati (2016), teacher learning always involves students to think critically, giving tasks containing critical thinking questions, monitoring students' critical thinking skills by giving critical thinking skills tests, then discussing them with students, so that students are equipped with critical thinking skills.

The results of the study show that the empowerment of critical thinking skills through PjBL strategies has not been maximized. There are still many students who have not been able to understand and develop their skills. Therefore, it is necessary to train on several basic competencies and combine it with a learning strategy that involves more support from friends to build a good concept.

CONCLUSION

Critical thinking learning has not been fully empowered by students. The percentage of understanding and implementation of critical thinking skills is still low, which is implemented through various learning strategies.

SUGGESTION

Empowerment of critical thinking can be trained and provided through the use of appropriate learning strategies. PjBL strategy is one of the learning strategies that has learning stages that support the empowerment of students' critical thinking.



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