

The Critical Thinking Skills In Terms Of Students' Learning Independence In Coastal Areas

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Abstract. This study aims to analyse critical thinking skills in terms of student learning independence in coastal areas. This type of research is descriptive with a quantitative approach with the population in this study all students of class X SMA Negeri 4 Tanjungpinang. The sample in this study amounted to 30 students. The sampling technique used Stratified Random Sampling. The instrument used is an essay question to measure critical thinking skills on biotechnology material and a closed questionnaire to determine student learning independence. Data analysis technique is inferential statistics. The conclusion of this study is that the critical thinking skills of students with various learning independence (medium, high and very high) are in the medium category.

1 Introduction

A century where developments in all fields take place rapidly is characteristic of the 21st century [1]. The emergence of the globalisation era has created enthusiasm in the world of education to form a new learning model in the 21st century. To face the 21st century, critical thinking skills are needed to help a person deal with various changes and challenges that arise due to the development of science and technology. Critical thinking is an important aspect that all students have [2]. A person must not only accept information at face value, but must also be able to select the information they receive and look for causes and effects and reasonable evidence. This is the impact of the rapid development of technology.

Critical thinking skills affect academic outcomes and support students in understanding concepts. Critical thinking is a process of interpretative and evaluative activities that are purposeful, clear, skilful, and active in relation to a problem. This process involves observation, problem formulation, decision-making, analysis, and scientific enquiry that eventually gives birth to a concept. Therefore, this ability is important to develop in students [3]. Critical thinking skills are also related to learning independence. Students must have the ability to learn independently to support critical thinking skills.

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According to Laksana (2019), learning independence is a state of learning someone independently, not depending on others, who has the willingness, initiative and responsibility

to complete their own learning [4]. Learning activities that students do are self-willed and have high self-confidence in carrying out their tasks. Learning independence is a person's ability to manage their learning effectively in various ways to get maximum results. This is interpreted as an effort to carry out learning activities independently based on selfmotivation to master certain subjects so that they can use critical thinking in solving problems [5].

Critical thinking skills can develop well, one of the reasons for this is independent learning, because students who do not depend on others can develop critical thinking skills effectively. Critical thinking skills play an important role in problem solving, especially in Biology subjects that are closely related to everyday life. Suciono, et al. (2020) argue that critical thinking skills cannot be abandoned in learning process activities in the era of revolution [6]. 5.0 because it plays a role in solving problems in everyday life. Rudiawan, et al. (2023) also say that the independence of learning and critical thinking skills is what gives birth to new ideas and innovations that are competitive and competitive in global competition. This ability to think and learn independently is also needed for academic achievement in solving complex problems in life [7].

The problem of student learning independence often occurs, it can be seen from students who learn still depend on others who cannot learn alone so that students still depend on teachers in the learning process. These results were obtained from interviews with biology teachers. Students do not have the confidence and courage to ask questions related to the material that has been taught. Not all students actively argue because some students are not confident to express their opinions in class. Thus, most students still do not confidence during the learning process, thus affecting students' ability to solve problems. Therefore, it is important to do this research to find out how critical thinking skills are viewed from the learning independence of students at coastal areas.

2 Research Methods

The type of this research is quantitative descriptive. The subjects used in this study were 30 students of SMA Negeri 4 Tanjungpinang. SMA Negeri 4 Tanjungpinang is one of the high schools in the archipelago (maritime) area. Sampling was carried out using the Stratified Random Sampling technique. Data collection uses two instruments, namely an essay test instrument to measure critical thinking skills and a closed questionnaire to determine the level of students' learning independence. Both instruments have been validated by experts and empirically validated. Indicators of student learning independence include self-confidence, responsibility, independence from other people, discipline in learning, behaving on their own initiative, and self-control. Meanwhile, indicators of critical thinking skills are providing simple explanations, building basic skills, concluding, providing further explanations, organizing strategies and tactics. Data analysis technique is inferential statistics. Scores of students' learning independence and critical thinking skills are found using the following formula.

$$\text{Percentage of Response} = \frac{\text{Total Student Scores}}{\text{Total Ideal Scores of All Items}} \times 100\%$$

After getting the percentage results, the researcher grouped the scoring results of students' learning independence using the scale seen in Table 1.

Table 1. Category of students' learning independence

Score	Category
$85 < X \leq 100$	Very High
$70 < X \leq 85$	High
$55 < X \leq 70$	Moderate
$40 < X \leq 55$	Low
$25 < X \leq 40$	Very Low

The grouping of critical thinking skills assessment results uses the scale shown in Table 2.

Table 2. Category of critical thinking skills

Score	Category
$75 < X \leq 100$	High
$60 < X \leq 75$	Moderate
$0 < X \leq 60$	Low

3 Results and Discussion

Based on data on critical thinking skills (CTS) in solving essay tests based on very high, high and moderate students' learning independence groups, it is presented in Table 3.

Table 3. Critical thinking skills Based on Level of Learning Independence

No.	Learning Independence Level	Indicators of CTS					Average CTS
		I1	I2	I3	I4	I5	
1	Very High	75	50	67	67	83	68
2	High	79	56	79	68	68	70
3	Medium	67	53	80	60	73	67
Average of CTS Indicators		74	53	75	65	75	
Overall Average		68					
Category Overall Average		Moderate					

3.1 Critical thinking skills Based on Very High Learning Independence

Students who have a critical thinking level in terms of learning independence have an average of 68. Students are able to provide good explanations by achieving several indicators. These indicators include the ability to provide simple explanations well, conclude, provide further explanations and organise strategies and tactics in solving problems effectively as well. Based on the results of the analysis, that students are not able to consider valid sources so that in indicator two, namely the ability to build basic skills by considering relevant sources, is considered to be in the low category. The low basic skills of students can also be caused by the physical condition of students. Students who are not in good condition because of their disturbed physical condition cause these students to be unable to concentrate and think quickly during the learning process. In line with the opinion of Dores, et al. (2020), when students have a disturbed physical condition then they are faced with situations that demand to think carefully in solving problems, this can greatly affect their thinking activities so that it is difficult to concentrate and respond quickly because their bodies are not in an ideal condition to handle these demands [8].

3.2 Critical thinking skills Based on High Learning Independence

Students who have a critical thinking level in terms of learning independence have an average of 70. Students are able to provide a good explanation by achieving several indicators. Students who have a high level of learning independence show that students' critical thinking skills are sufficient by fulfilling several critical thinking indicators. They provide reasons for their opinions that are relevant to the problem under consideration, analyse and explain the problem, and determine the right course of action by offering solutions. The positive impact of high learning independence is that students are able to face problems better. With learning independence, students can develop critical thinking skills in making decisions and initiatives in dealing with problems faced without help from others. This is in accordance with the opinion of Imama & Rochmawati (2021), that learning independence is the condition of a person who carries out learning activities by himself [9]. Students who have learning independence can be characterised by not depending on others, being confident, disciplined, responsible, having selfmotivation and evaluating their learning outcomes. When students are able to learn independently, students will be able to observe themselves, plan their own learning methods, and evaluate their own learning effectively and can manage time to complete their assignments.

Based on the results of the analysis, that students are not good enough in considering valid sources so that in indicator two, namely the ability to build basic skills by considering relevant sources, is considered to be in the low category. This is caused by several factors, one of which is inadequate educational facilities, such as an incomplete and poorly managed library, hindering students' access to quality reading materials. Nurhaidah & Musa (2016), which states that low student interest in reading can be influenced by various factors, such as lack of educational facilities and infrastructure, lack of library management, and lack of family support [10].

3.3 Critical thinking skills in Response to Moderate Learning Independence

Students who have a critical thinking level in terms of learning independence have an average of 67. Students with moderate learning independence categories tend to be able to fulfil several indicators of critical thinking skills. These include providing simple explanations, inferring, and organising strategies and tactics. Analysis of the results showed that students showed difficulty in providing explanations and utilising valid sources to develop basic skills. This resulted in a low categorisation of this indicator. Similarly, the indicator of providing further explanation was also categorised as low. This difficulty can be attributed to the low level of reading literacy among students, which interferes with their ability to understand the problem and consequently affects their problem-solving ability. Similar to the opinion of Putri, et al. (2024), that reading literacy is one of them used to hone critical thinking patterns, students who lack reading literacy affect their critical thinking skills. This is common in today's students who have decreased reading literacy so that it leads to a decrease in critical thinking skills. In addition, the influence of using mobile phones has a negative impact on reading literacy in students so that they use these gadgets to find information quickly which makes a lack of literacy interest in students. This also agrees with Adhari, et al. (2022), that with the existence of gadgets obtaining information is easier [11]. However, this can have a bad impact because with gadgets they become lazy to read and prefer practical results. This leads to a decrease in students' interest in literacy. To improve students' critical thinking skills, there needs to be various efforts, including reading literacy improvement programmes such as reading campaigns, provision of engaging reading materials and improved library facilities. Educational facilities need to be improved and well-managed to ensure access to quality reading materials. This is in line with the opinion of Kusuma, et al (2023), who stated that developing critical thinking skills in students requires adequate facilities [12-15].

Families and peers need to be more active in supporting students' reading interests through the formation of study groups, shared reading activities, and positive emotional support. With these efforts, it is expected that students with low learning independence can further develop their critical thinking skills and achieve better results.

4 Conclusion

The critical thinking skills of class X biology students at SMA Negeri 4 Tanjungpinang, a school located in the coastal area, are categorized as moderate when evaluated in relation to their learning independence. This indicates that while students exhibit a reasonable level of critical thinking, there is still room for improvement, particularly in fostering greater autonomy in their learning processes. The coastal setting and associated educational dynamics may contribute to this outcome, suggesting the need for targeted strategies to further enhance these skills.

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