



# Advance Organizer Learning Model to Improve Critical Thinking Skills

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**Abstract:** This classroom action research aims to improve students' critical thinking skills in class V at UPTD SDI Osmok Kupang for the 2022/2023 academic year through the application of the Advance Organizer learning model. The subjects of this research were 16 students class V of UPTD SDI Osmok Kupang. Data collection techniques use tests and observations. The results of this research show that the percentage of cycle I teacher activity at meetings I and II was 58.75% and the activity of cycle I students at meetings I and II was 55,00%. In cycle II, teacher activity at meetings I and II increased with a percentage of 98.12% and for students in cycle II meetings I and II with a percentage of 96.90%. Apart from that, the results of the critical thinking ability test of students from cycle I to cycle II also increased with the percentage of posttests completed in the cycle, namely 37.50% with an average of 53.43% and in cycle II with a percentage of 93.75% with an average of an average of 86.25% completed in the very good category.

**Keywords:** Advance Organizer; Critical Thinking Skills; Learning Model

## Introduction

Education in the Industrial Revolution Era 4.0 is a phenomenon that answers the needs of the industrial revolution by adjusting the education curriculum to suit the current situation (Doucet et al., 2018; Kumar et al., 2019). There is a need for education that is more in tune with the contemporary world, which prepares the younger generation to face the challenges of the 21st century, such as facing disruptive technological resources and processes such as robotics, artificial intelligence and the Internet of Things which are the new parameters of education 4.0 (Bongomin et al., 2020; Silva et al., 2020). Therefore, it is believed that traditional teaching methods have reached their limits in terms of vocational training to act in this new market concept (McDougal, 2013). In this case, education and technology together are the main resources for overcoming challenges. From this point of view, it is shown that carrying out educational training is still in

Basic Education (kindergarten, elementary school and high school), with a focus on Education 4.0. In this way, students will be able to develop the skills and competencies needed in the 21st Century such as problem solving, collaboration, communication, autonomy, mastery of technology, creativity, and innovation (Mourtzis, 2018).

The low critical thinking ability of students is influenced by students' interest in learning (Warsah et al., 2021) which is the result of learning conditions that are still dominated by teachers and do not provide access for students to develop independently through discovery and their thinking processes, so that classes tend to be teacher-centered (Wahyuni, 2021). Efforts that teachers can make to overcome this are by improving the learning process by involving students to actively participate in the class. Critical thinking skills need to be developed through learning at school so that students can reflect on their own thinking (Alsaleh, 2020; Erdogan, 2019). Critical thinking is a process with the

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aim that each individual can make reasonable decisions, so that what is considered best regarding a truth can be done correctly (Turan et al., 2019). Critical thinking is a process that involves mental operations such as induction, deduction, classification and reasoning (Muhfahroyin, 2010). Critical thinking requires hard efforts to examine beliefs or assumptive knowledge based on supporting evidence and further conclusions (Cáceres et al., 2020; Paul & Elder, 2019). As a result, for this reason, teachers need to include indicators for critical thinking skills into the context of the learning material, then the learning material is connected to daily life (Khasanah & Ayu, 2017). In critical thinking, students are able to recognize the problems they face and how to solve them. Therefore, teachers must apply learning models that can provide opportunities for students to think at a higher level in the learning process (Wijayanti et al., 2018).

Based on the results of observations and interviews with the homeroom teacher for class V UPTD SDI Osmok, the teaching and learning process still uses discourse, question and answer, and assignment methods during learning. Teachers are less interactive in providing opportunities to ask students questions about the learning being discussed, so that students are less able to improve their critical thinking skills. Science learning through conventional lecture methods is of course only rote and meaningless. Moreover, if the student's mind is not ready, the student will have to revert to learning by rote, which is dangerous and very prone to forgetting. The use of advance organizers can facilitate students to trigger their past knowledge in new learning situations and make the course meaningful for them. In learning, a meaningful process is very important. The material should relate to ideas already established in the learner's cognitive structure in the form of ideas, allowing the material to be studied in a logically coherent manner (Rahayu & Widodo, 2010). This research aims to improve students' critical thinking skills during the learning process.

**Method**

This research was conducted at UPTD SDI Osmok, Kupang City in the 2022/2023 academic year. The subjects were students of class V as many as 16 students (5 females and 11 males). This research referred to Kemmis and Mc Taggart's Spiral Model, where there are four important stages in classroom action research, namely planning, action, observation, and reflection.

Research data was analyzed descriptively based on the percentage of each critical thinking indicator (Afriana et al., 2021). The analysis process is carried out in the following stages: students' answers are corrected,

students' scores are calculated for each question item, analysis of critical thinking skills is described for each indicator, the percentage of students is calculated on each indicator of critical thinking. Student's achievement of this study was measured with at least 80% of the number students reach the minimum criteria of cognitive aspects.

**Result and Discussion**

Observations in cycle I were carried out during learning activities. Observations are carried out to observe the activities of teachers and students who are then given a score with a range of 1=very good, 2=not good, 3=fairly good, 4=good, 5=very good. The activities of teachers and students in the cycle show quite good results (Table 1.). The percentage of achievement of students' critical thinking ability indicators in cycle 1 can be seen in Figure 1. In the aspect of analyzing arguments, there were 12.5% or 2 students who completed it and 87.5% or 14 students who did not complete it. In the aspect of formulating questions, only 1 student completed it with a percentage of 6.25%. In the clarifying aspect, there were 7 students who completed it. In cycle I, the results of students' critical thinking skills that were completed were only 37.50% (Figure 3) below the minimum criterion of 80%, so the research continued into cycle II with the application of the advance organizer learning model.

**Table 1.** Observation Results of Teacher and students' activities in Cycle I

Observation Results	Percentage (%)	Average (%)	Categories
Teacher activities at the first meeting	57.50	58.75	Quite good
Teacher activities at the second meeting	60.00		
Students activities at the first meeting	53.75	55.00	Quite good
Students activities at the second meeting	56.25		

After reflecting in cycle I, corrective action was taken in cycle II. The activities of teachers and students increased from the fairly good category to very good in cycle II (Table 2.). The figure 2 shows that the percentage of achievement of students' critical thinking ability indicators in cycle II. In the aspect of arguments analyze, there were 93.75% or 15 students who completed it and 6.25% or 1 student who did not complete it. In the aspect of question formulate, there were only 14 students who completed it with a percentage of 87.50%. In the question clarify, there were 11 students who completed it or 68.75%. The figure 3 shows that in cycle II the results of

students' critical thinking skills which were completed reached 93.75%, exceeding the minimum completion criteria of 80% so there was no need to continue to the next cycle.

**Table 2.** Observation Results of Teacher and students' activities in Cycle II

Observation Results	Percentage (%)	Average (%)	Categories
Teacher activities at the first meeting	97.50	98.12	Very good
Teacher activities at the second meeting	98.75		
Students activities at the first meeting	96.25	96.90	Very good
Students activities at the second meeting	97.55		

*Discussion*

Classroom action research is typically defined as investigations conducted by practitioners in their own educational settings to advance their practice and improve their students' learning. Action research is a type of research that differs from other traditional educational research; it is constructivist, situational, practical, systematic, and cyclical (Efron & Ravid, 2019). One of the goals of action research is to improve the quality of teaching and learning and improve the quality of learning conditions in the classroom. Action research will change teacher teaching behavior, student behavior in the classroom, and improve learning practices (Sulfemi, 2019).

The Advance Organizer Learning Model is a framework used by students to organize and target new knowledge to be learned before studying the information (Teng, 2022). This approach was proposed by Devid P. Ausubel and there are well-known examples of instruction based on the approach. Advance organizers are considered effective for a type of learning called Meaningful Learning (Daniel, 2007; Monteiro et al., 2020). Meaningful learning is not rote learning where students memorize meaningless things automatically, but rather learning that treats things that are familiar to students (Biswas & Paul, 2018). The classroom situation is a major component in the field of education. Teaching will not be successful without extensive knowledge of teaching methodology. It is important for a teacher to keep pace and compete with the world. Teachers must know individual differences and must be able to relate the teaching-learning process to an individual's personality and cognitive development.

The results of observations on teacher and student activities in cycle I obtained percentages of 58.75% and 55.00% respectively in the quite good category. However, there are still shortcomings, such as students

not yet mastering the learning material, not being able to activate students' learning activities, and not providing maximum reflection and feedback on the material they have studied. This has an impact on students' critical thinking skills with a very high percentage of incompleteness, namely arguments analyze indicator is 87.50%, question formulate is 93.75%, and clarify indikator is 56.25%. So, based on the results of the reflection, corrective action needs to be taken, such as teachers must be able to provide motivation, guidance, direction, and provide reinforcement that science subjects are very important in everyday life. Apart from that, teachers must also frequently monitor student performance in working on questions on student worksheets. Teachers must also actively ask questions to students. A teacher's ability to create and design the learning model they use is a characteristic of a professional teacher. For this reason, designing learning models and tools is very important so that learning objectives can be achieved (Afni et al., 2022).

After improvements were made in cycle 2, the percentage of teacher and student activity increase to 98.12% and 96.90% respectively in the very good category. Learning requires activity, because in principle learning is doing to change behavior (Hidayah, 2014). There is no learning if there is no activity because student activity is very important so that the learning outcomes obtained by students are optimal. Students' critical thinking abilities and the quality of learning are characterized by increasing students' critical thinking abilities in learning according to the results of observations during classroom actions. In cycle II, the percentage of analyze arguments indicator increased to 89.84%, questions formulate indicator increased to 92.18%, and clarify indicator increased to 80.46%. With good learning activities, students can focus more on absorbing the material presented by the teacher because these activities support student success (Thahir et al., 2020). This research is in line with other research including; the Advance Organizer model can improve learning activities and learning outcomes (Kurniasih, 2018), the Advance Organizer Model is effective for developing student achievement (Karthikeyan & Denisia, 2021), and the Advance Organizer learning model with mind maps can improve student understanding (Kusdiastuti et al., 2020).

**Conclusion**

This research succeeded in improving students' critical thinking skills in learning. Researchers suggest to teachers or other recommend to use the advance organizer learning model on other life science materials and test it on students' understanding. Advance

organizer model is very effective to increase critical thinking of students.

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### Conflicts of Interest

The authors declare no conflict of interest.

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