

## **Train Critical Thinking Skill with Direct Instruction**

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**Abstract:** Learning device are important as a form of learning planning. Planning is made to improve the efficiency and effectiveness of the achievement of student competencies. However, the tools used in the learning process in schools have not been much accommodate the learner's participation in the learning process in accordance with what is expected Curriculum 2013. Revised 2013 curriculum expects the achievement of graduate competencies that include attitudes, knowledge, and literacy. Good literacy skills can develop critical thinking skills. Train critical thinking skills can be done through direct instruction model. Therefore, a study aimed at describing direct instruction model in training critical thinking skills. This research is a preliminary research (self evaluation) which is done by analyzing the devices used in Junior High School (SMP). Strategies designed by using direct instruction model can make learners avoid misunderstandings, make learning fun, and practice critical thinking skills gradually.

**Keywords:** critical thinking, direct instruction

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Date of Submission: 13-06-2018

Date of acceptance: 28-06-2018

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### **I. Introduction**

The strategic plan of the Ministry of Education and Culture is to provide a good and decent education for the people of Indonesia. Good and decent education does not escape the role of teachers and learning devices used. Learning devices include goals that will be achieved learners (Kemendikbud (2015). Curriculum 2013 revision of graduate competence of learners include cognitive, affective and literacy. High literacy skills will develop high-level skills one of which is critical thinking skills.

The current problem of weak science skills, mathematics and reading of Indonesian students declined from previous surveys (OCED, 2016). In addition, the decreased competence of critical reading, comprehension and significant absorption of learning materials in Junior High School (Kemendikbud, 2015). The data generally have illustrated that the weakness of the learner's skills.

The problem is not separated from the difficulty of teachers in packaging learning, the lack of teacher insight in developing learning tools and learning strategies in accordance with learning materials. This is seen in the learning tools used by teachers in schools such as syllabus that can't describe the activities of teachers in learning, learning activities are still memorized so high-skill unstructured skills which is the main goal of 21st century Education. Learners want the learning in the school is done by gradually from the easy things to trained the skills and the atmosphere of learning is fun especially in science lessons.

Answering the expectations of the students, the learning process in school can create a fun learning, and train the skills gradually, for it needs the right strategy. The use of a model that is easy to implement and do by the teacher and can train the thinking skills gradually feels very suitable to be applied. According Joyce, et al (2015) learning is delivered in a structured step by step will avoid the weakness of learners of one of the learning model is Direct Instruction (DI). According to Valdes, et al (2015) Fun learning is the desire of all learners, fun learning can be designed cooperatively. Al-Rasa'i (2013) describes a scientific approach is a learning approach designed and tailored to the learning environment so that learning is more effective in improving critical thinking skills. Therefore, it is necessary to improve the device used by teachers at school.

### **II. Material And Method**

This research was conducted at Junior High School (SMP) in Banjarmasin. This research is the first step in development stage that is self-evaluation. Tessmer (1998) describes self-evaluation as the first step in the development path by doing some evaluation by analyzing and designing learning tools including syllabus, material analysis, and learning implementation plan used today. The purpose of this research is to describe direct instruction model to train critical thinking skill and create enjoyable learning.

The result of the research is the result of the analysis on the device of learning device that is used today can be seen in Table 1 as follows:

**Table 1: Results of learning device analysis.**

No	Aspects	Analysis results
1	Syllabus	Syllabus used in schools still cannot describe the activities that teachers will do during the lesson and still have not developed high-order thinking skills especially critical thinking skills
2	Material analysis	No analysis of knowledge to be learned learners
3	Learning Implementation Plan	The steps of learning activities are still based on lectures although they contain 5M elements (scientific approach), the learning is still memorable so that the skills to be achieved do not appear.

### III. Discussion

The syllabus used by teachers today does not describe activities to develop high-level thinking skills especially critical thinking. The devices are used in the materials of the material, so that the variety of knowledge contained in the material is not clear. In addition, the learning activities are still memorized, so as not to trigger the participant's activeness be trained in practicing critical thinking skills.

The focus of this research is to evaluate the learning devices that teachers use nowadays to learn devices and to carry out learning designs that include: (1) Syllabus, syllabus is increased by increasing the competency achievement index of learners to conclude skills. The learner is expected to perform the process of critical thinking by analyzing, evaluating, and summarizing up to explain, (2) Material analysis, material analysis was developed to facilitate the teacher in knowing variety of knowledge contained in it. This material analysis presents concepts, principles, and facts and procedurally integrated each other. Prawiradilaga (2007) analyzes material analysis of a topic developed to show the variety of knowledge embodied in the topic, (3) Implementation Plan, Learning Implementation Plan is developed steps of integration of DI model, cooperative, and scientific approach referring to the indicators of critical thinking each learning step is expected to train students' critical thinking skills. Facione in Filsaime (2008) states that critical thinking is in the learning process. Improvements to the syllabus, material analysis, Learning Implementation Plan are expected to improve the learning process of learners. Creating a fun learning and training in critical thinking skills gradually need the right instruction design one of them direct instruction model (DI) combined with cooperative methods using a scientific approach. Joyce, et al (2015) suggests that the DI model is run gradually step by step. Jatmiko, Diani, and Alfadhilah (2013) stated that the scientific approach applied to learning can trigger learners to practice critical thinking skills.

Istianah (2013) states that critical thinking skills are a skill that does not appear instantly but requires continuous practice. Facione (1999) in Filsaime (2008) critical thinking can be learned, predicted and can be taught. Fahim and Pezeskhi (2012) suggests critical thinking is a logical process of thinking (Facione, 2011) describes the steps of critical thinking, the first thought process: Interpretation, Analyze, Evaluate. The second step becomes a thinker: Inference, Explanation. The third step of thinking and thinking process is Self-Regulation. Learning process that is designed with a learning strategy is to be delivered to the train of matter that will be delivered.

The subject matter of science has a variety of knowledge one of which is declarative knowledge (concepts, principles, facts) and effective procedural knowledge taught by DI model. Majid (2013) states that the DI model is very effective for procedural and declarative subject matter (concepts, principles, facts). Learning strategy is contained in learning devices in the form of syllabus, material analysis, lesson plans, teaching materials and assessment sheets tailored to competence and basic competence for junior high. Kemendikbud (2013) in regulation of education and culture minister number 68 explains that learning devices based on core competence and basic competence 3.4 formulated in the learning indicators at each meeting as well as the development of the items aimed to enable learners to develop their thinking widely.

Based on the above, the learning strategy designed with the DI model combined with the scientific approach is considered suitable for the students' thinking skill, gradual, and fun. The following learning steps are designed by using DI model, cooperative and scientific approach can be seen in Table 2:

**Table 2: Learning steps using DI, cooperative and scientific approaches.**

Critical Thinking	Direct Intruction	Cooperative	Scientific	Integration
Thinking Process		Step 1 Organize learners into study groups		Step 1 Teachers form groups and conduct discussions
	Step 1 Orientation			Step 2 Teachers prepare learners to learn
	Step 2		Observe	Step 3

Critical Thinking	Direct Intruccion	Cooperative	Scientific	Integracion
	Presentation		Ask	Teachers provide demonstrations of knowledge and skills
	Step 3 Practice structured	Step 2 Guiding group learning and work	Ask	Step 4 The teacher guides the practice
	Step 4 Practice under the Master's Guidance		Try / collect data	
	Step 5 Standalone Practice		Reasoning / associating	
Become a thinker		Step 3 Evaluation	Reason / associate	Step 5 The teacher reviews the results of the discussion and associates the understanding
			Communicate	Step 6 Teachers provide opportunities for learners to present the results of group discussions
		Step 4 Give awards		Step 7 Master rewards the best group

Teacher activity in this lesson follows the steps of the DI model, cooperative, and scientific approach as follows:

- (1) Teachers form groups of learners, in this step is expected to obedient attitude of learners can appear, so that the character of learners improved. This group of learners aims to learners can build their own knowledge structure through interactions one of which discuss (Parlan, 2006).
- (2) Teachers prepare learners to learn. The teacher presents the material briefly by showing a learning video that contains material related to the topic. These activities make the core activities of learning run short which is one of the characteristics of the DI model (Joyce, et al., 2015). The observation process is expected to train the sincerity, the accuracy of the learners (Sani, 2014). In this step, the teacher also provides various examples of concepts. The teacher provides an explanation of the concepts related to the video as aired and learners the opportunity to ask questions and ask questions to learners. In this step is expected the ability of interpretation of trained learners. Facione (2011) describes interpretation as understanding and correcting meanings, examples of recognizing a problem and explaining it without prejudice. The teacher demonstrates knowledge by providing a narrative picture of the learning task, the teacher explaining how an experiment is broadcast through a video or demonstration, so that new knowledge and concepts can be understood by the learner. Joyce, et al (2015) suggests that one characteristic of the DI model demonstrates and provides examples of new skills or concepts.
- (3) Teachers provide demonstrations of knowledge and skills. The teacher demonstrates knowledge by providing a narrative picture of the learning task, the teacher explaining how an experiment is broadcast through a video or demonstration, so that new knowledge and concepts can be understood by the learner. Joyce, et al (2015) suggests that one characteristic of the DI model demonstrates and provides examples of new skills or concepts. The teacher examines the experimental results of the learners and associates them with the learners. In this step, learners the opportunity to examine the points that are difficult with the discussion. Joyce, et al (2015) said the characteristic of DI model is to re-examine difficult points. The results of experiments learners show what kind of inference learners. Facione (2011) Inference is to contain a conclusion from the source of information or experimental results.
- (4) The teacher provides an opportunity for learners to experiment with the help of students' worksheets. This activity, it is expected that the concepts received by learners can be well understood. doing activities directly by learners is expected to keep students from mistakes of conceptualizing. Joyce, et al (2015) said the characteristic of the DI model is to reduce conceptual misconceptions. In this step learners are trained to analyze and evaluate and draw conclusions of findings during the experiment and adjust to the concepts that have been submitted. Facione (2011) explains that analysis is the activity of identifying relationships between statements, examples of identifying the similarities and differences between two approaches to a given solution and evaluation is the activity of estimating the power of statements, the strengths and weaknesses of interpretation.
- (5) The teacher reviews the results of the discussion and associates the understanding. The teacher examines the experimental results of the learners and associates them with the learners. In this step learner's the opportunity to examine the points that are difficult with the discussion. Joyce, et al (2015) said the

characteristic of DI model is to re-examine difficult points. The results of experiments learners show what kind of inference learners. Facione (2011) Inference is to contain a conclusion from the source of information or experimental results.

- (6) Teachers provide opportunities for learners to present the results of group discussions. The teacher gives the learner the opportunity to present the results of their experiment. In this way, it is expected that the skills of expansion of learners can be trained. Learners are required to explain the findings of their experimental results that require learners to provide strong arguments based on the concepts that have been studied. At the same time, the teacher explains the difficult points. Facione (2011) explains that explanation is the activity of expressing the results of reasoning, an example of presenting observations and conveying arguments.
- (7) Master rewards the best group, in this activity is expected to improve learning motivation learners and make the learning process becomes fun.

Learning activities that refer to critical thinking skills are expected to train critical thinking skills. Critical thinking skills are not necessarily directly mastered by learners, but need a process of training to form the mindset. Facione (1999) in Filsaime (2008) states that critical thinking needs to be trained and learned in developing it.

Some experts have proposed similar research results. Valdes, et al (2015) in his study stated that cooperative learning can increase the motivation of learners to think critically and make misunderstandings among learners is reduced. In addition, learners are also aware of activities in cooperative learning make learning interesting and fun.

Stockard (2011) reported the results of his research that the implementation of learning using DI showed an increase in students' understanding of the material presented. Al-Sammari, et al (2008) states that the DI effectively improve the performance of learners in solving a problem. Flores and Ganz (2007) suggest that DI learning is related to all conditions of learners. The result of Al-Rasa'i research (2013) in his research report scientific approach is a learning approach designed and adapted to the learning environment so that learning is more effective in improving the ability of learners and learning achievement of learners.

#### **IV. Conclusion**

The learning process plays an important role in achieving the competence of learners. learning strategy applied in learning is expected to make active learning activity, and able to train critical thinking skill. The learning process that is tailored to the environment and easy to do is expected to address current learning problems. Learning by DI model enables active learners to avoid learners from misunderstandings and increase learners' motivation to think critically and create a fun learning atmosphere, train critical thinking skills step by step. However, in the use of this strategy should consider the lessons learned to be delivered. Learning material that fits with this strategy is the material that is declarative and procedural knowledge.

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Ahmad Rusyadi, "Train Critical Thinking Skill with Direct Instruction" *IOSR Journal of Research & Method in Education (IOSR-JRME)* , vol. 8, no. 3, 2018, pp. 07-11.