

## **THE DEVELOPMENT OF GUIDED TRAINING MODEL ON CONSTRUCTIVE LEARNING FOR JUNIOR HIGH SCHOOL SCIENCE TEACHERS**

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### **Abstract**

This research was aimed to (1) find out the guided training model on constructive learning, (2) obtain the effectiveness of guided training model on constructive learning, (3) get the practicality of guided training model on constructive learning. This research used research and developmental method. The data were collected by using test, observation, and interview. There were fifteen junior high school science teachers who were participated in implementing the model in this research. The findings of the research were (1) guided training model for constructive learning has been developed based on need analysis of training, and it has been tried out and implemented at junior high school science teachers' training in Padang, (2) the result of implementation indicated that the guided training model was effective to improve teachers' knowledge and skill for constructive learning, and (3) the guided training model was effective for training teachers with constructive learning materials and others training materials.

**Keywords:** guided training model, constructive learning, junior high school, science teachers

### **Introduction**

The implementation of the curriculum 2013 in Indonesia has been started in several pilot schools. In order to carry out the curriculum 2013 well, we need to prepare the teachers so that they are ready to implement the curriculum. Teacher should implement the curriculum 2013 by using student center learning model. The learning process should apply the principle of student center learning which facilitate students to learn actively and the teacher acts as the facilitator. The implementation of this principle force teachers to use various learning strategies, including constructive based strategies. Marlowe and Page (1998) and Jonassen (1999) stated that

constructive learning sees the learning as a process to build, create, discover, and develop the new ideas or concepts based on the current knowledge individually and socially. Constructive learning asks teacher to be active in preparing learning material to support students as they will learn actively. It indicates that teacher is active before and along the learning process.

The result of observation result on several schools in Padang indicated that teachers had not implemented the constructive learning and student center learning yet. Students did not get chances to find the learning material from other sources, they only found it in one book and waited for the informations from teacher. Teacher gave the students tasks which were similar with students' book. It proved that teachers did not prepare the required learning material in order to activate students' learning. Hence, the constructive learning had not been implemented well yet.

The constructive learning had not been implemented well due to the lack of teachers' knowledge and skill about constructive learning. Thus, teachers need to get training to implement the constructive learning in their classes and improve their pedagogic competence. Training is conducted in order to improve teachers' knowledge and capability in a short time (Harris, 1995; Bramley, 2010; Kamil, 2010).

The result of observation showed that the characteristics of trainings which was conducted by either main or regional government was socialistist. It made training ineffective to improve teachers' skill. This observation result was supported by the research which was done by Candra et al (2005) which indicate that various kinds of trainings to improve teachers' competence had not been effective yet. It was caused by the lack of appropriateness between the training material with teachers' needs and instructors' capability in implementing andragogic education.

This research was aimed to find out: (1) the model of guided training on constructive learning, (2) the effectiveness and practicality of guided training model for constructive learning.

## **Research Method**

This research used research and development method. Research and Development (RD) uses some steps as stated by Borg and Gall (1989). However, in this research, the steps had been modified in order to be appropriate to the needs. The modified steps of RD included program or product analysis, the development of program or product by using Focus Group Discussion (FGD), product revision, expert validation, and implementation. The subjects of this research were fifteen science teachers of junior high school in Padang, West Sumatra, Indonesia.

The instruments which were used in this research were pre-test, post-test, observation, and interview. Pre-test, post-test and observation were used to know the effectiveness of guided training model on constructive learning. Interview was done to know the practicality of guided training on constructive learning. The data were analyzed by using qualitative approach. Qualitative data were analyzed by using flow model (Miles and Huberman, 1994:10). Quantitative data were analyzed by using descriptive statistical analysis. Quantitative analysis was used for pre-test, post-test data and observation result of teacher's skill in implementing constructive learning. Qualitative analysis was used to analyze the interview result about some factors which influence the implementation of guided training.

## **Research Findings**

Teacher's knowledge about constructive learning were seen before implementing the supervised training by giving pre-test. Then, post-test 1 was given after the implementation of supervised training. The result of pre-test and post-test 1 were compared to see the improvement of teacher's knowledge about constructive learning. The comparison result of pre-test and post-test were described in the table below.

**Table 1**  
**The Result of Pre-test and Post-test 1**

No	Training Material	Pre-test		Post-test 1		% Improvement
		%	Criteria	%	Criteria	
1	Basic concept of constructive learning	44,67	Middle	60,67	Good	24
2	Steps of constructive learning	33,33	Low	57,78	Middle	24,45
3	Evaluation of constructive learning	29,17	Low	40	Low	10,83

Table 1 shows that the percentage of participants' mastery on training material about constructive learning concept improved 24%. The participants' mastery on some steps to do constructive learning improved 24,45%. The participants' mastery on constructive learning evaluation improved 10,83%. The participants' mastery on this materials were still low, but the percentage of mastery was improved.

Post-test 1 result was used as the basic data to guide the teachers in group in order to implement the constructive learning in their classes. Teachers were grouped into 3 groups. Every group discussed to make lesson plan about the implementation of constructive learning and chose one teacher as the model to practice their lesson plan. After practicing the lesson plan of constructive learning, the model teacher got feedback from the others. The other teachers could learn from the teaching activities.

After group guidance, post-test 2 was conducted. Then, the result of post-test 2 were compared with the result of to post-test 1 in order to know the improvement of teachers' skill about the implementation of constructive learning. The comparison of post-test 1 and post-test 2 can be seen in the table below.

**Table 2**  
**The Result of Pre-test and Post-test 2**

No	Training Material	Post-test 1		Post-test 2		% Improvement
		%	Criteria	%	Criteria	
1	Basic concept of constructive learning	60,67	Good	85,33	Very Good	24,66
2	Steps of constructive learning	57,78	Middle	80	Good	22,22
3	Evaluation of constructive learning	40	Low	83,33	Very Good	43,33

Table 2 shows that the percentage of participants' mastery on training material after group guidance about constructive learning concept improved 24,66%. The participants' mastery on some steps to do constructive learning after group guidance improved 22,22%. The participants' mastery on constructive learning evaluation after group guidance improved 43,33%.

The result from post-test 2 can be seen that there is high improvement on constructive learning evaluation material. It was caused by (1) teachers had long time to learn constructive learning design module that had been prepared in training (2) teachers got guidance from facilitators (3) teacher had chance to discuss with facilitator or peer.

### **Teachers' skill in using constructive learning**

Constructive learning that the teachers used is based on some steps as proposed by Gagnon and Collay (2001), they are building the situation, grouping the students, building the bridge, asking questions, doing presentation, and reflection. Based on those steps, the researcher observed the teachers' skill in implementing constructive learning.

**Table 3**  
**The Result of Teachers' Implementation**  
**in Constructive Learning**

No	Observation Materials	Observation Result	
		%	Criteria
1	Building the learning situation	71,56	Good
2	Grouping the students	89,83	Very Good
3	Building the bridge	80,83	Very Good
4	Asking questions	64,17	Good
5	Doing presentation	72,08	Good
6	Doing reflection	71,85	Good
	Mean Score	75,05	Good

Table 3 shows that the percentage of teachers' skill in implementing the constructive learning was 75,05% with good criterion. The percentage of teachers' mastery in building the constructive learning situation was 71,56% with good criterion. The percentage of teachers' mastery in grouping the students was 89,83% with good criterion. The percentage of teacher's mastery in building the bridge with students was 80,83% with good criterion. The percentage of teachers' mastery in asking questions was 64,17% with good criterion. The percentage of teachers' mastery in doing presentation was 72,08% with good criterion. The percentage of teachers' mastery in doing reflection was 71, 58% with good criterion.

### **Factors that influence the implementation of gyided training**

#### **a. Group guidance by facilitators**

Group guidance by facilitators was done by bringing teachers to the constructive learning situation directly. Teachers had to implement the constructive learning in their classes. It helped the participants to have empirical experience. This group guidance concept was appropriate with the philosophy of constructive learning which learning should be related to students' real situation (Schunk, 2012; Gagnon and Collay, 2001; Jonassen, 1999; Wilson, 1996; Duffy, 1992; Marlowe and Page, 1981; Dewantara, 1977).

The group guidance helped teachers to have good knowledge and skill in implementing constructive learning. Through group guidance, teachers could share their experiences. It helped them to have mutual needs and build teachers' learning community.

#### **b. Guided training that completed by learning tools**

The guided training was completed by module of constructive learning design and guided training guidance. This module could be used by teachers independently to learn about constructive learning. This module had advantages for independent learning, structural learning experience, learning output and grading (Donnelly and Fitzmawarice, 2005). The learning experience could be structural because the module had clear instruction and criteria that must be reached by the reader for each materials. Learning output and grading were clear because there were formative grading in the form of test.

Teacher got guidance in order to have technical clues to follow the supervised training about constructive learning. The contents included background of training, program structure and description, training schedule, and rules of training. Structure and description of program was aimed to let participants know the material that would be learned. It becomes the boundary to learn the guided training material. Training schedule was explained in detail in order to let participants know and follow the training orderly and dicipline. Regulation included rules that must be obeyed by the participants.

#### **c. Number of participants**

The number of participants in training had effect on the implementation of face to face training. Less number of participants helped informants or facilitators to observe the development of participant's knowledge and skill. Informants or facilitators could control the learning well.

Evaluation by informants or facilitators could be done by authentic grading individually by performing participants' competence in integrating the knowledge in the real life (Moore, 2005). It was helpful for informants or facilitators to give follow up to the participant related to their capability.

#### **d. Informants and facilitators have competency on the learning subject**

Informants and facilitators must have good competency related to the training material and teaching adult learner. Their qualification included knowledge about training participants, the willingness to teach, communication ability, and the ability to participate the participants (Kirkpatrick and Kirkpatrick,2006).

#### **Conclusion**

Based on the result of the development of guided training model and the implementation of that model at schools, it can be concluded as follows.

1. The model of guided training for constructive learning has been developed by following some steps: (1) doing training need analysis, (2) developing and designing the model of guided training for constructive learning, (3) conducting training based on the design that has been developed, (7) evaluating the implementation of training
2. The result of the implementation on guided training indicate that guided training on constructive learning was effective and practical to train the junior high school science teachers in implementing constructive learning.



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