

## Active Learning Instruction for higher order thinking skill development\*

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### Abstract

Active Learning Instruction for higher order thinking skill development is very important in education at present because active learning instruction is the activity for develop learning of learners from practice and do it by themselves and interaction. So active learning can enhance the learners have thinking skill especially constructivism. Active learning instruction can develop the students to learn around themselves by teaching in lower order thinking to higher order thinking. Each step that occurs in learning activity will develop the students to have thinking skill one or more than one order thinking skill. This article aims at providing guidelines instructional models, methods of teaching and techniques for develop higher order thinking skill for teachers to know steps of teaching that is the basic to know and apply for their students in the future.

### Introduction

Active Learning instruction at present can develop many skills of the learners such as social skill, communication skill, inquiry skill, etc. And the important skill is thinking skill. Active learning instruction can develop the learners have thinking skill passed learning by doing activity, interaction, and team work. From the Education Act BE 2542, section 4 mentioned the guideline of education instructional management in Article 24 item (2), stated the instructional process in school and related agencies included the practice of thinking skills, situation management and the application of knowledge to protect and solve problems. In addition, Article 28 stated that the curriculum at different levels should be varied. The content of curriculum should be developed the balance among knowledge, ideas, capacity and social responsibility. Therefore, the development of student's aim to develop the higher order thinking skill is so important.

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\* This article aims to disseminate academic knowledge

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Thinking skill is the process occurred from human brain, the brain has functions to manage the Perception, Memory and Judgment. The process has started from low until high level. All levels of thinking skills are associated with cognitive behavior and expression. Tisana Kamanee (2550) stated that there were 2 thinking skills : 1) Lower Order Thinking consisted with skill of receive and send data it can arrange in 2 groups these are thinking skill in communication and core thinking skill, in 2 groups are often use in daily such as listening, speaking, comparing, arranging, etc. And 2) Higher Order Thinking consisted with 4 skills these are complex thinking skill, thinking style in development skill, process of thinking skill and control thinking skill and evaluate thinking skill such as analysis, synthesis, apply, construct, evaluate, critical thinking, problem solving thinking, creative thinking, etc.

## Content

Active Learning is the approach of instructional activities which focus on students doing for learning because when the students learned from doing something, they can easy to perceive, understand and enduring in learning. Learning to do in instructional activities can design in another ways such as assign students to inquiry by themselves, participation in activity, present the point of view, team work, etc. These are the same main activities in child center. So in the instructional design like these can reflex that is instructional design in active learning and can design in 2 ways 1) Design with method of teaching: this way the teachers can design activities by using each step of method in main activities for successful in curriculum indicators. So when use which method, each step will follow by it. 2) Design with new instructional model: this way the teachers can design activities by analysis and synthesis the context about instruction. The result of step is the main step in instructional activities too.

Higher order thinking skill development is the very important in 21<sup>st</sup> century instructional development that is 3R and 8C, focus on learner can 3R; 1) Reading 2) Writing and 3) Arithmetics and 8C; 1) Critical Thinking and Problem Solving 2) Creativity and Innovation 3) Cross-cultural Understanding 4) Collaboration Teamwork and Leadership 5) Communications Information and Media Literacy 6) Computing and ICT Literacy 7) Career and Learning Skills and 8) Compassion.

Critical Thinking and Problem Solving are skills which start at lower order thinking skill to higher order thinking skill. Tisana Kamanee (2550) stated that there were 2 thinking skills: 1) Lower Order Thinking consisted with skill of take and send data it can arrange in 2 groups these are thinking skill in communication and core thinking skill,

in 2 groups are often use in daily such as listening, speaking, comparing, arranging, etc. And 2) Higher Order Thinking consisted with 4 skills these are complex thinking skill, thinking style in development skill, process of thinking skill and control thinking skill and evaluate thinking skill such as analysis, synthesis, apply, construct, evaluate, critical thinking, problem solving thinking, creative thinking, etc. So the instructional for learners at present necessary to develop the learners to have vary thinking skill for perfect learners in 21<sup>st</sup> century.

Active Learning for higher order thinking skill development, teachers can take instructional model, instructional management methods and techniques which are the very important to design an instructional management of teachers since started teaching to completed. Higher-order thinking skills will take place during the curriculum management and after implementation of instructional management, instructional management methods and techniques with the following details.

### **1. Problem based Learning (PBL)**

Problem based Learning is method of instruction which using problem as material for develops learning experience of learners. This method can design by prepare real situation or prepare problem simulation then assign task to thinking, analyzing and problem solving. Problem based Learning can develop the understanding in contexts of problem and got to know vary ways to solve of learners. The steps below are important steps of Problem based Learning: Tisana Kamanee (2550)

- 1) Choose problem by the students or teachers and students.
- 2) Teachers assign task to finding data in situation for looking contexts.
- 3) Students analyze and finding cause(s) of problem.
- 4) Students Plan solving direction.
- 5) Teacher teach students for inquiry, collect, analyze and summary data for learning.

The result from instructional management by Problem based Learning which students can learn their answers from thinking and analyzed that made the students understood the contents and can apply problem solving process in daily.

### **2. Inquiry Model**

The essence of the Inquiry Model is to involve students in a genuine problem of inquiry by confronting them with an area of investigation, helping them identify a conceptual or methodological problem within that area of investigation, and inviting them to

design ways of overcoming that problem. Joyce, Weil and Calhoun (2009) design in 4 steps

- 1) Pose area of investigation to students.
- 2) Students structure the problem.
- 3) Students identify the problem in the investigation.
- 4) Students speculate on ways to clear up the difficulty.

The result from using Inquiry Model which is instructional management allows students to find data and determine. The result will be new idea and process to inquiry that very important to learn in the future.

### **3. Concept Attainment Model**

Joyce and Weil, 1996 developed the instructional management by using the concept of Bruner, Goodnow and Austin argued that concept of learning can be done by searching for key characteristics of things to be learnt. Students can determine of right and wrong things. Students learn concepts of the knowledge and content with their best understanding and show the definition of the concepts by themselves. A process or procedure for instructional management combined with 6 steps (Tissana Kaemane, 2550).

- 1) Students learn and practice to classified
- 2) Teachers provide the rules of learning to students for mutual understanding.
- 3) Teachers offer sample and non-examples of concept that needed to be taught.
- 4) Teachers ask students to determine key identification of things to be taught.
- 5) Teachers ask students to summarize and determine the definition of things to be taught.
- 6) Teachers ask students to discuss for finding solution together.

The result from instructional management by Concept Attainment Model which student can learn their concepts form thinking, analyzed samples that made the student understood the concept. Skill of concept building can be foundation of other concept thinking.

### **4. Discussion Diamond 9 Model**

Discussion Diamond 9 model is the instructional management which did not mention the initiator, the model allows students to develop higher order thinking skills. There will be a full word or short phrase or picture card called the Diamond 9 Cards for students to observe, answer, and discuss content of each curriculum from Diamond 9 Cards. Later, student make group discussion and prioritize the content appeared on the cards. Students prioritize content by using concept that students must know the key

characteristics or identifications of all content appear on cards. The first priorities of cards (the most important content) will be placed on key area of diamond 9 cards. The minor importance of content will be placed on less important area until completed with 9 cards. The selection of most important content or card, students must have the supportive reason for their choice. The most important is Discussion Diamond 9 did not provide the exactly correct answer but focus on the logical thinking of students. Discussion Diamond 9 model consisted with 4 steps as followed:

- 1) Teachers inform topic and purpose of learning.
- 2) Teachers group students and distribute Card / text / image to students for studying the content on cards.
- 3) Teachers allow each student to study and make discussion on given topics.
- 4) Teachers ask students to summarize their group discussions.
- 5) Teachers ask students to place the card in order
- 6) Teachers ask students to present their reason to place card on each position.

Result from using Discussion Diamond 9 help to organize the instructional process and also help students gain critical skills, think critically and rationally as well as social skills to exchange information, ideas, both from themselves and others. It also helps students to have skills for prioritizing things which is very important in their everyday life as well.

### **5. Advance Organizer Model**

Joyce, Weil and Calhoun (2009) wrote about Advance Organizer Model that is Joyce and Weil (1996) developed instructional management model from concept of Ausubel about the advanced concept for built up the Meaningful Verbal Learning. The Model based on the belief that learning can be meaningful when knowledge can connect to prior knowledge of the student. Therefore, the new instructional management of new knowledge or content, Teachers s should analyze the sub concept of such proposed content, create conceptual diagram and analyze the sub knowledge of concept for students before learning new content. While students learned new knowledge, students will be able to connect their new knowledge with broad concepts, they had received in advance. Advance Organizer Model has a process of instructional management in 4 steps.

- 1) Prepare of comprehensive concept by analyzing the abstract thinking of all content.
- 2) Presents the broad concept.
- 3) Presents the new content of curriculum.
- 4) Structuring knowledge.

The results from instructional management by Advance Organizer Model will allow students to learn the content and information from curriculum as well as created the abstract thinking in what they have studied and manage their knowledge structure, as well.

#### **6. Group Investigation Model**

John Dewey (1916) was the major spokesperson for the idea extended and refined by a great many teachers and shaped into powerful definition by Herbert Thelen (1960). Group Investigation Model has a process of instructional management in 4 steps.

- 1) Encounter Puzzling Situation (Planned or unplanned)
- 2) Explore Reactions to the Situation.
- 3) Formulate Study task and Organize for Study (problem definition, role, assignments, and so on).
- 4) Independent and Group Study.
- 5) Analyze Progress and Process.
- 6) Recycle Activities.

The results from instructional management by Group Investigation Model will allow student to learn the content and process inquiry by group process.

#### **7. Numbered Heads Together**

Kagan (1994) developed the Numbered Heads Together instructional. Numbered Heads Together is appropriate for multiple content areas and grade levels. It's the great way to use because it holds each group member accountable for the learning. Numbered Heads Together has 8 steps:

- 1) Put students in group of four.
- 2) Have students count off in each group so that every group has a number 1, number 2, number 3, and number 4.
- 3) Pose a question or raise an issue for discussion. Have each group put their heads together (not literally; you don't want to spread head lice) and brainstorm the question or issue you've posed. Explain that they should discuss the possibilities and come to an agreement. Be sure to give very specific directions for this step. Say something like, "Put your heads together and make sure everybody in your group knows and can give evidence to support the answer".
- 4) Give the groups time to work together to formulate their responses and to make sure that each group member will be able to respond successfully if called upon.
- 5) Tell the class that when you call out a number, Then within each group, The student with that number should stand.

6) Use a spinner or other means to pick a number; call out that number. Let's say it's four.

7) The number four student from every group stands.

8) You call on any of those standing to respond, or ask for a choral respond if that's appropriate.

The result from Numbered Heads Together instructional which student can learn their contents from thinking, brainstorming and discuss. And they can learn by group process that enhance and develop social skill and group working too.

## Conclusion

Active learning Instruction for higher order thinking skill development which teacher can perform many kinds of model included Instructional model, teaching methods and instructional management techniques are important to design instructional management to develop higher-order thinking skills of students. It is a procedure that allows students to think in different ways such as logical thinking, critical thinking, comparison thinking, creativity thinking and etc. Therefore, teachers should study the process of instructional management to select the suit procedure for student which allows them to gain higher quality, as well.

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