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# The development of instructional model integrated with thinking skills and knowledge constructivism for undergraduate students

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## Abstract

The purpose of this research was to develop the instructional model integrated with thinking skills and knowledge constructivism for undergraduate students. The research procedures had 2 steps, first, developing the instructional model and supplementary materials, second, testing testifying the developed model. The data were analyzed to calculate the percentage, mean, standard deviation and t-test. The findings revealed that: the instructional model developed comprised 6 components, i.e. rationale, objectives, content structure, task analysis, instructional units, and measurement and evaluation. The post-test of thinking skills and knowledge constructivism of the undergraduate students, studies based on the developmental instructional model was higher than the pre-test with .05 statistically significant differences and so were the normal study. The output of knowledge constructivism was rated at a high level. The student's attitude towards said study was also rated at a high level.

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*Keywords:* instructional model, thinking skills, integrated learning, knowledge constructivism

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## 1. Introduction

The reform of learning is at the heart of education reform. The goal of the reform of learning is to develop students' characteristics with desirable properties by education students. However, the students will learn goals their need to learn how to adjust this will be achieved through changes to teaching methods of the instructor. Teachers need to learn the process in accordance with the guidelines set out in the Education Act of 2542, as amended (No. 2) Act, 2545 in particular, under Article 24, which requires teachers to content and activities to meet the interests and needs of different learners. By integrating its knowledge areas. A balanced and cognitive skills. Management to face the situation. Practice act and the application of knowledge to use. To prevent and resolve problems. And instill good moral values and work collaboratively with parents and the community, to jointly develop the students' potential. (Janchay, Somjit and Varajittanon. 2006). The ability to think and create knowledge (constructivism) is a potential that can be developed for the students in Thailand. The method of develop by practicing regularly of the ability to basic think skills, the increasing complexity and growing. Critical thinking, creativity and create knowledge are high level of thinking that can help make this happen is to give young children a basic level of training. If the students practice this skill often. Through the integration of teaching and learning activities in learning. Learning and development activities. And analysis techniques (task analysis) to help organize the activities. Relative simple to difficult. From the ground up into a high level of complexity. This study is an R & D (Research and Development)

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to create a unique learning style, and documentation of integrated teaching thinking skills. And create knowledge. For undergraduate students. And such a trial to determine the effectiveness of the model, evaluate and improve learning and teaching to develop effective learning in the course to other courses.

## **2. The Purposes of Research**

The aim of this research was to develop the instructional model integrated with thinking skills and knowledge constructivism for undergraduate students.

## **3. The Target Group of This Study**

The target group consisted of 30 students who studied in the Science for Quality of life subject of second semester in the 2012 academic year, UdonThani Rajabhat University, Udon Thani, Thailand.

## **4. Research Design**

Research and development was employed in this study.

## **5. Research Method**

The methodology of the development of instructional models integrated with thinking skills and knowledge constructivism for undergraduate students are two steps as follows.

5.1 The first to develop the curriculum and teaching material model has five sub-steps as follows.

Step 1 of the study and analysis of data to create a model for teaching and learning.

Step 2: Create a model curriculum.

Step 3 To create a teaching and learning styles.

Step 4: Check the quality of teaching and learning styles.

Step 5 To change the style of teaching and learning materials and teaching styles.

5.2 At the second trial, the teaching model has four stages.

Step 1: Select the experimental group and the control group.

Step 2 Create data collection instruments.

Step 3 Experiment.

Step 4 Analysis of data has three steps as follows:

1. Analysis of thinking about the skills and knowledge to make the course content and student development.

2. Analysis of the synthesis of knowledge. (Of the project) of the students as a form of teaching developed.

3. The analysis of the students' attitude towards teaching and learning model developed.

## **6. Content to use**

Material used in this study consists of two parts.

6.1 Activities for develop learners to develop desirable skills include 12 thinking skills are observed, depicts the comparison, classification, rational justification for the definition, analytical prediction / forecasting, application of knowledge.

6.2 A synthesis of knowledge which has four steps: 1) Select the content that meets the needs of students 2) a systematic instructional activities are being encouraged to think, search concepts which learned in meaningful 3) presentation of student task, and 4) evaluation.

## **7. Task Analysis**

When defining the purpose and structure to integrate thinking skills and make people aware of it, the next step is to analyze the job. The procedure is as follows.

7.1 Keep the content, concept and purpose of a particular activity or task is divided into sub (sub task) that students are learning or behavior are possible.

7.2 Gathering activities or all activities or tasks were divided to consider contributing to the development of thinking skills and knowledge and make a selection. Activities or tasks that are not conducive to the development of thinking skills and knowledge to make the cut.

7.3 Activity or task sorted ongoing activities related to teaching and learning as the process of learning the whole sequence, based on the students' prior knowledge to a given purpose.

## 8. The units of instruction

Includes the following elements name of Teaching Statement of problems and needs, Concepts / principles, General purpose units of learning activities, and measurement and evaluation.

## 9. The measurement and evaluation

Measurement and evaluation of this measure and evaluate the learning model, which is divided into two areas: the cognitive skills and the synthesis of knowledge.

## 10. Research Results

The results revealed that:

1. Effective of development model for integrated teaching thinking skills and create knowledge for undergraduate students.
  - 1.1 Form of teaching integrative thinking skills and create knowledge. For undergraduate students, the following elements.
    - 1) Principles
    - 2) Purpose of teaching
      - 2.1 purposes of thinking skills
      - 2.2 purposes of the synthesis of knowledge
    - 3) Content / material
    - 4) Functional analysis
    - 5) The course includes the following elements as
      - 5.1 The units of study
      - 5.2 Instruction
      - 5.3 Statement of problems and needs
      - 5.4 Concepts / principles
      - 5.5 General purposes
      - 5.6 subunits include concepts / principles, general purpose, desirable of students and contents of the unit
      - 5.7 Teaching and learning activities (behavioral purpose, content, time, learning and teaching, teaching and learning activities (introduction, the implementation of activities, summarizing, measurement and evaluation
      - 5.8 Measurement and Evaluation. (Regular teaching).
      - 5.9. Appendix
    - 6) The measurement and evaluation
  - 1.2 Document management style of teaching is the third edition.
    - 1) Instructions in the form of an integrated teaching and learning thinking skills and create knowledge for undergraduate students.
    - 2) The instruction. Which includes a unit of instruction. Statement of problems and needs. Concepts / principles. General purpose units. Activities, teaching content, teaching-learning time. Teaching and learning activities. Measurement and evaluation and appendices.
    - 3) The measurement and evaluation of the teaching and learning styles.
2. Results using the learning sample used in the study were 30 students in the experimental group and 30 students, whom were in the control group, the two groups of students who studied in the Science for Quality of life subject of first semester in the 2012 academic year, Udorn Thani Rajabhat University. Research. The result is a form of learning the results are summarized as follows.
  - 2.1 Average scores of thinking skills and make people aware of the students' learning styles and teaching methods, developed after learning than before learning. Statistically significant at the .05 levels.
  - 2.2 Average scores of thinking skills and create knowledge of the students which learning by the patterns of the control group developed higher Normal group Statistically significant at the .05 levels.
  - 2.3 The results of the study of the synthesis of students' knowledge. (Presentations) of learning and teaching styles developed. Overall, a good level.
  - 2.4 Results attitude scores towards a learning curriculum model developed by students. Found that most students have a good attitude score in every level. It shows a positive attitude towards the learning model of instruction developed.

## 11. Discussion

1.1 Form of teaching and learning is built which is supposed to create a pattern formed by the study of theory or the concept of the model is developed already, including the research related to this study the elements and variables within the model as well as the relationships between the elements of the form the main reason is the basis of the information developed through the study of the theories and concepts, research scholars and teachers of the user model. The development is built on a model that has finished. Various elements must be consistent, they can be used to teach the concept of Joyce and Weil (1996).

1.2 the theoretical concepts in the development of thinking skills and creative knowledge to develop a model for teaching the theoretical concepts in the development of thinking skills and creative knowledge to use. the development of this form of teaching. Highlights the importance of developing thinking skills and create knowledge together with the course instructor and the students. The content to be learned in the normal course. Therefore, this model can enhance the teaching and learning process is more useful to students. In connection with the development of thinking skills of Fraenkel (1980). In the knowledge creation. (Constructivism) of Piaget ,Vygotsky, Bruner , Ausubel and others shown the sequence of development thinking skills into four steps: 1) Select the content that meets the needs of learners 2) teaching and learning activities in a systematic 3) The student presentations, and 4) evaluation.

1.3 Integrating thinking skills and create knowledge in the form of teaching. Considering teaching faculty to develop the idea. And the synthesis of knowledge used in the development of teaching and research has found. The development of thinking skills and creating knowledge can be used to teach or practice through the normal process of teaching and learning in schools as well as Ornstein and Hunkins (1993) have concluded that Learning occurs when the learner interacts with the environment. Learning should not be separated from the life of the school. And classes as usual. Therefore, it must cater to the needs and interests of learners and the students learning experience allows students to learn to live with friends and others. How to communicate effectively. How to decide correctly. And knowledge that will be critical for integrating thinking skills and create knowledge in the form of teaching and learning, this research has been the integration of the teaching process in detail. Can be applied to the instruction. The contents that are related to cognitive skills and knowledge to create a homogenous blend harmoniously with the material. By activities linked to teaching and learning. Neatly organized into "units integrated teaching" (Integrated Unit Teaching) "of the model Teaching and learning.

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