

Model of Blended Learning to Enhance Critical Thinking Skills of Vocational Students

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Abstract - This research affirmed a model of blended learning to enhance critical thinking skills of vocational students. The informants were nine experts obtained from network sampling. The research tools used were a model of blended learning to enhance critical thinking skills and an appropriateness evaluation form. Data were collected using the focus group approach. Obtained data were analyzed applying content analysis, mean, and standard deviation. The findings showed that the experts concluded that the model of blended learning to enhance critical thinking skills comprised five steps: proposal of problematic situations, independent thinking training, team-based thinking training, results discussion, and results evaluation. The experts agreed that the model was appropriate at a high level.

Keywords - Blended Learning, Critical Thinking Skills, Model Appropriateness, Vocational Students

I. INTRODUCTION

Thailand has prepared its youth to be ready for the changes of the borderless world by applying a quality and appropriate instructional learning model to the context of the changing world. The development of an instructional learning model to enhance the critical thinking of Thai youth and the perception of useful information, including becoming capable people, is one of the approaches that scholars and educational agencies give priority to. This is in line with the National Education Act of

B.E. 2542 [1], Section 4: Instructional management guidelines, Article 4: Learning process management required for educational institutes and related agencies to emphasize on training in the thinking process, management, situation encounters, and the application of knowledge to prevent and resolve problems. Furthermore, the Educational Development Plan of Ministry of Education No.12 (B.E. 2560-2564) [2], in regard to the development strategies of the teaching and learning process, highlights learner enhancement to be able to analyze, synthesize, think creatively, and deal with problems. Additionally, it focuses on learners to strengthen critical thinking skills, which are significant skills for the 21st Century [3].

Critical thinking is the process of careful thinking to form reasonable decisions as to whether to accept or decline [4]. Thinking focuses on the decision to believe or not, or to do or not [5]. This approach integrates the individual thinking process, applying rational concepts and feelings [6]. Critical thinking comprises problem identification, word definition and judging, assumption identification, argumentation analysis, consideration of the reliability of information sources, making decisions on the decision value for implementation, interaction, and self-observation and decision making [7]. To enhance critical thinking skills, good interaction amongst learners should be promoted, and group training and questioning with open-ended questions, including the positive reinforcement of teachers, would improve learning achievement very well [8]. These guidelines shall produce

creative learning environments and offer sufficient time to learners to think before answering questions or solving problems, as the critical thinking process is not a fast-thinking one; it leads to learning, knowledge, or critical thinking transfer, as knowledge and skills should contribute to new learning or situations efficiently.

II. RESEARCH OBJECTIVE

To affirm the model of blended learning to enhance the critical thinking skills of vocational students, applying the focus group method with experts.

III. RESEARCH FRAMEWORK

The researcher applied the focus group method of the Thailand Research Fund [9], which concluded that it was another form of interview to gather information from informants regarding specific aspects. The moderator is the leader of the conversation, to motivate the group to create ideas and express opinions on the aspect in-depth. 6-10 people are involved in the focus group. The steps of proceeding begin with problem or aspect identification, as well as identifying questions and the objective of the research, the guidelines for sample group selection, team assignment, creating and testing questions, sample group selection, and focus group set-up.

IV. LITERATURE REVIEW

A. Focus Group

The focus group method uses an interview to compile information from discussion with informants about a specific aspect. The moderator leads the discussion, to motivate the group to give opinions on the aspect deliberately and in-depth. The focus group consists of 6-10 people selected from the target population. The purpose of the focus group is to explore the aspect without any knowledge (Exploratory), to find an explanation of a circumstance (Explanatory), and to assess a situation (Assessment) [9].

The Thailand Research Fund [9] concluded that the steps in processing the focus group

began with problem or aspect identification, including identifying the questions and objectives of the research. Then, guidelines are set for sample group selection and team assignment, which involve the moderator, the note taker, and the assistant, creating and testing the questions, selecting the sample group, and processing the focus group. This is consistent with Baral et al. [10], who summarized the process of the focus group as consisting of the identification of informants, the selection of supervisors and a field team, facilitator development, a manual and response record form, field team-building and trial, focus group control, and paraphrasing, analyzing, and interpreting answers.

B. Critical Thinking

Moore and Parker [11] stated that critical thinking was to think carefully and to make logical decisions to accept or decline. This was in line with Ennis [5], who mentioned that it was the process of thinking to form a judgment to believe or not, or to do or not do. Ennis [7], and Wolcott and Lynch [12], concluded that the components of critical thinking comprised aspect specification, word definition and judging, assumption, argumentation analysis, consideration of the reliability of information sources, decision making for implementation, interaction, and outcome observation and assessment.

In regard to instructional management enhancing critical thinking, Kurfiss [13] suggested activities that helped the learners to understand a meaningful circumstance. The learner would examine problems or questions, leading to logical conclusions before making decisions. Moreover, Moore and Parker [4] explained the guidelines for critical thinking development, which related to the skills derived from deliberate listening and reading, including results and conclusions that only happened in the classroom. Also, Loriandee [14] mentioned that instructional management technique to enhance critical thinking was formed of: 1) CATS (Classroom Assessment Techniques), which allows the student to answer a question with short descriptive writing, 2) Cooperative Learning Strategies,

where the students learn together, 3) Case Study / Discussion Method, where the teacher raises a case or a situation to the class without a conclusion, so the students prepare questions for discussion, and 4) Using Questions, which supports critical thinking, because the student has an opportunity to ask and answer the question after the lecture, following the leading question from the teacher.

C. Blended Learning

Blended learning is the integration of the face-to-face approach and online learning, according to a ratio designed by the teacher [15]. Carman [16] concluded that the components of blended learning consisted of live events, online content, collaboration, assessment of a learner's learning, and post-assessment, which leads to learning improvement.

V. RESEARCH METHODOLOGY

The researcher processed the focus groups as per the following step:

1) To set the objective of the focus group, which was to affirm the model of blended learning to enhance the critical thinking skills of vocational students.

2) To determine the informant group, which consisted of nine experts, who were the administrators of education institutions and/or teachers under vocational education institutions with Doctoral degrees with experience in teaching and/or work experience of at least 5 years, and university professors who were teaching pedagogy and educational science with Doctoral degree and were capable of educational research and/or educational assessment and evaluation with experience in teaching and/or work experience of at least 5 years.

3) To process the focus group, following the following step.

(1) The preparation step, to prepare for readiness before starting the focus group, which included inviting the experts, preparing documents, material and equipment, preparing a venue, organizing participants, supporters, or sponsors, preparing other facilities, allocating

compensation, and other related issues. Then, processing of the focus group continued as follows.

- To set the questions and the discussion topic, and to prepare the documents from the assessment results of the requirement for model development of blended learning to enhance the critical thinking of the vocational students [17]. The assessment results were the problems and the potential requirements of critical thinking skills, and the learning achievements of vocational students. Ten days before starting the focus group, the documents were sent to the experts to verify and consider their appropriateness, and to affirm the model of blended learning to enhance the critical skills of vocational students developed by the researcher.

- To set a date, time and venue: Friday 19 October 2018, 09:00-12:00, at the Doctorate classroom, Faculty of Industrial Education and Technology, King Mongkut's Institute of Technology Ladkrabang.

- To determine the participants, which comprised one moderator, 9 experts, one advisor and co-advisor, 2 recorders, one photographer, and a researcher, who was the director of the focus group.

(2) After preparing the first step, processing of the focus group at the date and time desired was conducted.

- The moderator welcomed the participants, informed them of the objective and details of the focus group following the concepts and aspects, explained the characteristics of the conversation, and asked for permission to record or take photos as necessary.

- The moderator invited the researcher to introduce the research to be used as guidelines for the group.

- The moderator started the focus group by asking for the opinions of the experts about the aspects, followed by the participants expressing their thoughts through logical

discussion. The moderator controlled the discussion, and both recorders recorded all aspects in-depth. The photographer or video recorder could not disturb the discussion of the focus group.

(3) Conclusion: After finishing the discussion, the following step was followed.

- The moderator concluded the aspects of the discussion and asked the participants to check and confirm the information, including adding missing matters.
- The moderator thanked the participants and invited the researcher to give a souvenir or payment to the participants and to thank the group and all relevant persons.

- The researcher transcribed and reviewed all information before making a summary to act as fundamental information for the guidelines for the model of blended learning to enhance the critical thinking skills of vocational students.

- The applied content analysis method was used to analyze the obtained data.

VI. RESULTS

1) The model of blended learning to enhance the critical thinking skills of vocational students comprised five steps, as follows.

TABLE I
STEP AND LEARNING ACTIVITIES OF BLENDED LEARNING TO ENHANCE CRITICAL THINKING SKILLS

Process	Learning Activities
1. Problem: P	Problem, conclusion, and reason identification. Appropriate questioning on the situation. Agreement identification.
2. Individual Thinking: I	Searching, decision-making, comparison, connection, classification, prediction, and reason identification.
3. Cooperation Thinking: C	Referencing, searching for logical conclusion, inductive summary, deductive summary, and prediction.
4. Discussion: D	Identification of connecting point of incident, perception of unsolved problems, information selection to answer question, agreement identification, and assumption.
5. Evaluation: E	Logical conclusion, rational decision, selecting appropriate alternative, and application.

2) The experts agreed that the model of blended learning to enhance the critical thinking skills of vocational students was appropriate at a high level ($\bar{x} = 4.49$, $SD. = 0.77$).

VII. DISCUSSION

The research findings showed that the model of blended learning to enhance the critical thinking skills of vocational students comprised five steps: Problem: P, Individual Thinking: I, Cooperation Thinking: C, Discussion: D, and Evaluation: E. Furthermore, the experts agreed that the model of blended learning to enhance the critical thinking skills of vocational students was appropriate at a high

level. This was possibly because the researcher studied documents, textbooks, and legal research related to global situations in terms of politics, economy, society, culture, and global demand, including the learning context of people in the 21st Century, and utilized the information to create needs assessment research. Then, the researcher developed the model of blended learning to enhance the critical thinking skills of vocational students that responded to the demand of vocational students. This was consistent with Graham et al. [18], who reported that technology had rapidly changed during the past decade, facilitating integration between the traditional learning environment and the distribution learning environment (technology). This

blended learning environment utilized the strengths of both types of learning environment [19]. Moreover, the American Society for Training and Development indicated that the application of blended learning, which was a top-ten approach, was likely to increase in the knowledge transfer area [20].

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(Arranged in the order of citation in the same fashion as the case of Footnotes.)

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