How to Enhance Creative Problem Solving in Instructional Media Production Course: a Finding from Needs Assessment

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Abstract

The purpose of this research was to study the opinion of instructors and students regarding the current learning situation and trend to develop learning process in the instructional media production course in order to develop creative problem solving skill for students in education program. The sample consisted of 32 instructors in education department from 15 public universities and 438 students studying the bachelor degree in education in 8 universities and passed the teaching internship. The findings revealed that:

Students and instructors emphasized on the practice in order to achieve the course objective. Students were taught to be self-learner and to know how to analyze, share their opinions and rational supports, and listen to opinion of others. In terms of instructional media use, many types of media were used interestedly, correctly, clearly, and easily to support understanding the instructional communication. Also, it allowed students to seek new knowledge. However, it lacked the use of expertise and previous knowledge of students. The process of teaching and learning should have emphasized the process to have students solve problems and apply their knowledge in different situations. Students still required variety of thoughts and aspects in order to help them with teaching and learning process.

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1. Introduction

Today, the Faculty of Education offers programs whose objectives are to produce teachers who have potential and to be ready to provide education to the society by preparing their students in terms of knowledge, understanding, experiences, teaching skills, and technology skills (Koehler and Mishra, 2008 referred in Praweenya Suwannatthachote, 2008) An important component of technology in education is the instructional media. Currently, the instructional media course is based on lectures for theories and practices on instructional media creation. Results from a survey, regarding the production and use of instructional media, of 121 senior students and 41 fifth year internship students from Chulalongkorn University indicated that their creative problem solving skills in designing and choosing instructional media were not adequately developed for their internship (Kanchanachaya, 2009). This result conformed with De Bono (1994) who stated that the main objective of educational system was to teach learners to be able to think in many aspects. Educational institutes have not included the process of thinking in their teaching. The teaching and learning styles which are the transfer of knowledge from instructor to learner remain the same. From this, it shows that not only do universities have the duty to produce teachers, but also have the responsibility to develop their students in terms of knowledge, understanding, experience, classroom management, technology skill, and creative problem solving skills in producing instructional media so their graduates will be ready to use their skills in future.

One of the core courses that every student in any education program must have the objective to develop creative problem solving processes in order to produce instructional media. Researchers believe that it is necessary to develop of model of instructional media in order to improve students' process of creative problem solving skill. Before developing students' process of creative problem solving skill, a research must be conducted to learn the current learning situation and trend to develop learning process in courses related to the instructional media production in order to develop creative problem solving skill for students in education program

2. Literature review

When people face a problem that is an obstacle to success, people need to study the cause of the problem in order to find a suitable solution. This process requires the ability to analyze the situation which includes thinking out of the box and selecting the best solution for that situation. This process is called creative problem solving. Being creative is the ability to think out of the box, the use of imagination, process, or new technology that has been inserted in every bit of

thought. The output of creative thinking leads to problem solving. Therefore, there is no fixed solution to the problem. It needs different solutions for different situations (Osborn, 1953; De Bono, 1971; Guilford, 1967; Lumsdaine, Lumsdaine, & Hollander, 1995; Aree Rungsinan, 1989). Problem solving process and creativity continuously occur. Creativity is a part of problem solving process that starts from facing the problem that need solution. Once the problem is solved, it will be kept as an experience, when the problem is faced again, the best solution from experiences would be used to solve to problem. On the other hand, if the experience is not enough, creative problem solving skill helps to find the new solution. (Anderson, 1975; Gagne, Yekovich, & Yekovich, 1985)

Researchers have studied the relationship between creative thinking and problem solving. For example, Anderson (1975) studied the relationship between classroom participation, learning achievement, and creative thinking in grade 6 students. The finding showed that the ability in creative thinking could be considered from the outcome and the process of creative problem solving. This ability can be encouraged from the quality of verbal participation in the classroom. Moreover, the encouragement of creative thinking did not affect their learning. Shean (1977 referred in Suangsuda Parnskul, 2002) studied the outcome of creative problem solving toward perception of students in Northern Arizona University. The experiment group received creative problem solving training in 10 periods about truth finding, topic identification, brainstorming, assessment, and acceptance. The result showed that creative problem solving training increased creative thinking and initiative significantly. Winai Samsuwarn (1985) studied the relationship between creative thinking in Science and ability in problem solving of 420 grade 6 students in Bangkok metropolitan schools, private schools, and demonstration schools. The result showed that creative thinking in Science and ability in problem solving had positive relationship with significant level at 0.01. There wass also no difference in creative thinking in Science among students in different schools with significant level at 0.01.

The relationship between problem solving and creative thinking shows that it can occur continuously. In order to solve the problem, not only the collection of data and experiences in problem solving for each different situation is needed, but also the ability to think of new solution. Then, the right solution that can be adapted with different scenarios can be selected. This is called creative problem solving.

Meaning and steps of creative problem solving process

There are many articles explaining meaning and steps of creative problem solving process as shown in Table 1

Table 1: the process of creative problem solving

Author	Process / Step of creative problem solving
Osborn, 1953	(1) Orientation (2) Preparation (3) Analysis (4) Hypothesis (5) Incubation (6) Synthesis (7) Verification
Osborn, 1964	(1) Fact Finding (2) Idea Finding (3) Solution Finding
Parnes, 1966	(1) Fact Finding (2) Problem Finding (3) Idea Finding (4) Solution Finding (5) Acceptance Finding
Isaksen, Treffinger and Firestein, 1982	(1) Fact Finding (2) Problem Finding (3) Idea Finding (4) Solution Finding (5) Acceptance Finding
Isaksen and Treffinger, 1985	(1) Mess Finding (2) Data Finding (3) Problem Finding (4) Idea Finding (5) Solution Finding (6) Acceptance Finding
Caudron,1998	(1) Identify the goal (2) Gather data (3) Clarify the problem (4) Generate ideas (5) Select and strengthen solutions (6) Review action steps and develop a plan
Harris, 2004	(1) Exploring the Problem (2) Establishing Goals (3) Generating Ideas (4) Choosing the Solution (5) Implementing the Solution (6) Evaluating the Solution
Treffinger, Selby and Isaksen, 2007	(1) Constructing Opportunities (2) Exploring Data (3) Framing Problems (4) Generating Ideas (5) Developing Solutions (6) Building Acceptance
McShane, 2009	(1) Identify the problem (2) Gather information (3) Fact finding (4) Brainstorm (5) Evaluate the advantages, disadvantages of the

	solutions (6) Prioritize the solution(s) (7) Implement the chosen priority of solutions (8) Evaluate the effectiveness of the plan of solutions.
Dima, 2010	(1) Orientation (2) Preparation (3) Incubation (4) Illumination (5) Verification
Brown, 2011	(1) Identify (2) Gather (3) Examine (4) Incubate (5) Retrieve (6) Differentiate (7) Plan (8) Execute (9) Track
Suangsuda Parnskul, 2002	(1) Fact Finding (2) Problem Finding (3) Idea Finding (4) Solution Finding (5) Acceptance Finding
Sompong Petroch, 2006	(1) Fact Finding (2) Problem Finding (3) Idea Finding (4) Solution Finding (5) Acceptance Finding

The researcher studied, analyzed, and synthesized articles and summarized that the meaning of creative problem solving was the process in finding solution in the limited situation or for the problem that needed different solutions. The solution can be selected appropriately and can solve the problem better than a previous solution. The rationale can be explained and the process in problem solving makes sense as it can provide cause and effect for selecting that solution. The skill of creative problem solving can be practiced and developed through the following steps:

Fact finding: Perceive the problem, understand the problem, gather information to solve problem

Problem finding: analyze the problem, prioritize the problem, and hypothesize the problem

Idea Finding: present and collect variety of solutions

Solution Finding: advantages and disadvantages of each solution, analyze, evaluate, organize solution, setting criteria for selecting solution, and consider the best solution

Acceptance Finding: applying the selected solution to solve the actual problem

3. Objectives

To study the opinion of instructors and students regarding the current learning situation and trend to develop learning process in the instructional media production course in order to develop creative problem solving skill for students in education program.

4. Research methodology

4.1 Sample

The sample consisted of 32 instructors in education department from 15 public universities and 438 students who were studying the bachelor degree in education in 8 universities and passed the professional internship

4.2 Instrument for collecting the data and quality of instrument

1. A survey on ability of students and instructors in the instructional media production course, from the Faculty of Education of public universities, that was tested for content validity. The index of consistency of the instrument was 0.88.

2. A survey on ability of students, in the Faculty of Education of public universities that passed teaching internship, in creative problem solving in instructional media production that was tested for content validity. The index of consistency of the instrument was 0.90.

5. Findings

The current teaching and learning in the instructional media production course and what to improve in the management of this course are shown as table 2-5.

Table 2: Instructors' opinion regarding the current teaching and learning in instructional media production course. (First five highest score)

Current teaching and learning	Mean	Standard Deviation
Instructional media is suitable with learning content and activity	4.25	.718
There is an opportunity for learner to search for new knowledge such as from magazine, newspaper, and Internet	4.22	.906
Instructional media is correct, clear, and easy to understand	4.19	.738
There are learning activities that emphasize on practical to meet the objectives of the course	4.16	.574
There is the use of variety and interesting media to support learning	4.13	.751

Table 2 indicated that the instructor's opinion regarding the current teaching and learning in instructional media producing course. (First five highest score) are Instructional media is suitable with learning content and activity ($\overline{X}$=4,25, SD=.718), There is an opportunity for learner to search for new knowledge such as from magazine, newspaper, and Internet ($\overline{X}$=4,22, SD=.906), Instructional media is correct, clear, and easy to understand ($\overline{X}$ =4,19, SD=.738), There are learning activities that emphasize on practical to meet the objectives of the course ($\overline{X}$ =4,16, SD=.574) and There is the use of variety and interesting media to support learning ($\overline{X}$=4,13, SD=.751)

Table 3: Students' opinion regarding the current teaching and learning in instructional media production course. (First five highest score)

Current teaching and learning	Mean	Standard Deviation
There is an opportunity for learner to search for new knowledge such as from magazine, newspaper, and Internet	3.92	.869
There are learning activities that emphasize on allowing students to analyze and share their opinion	3.87	.854
There are learning activities that emphasize on self-learning	3.84	.860
There are learning activities that emphasize students to think rationally and listen to other's opinions	3.84	.847
There are learning activities that emphasize on allowing students to link their previous knowledge and experience	3.81	.863

Table 3 indicated that the students' opinion regarding the current teaching and learning in instructional media production course. First five highest scores were: there was an opportunity for learner to search for new knowledge such as from journals, newspapers, and Internet ($\overline{X}$ =3.92, SD=.869), There were learning activities that emphasized on allowing students to analyze and share their opinion ($\overline{X}$ =3.87, SD=.854); there were learning activities that emphasized on self-learning ($\overline{X}$ =3.84, SD=.860); there were learning activities that emphasized students to think rationally and listen to others' opinions ($\overline{X}$=3.84, SD=.847) and There are learning activities that emphasized on allowing students to link their previous knowledge and experience ($\overline{X}$ =3.81, SD=.863).

Table 4: Instructor's opinion on things to improve in instructional media production course (The first five different between expectation and actual situation)

Things to improve	$\overline{X}$ of expectation	$\overline{X}$ of actual situation
Should have teaching and learning that emphasize on allowing student to be self-learner	4.65	3.59
Should have learning activities that emphasize students to solve problems	4.86	3.84
Should have learning activities that emphasize student to apply their knowledge in different situations	4.81	3.81
Should have learning activities that emphasize students to think in many aspects	4.68	3.69
Course content should be suitable and can be used in their internship.	4.87	3.88

Table 4 indicated that Instructors' opinion on things to improve in instructional media production course (The first five different between expectation and actual situation) were: Should have teaching and learning that emphasized on allowing student to be self-learner ($\overline{X}$ of expectation =3.81, of actual situation =3.59, different between expectation and actual situation=1.06), Should have learning activities that emphasized students to solve problems ($\overline{X}$ of expectation =4.86, of actual situation =3.84, different between expectation and actual situation=1.02), Should have learning activities that emphasized students to apply their knowledge in different situations ($\overline{X}$ of expectation =4.81, of actual situation =3.81, different between expectation and actual situation=1.00), Should have learning activities that emphasized students to think in many aspects ($\overline{X}$ of expectation =4.68, of actual situation =3.69, different between expectation and actual situation=0.99), Course content should had been suitable and could be used in their

internship ($\overline{X}$ of expectation =4.87, of actual situation =3.88, different between expectation and actual situation=0.99).

Table 5: Students' opinion on things to improve in instructional media production course (The first five different between expectation and actual situation)

Things to improve	$\overline{X}$ of expectation	$\overline{X}$ of actual situation
Should have learning activities based on interest, expertise and background of students	4.74	3.91
Should have learning activities that emphasize on students and their experience	4.68	4.03
Should assign work with reasonable amount and quality	4.61	4.03
Should have variety and interesting media to support learning	4.71	4.13
Should have learning activities that emphasize on allowing students to link their previous knowledge and experience	4.64	4.13

Table 5 indicated that student's opinion on things to improve in instructional media producing course (The first five different between expectation and actual situation) are: Should have learning activities based on interest, expertise and background of students ($\overline{X}$ of expectation =4.74, of actual situation =3.91, different between expectation and actual situation=0.83), Should have learning activities that emphasized on students and their experience ($\overline{X}$ of expectation =4.68, of actual situation =4.03, different between expectation and actual situation=0.65), Should assign work with reasonable amount and quality ($\overline{X}$ of expectation =4.61,of actual situation =4.03, different between expectation and actual situation=0.58), Should have variety and interesting media to support learning ($\overline{X}$ of expectation =4.71, of actual situation =4.13,

different between expectation and actual situation=0.58), Should have learning activities that emphasize on allowing students to link their previous knowledge and experience ($\overline{X}$ of expectation =4.64, of actual situation =4.13, different between expectation and actual situation=0.51).

From the analysis of instructional media production course, it was found that students and instructors emphasized on the practice in order to achieve the course objective. Students were taught to be self-learner and to know how to analyze, share their opinions and rational supports, and listen to opinion of others. In terms of instructional media use, many types of media were used interestedly, correctly, clearly, and easily to support understanding in teaching and learning. Also, it allowed students to seek new knowledge. However, it lacked the use of expertise and previous knowledge of students. The process of teaching and learning should have had learning activities that emphasized students to solve problems and apply their knowledge in different situations. Students still required variety of thoughts and aspects in order to help them with the process of teaching and learning.

6. Discussion and recommendation

Table 2-5 indicated that the teaching and learning situation in instructional media production course focuses on practical so that students could achieve objectives of the course. It emphasized on self-learning. It allowed students to think, analyze, criticize, and share opinions rationally. In terms of instructional media use, the media were interesting, correct, clear, and easy to understand. It could support learning and provides opportunity to search for new knowledge. However, it did not focus on interest, expertise, and previous knowledge of students. This was supported by Nuanjit Chawakeeratipong , Benjalack Namfar & Chajan Taitae. (2002), who stated that education in Thailand did not conform with the need of the individual, society, and country. The content did not conform to actual situations. Students needed to memorize the content that was far from reality and need to use their imagination. Students could not link the content to their routines.

Therefore, the direction of improving instructional media production course is to focus on self-learning, connecting old knowledge and new knowledge, content should be able to apply in real life situations, thinking in many aspects, using variety of media, and appropriate assignments. This is supported by De Bono (1992) who stated that to train a teacher to be ready; many aspects such as the explanation of objective and importance of learning, the use of example and visual explanation, the interesting presentation, insertion of thinking process that students should know must be covered. This is also supported by McDanie (1994), who studied the trend of teaching

and learning of the future. Teaching and learning should allow learners to know the purpose of learning and how it benefits in the future. The instruction should support learners so that they have the skill to think in many aspects such as creative thinking, problem solving, rationale thinking. Teaching and learning also need to be properly evaluated as stated in Manee Chaiyateeranuwatsiri & Udomsit Jitvichang (2003) in which learning is an integration of theory and practice. Instructional media and technology that are used in learning and learning should be efficient in order to provide knowledge and meet the need of individual. This is also supported by Surakai Hanakul (2010) that proposed the trend in managing teaching and learning in future should meet the needs of the individual. This will make learners eager to learn and create good learning environments in which learners can practice thinking, doing and solving problems by themselves.

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