

Jigsaw Cooperative Learning on Models of Curriculum Development of Curriculum Development for Second Year Students

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ABSTRACT

The purposes of this study were 1) to compare learning achievements before and after the cooperative learning by the using jigsaw teaching method 2) to attitude towards the activities used by the using jigsaw teaching method. The sample was 23 second year students who were studying this subject Curriculum Development. The instruments used in the research were learning activity plans. There were questionnaires in 4 sections: Teaching content& Teaching techniques, Teacher personality, Instruction media, and Measurement and evaluation methods. The statistical values were the frequency, percentage, mean, standard deviation and T-test for dependent samples and content analysis for quality data. The results of the study were as follows:

1. The Achievements in Curriculum Development after completion by the students were significantly higher than before being taught at the.05 level.
2. The results of students attitude towards the activities used found that the activities were well.

Keywords: Jigsaw Cooperative Learning, Models, Curriculum Development, Second Year Students

INTRODUCTION

Jigsaw cooperative learning (Tissna Kaemanee, 2002) it is a way to organize student-centered learning activities by organizing the students into groups of four with multi-ability of good, moderate, and poor regularly, members in the group will be assigned to study a content in each and find answers to the issues that the instructor assigned. The students who have the same content in each group will come together to set up a group as the experts and thoroughly cooperate understanding the content and together, discuss the answers to the issues that the instructor assigned, then they will return to their regular group and help their peers to understand the content they have studied. So, all the members will learn an overview of the whole matter. Then the students will take the quiz, individually and collect the points, or find the average for the group. The highest scoring group will be awarded. In the cooperative learning process, the students will have a clear role in learning or doing activities equally and learning together. There is a rotation of roles within each group, interacting with each other. The members in the groups participate in reviewing and checking on the work. At the same time, must help each other to take responsibility for learning at every step of the group. The students will achieve the learning goal only when the other members achieve the same target. So the students need to help and support each other to achieve common goals. The students will exchange ideas, help each other and be responsible for their own work as much as responsibility for group work, make interaction with each other and relation among the students in the group. Based on the research results of many educators, including the research of Piyachat Khaokeaw (1999), Kanokporn Seangsawang (1997), Orn-ura Sukpadriew (2012), and Weena Boonpat (2007) are the same direction found that the studentst were taught using jigsaw cooperative learning have high academic achievement, development of collaborative skills. It also helps group members have positive group work skills, know the role and ability to interact with others well. The researcher needs to develop teaching activities for students to achieve higher academic achievement so jigsaw cooperative learning was selected to study the learning achievement in curriculum development to use the research results to be useful and to guide the development of improvement of teaching activities and improve the quality of teaching and learning.

Research Objectives

1. To compare academic achievement pretest and posttest using jigsaw cooperative learning.
2. To study of the level of appropriateness for learning activities using jigsaw cooperative learning.

Hypothesis of Research

The academic achievement of posttest after studying using jigsaw cooperative learning of curriculum development is higher than that of the pretest.

Concepts Related Research Theory

Tissna Kaemane (2011) referred that the cooperative learning is the learning of subgroups, with about 3-6 different group members. Slavin, David Johnson and Rojer Johnson referred that in general teaching management does not pay attention to relationships and interaction on most learners. It is often aimed to the interaction between instructors and students or between learners and learners. The interaction among students is a dimension that often neglected or overlooked although the results clearly indicate that knowledge of self-learners to schools, teachers and classmates are effect a lot to the learning. Johnson and Johnson (1994, cited in Tissna Kaemane, 2011) referred that there are 3 types of interactions:

1. Competitive Style
2. Study Individually Style
3. Cooperate Learning Style.

Currently, the study promotes cooperative learning that can help students learn well, they also learn social skills and cooperate with others. This is a necessary skill in life. Slavin (1990, cited in Parinya Pansuwan, 2010; Ratchanee Talek, 2013; Saowapen Boonprasop, 2010) referred that jigsaw is a technique that has been improved by jigsaw techniques. According to the idea Aaronson, the jigsaw technique will set criteria is the work of all students combined into the work of the group which is responsible for themselves and for the group at one time. All members have equal chance by organizing the students into groups of 5-6 with multi-ability. Each member of the group will be assigned a research assignment then, each assigned member will come together as a group of experts. There is an exchange of learning experience each other until they can understand everything and return to teach or explain to their own group, calculate scores, calculate scores developed, and take total points as a group score. The group with the highest development rating will receive the award as a compliment.

Research Methodology

The populations used in this research are 91 second year students of education program at Loei Rajabhat University who registered the curriculum development in the second semester of 2016 academic year including 37 students in early childhood education, 31 students in applied biology, and 23 students in mathematics.

The samples used in this research are 23 second year students of education program in mathematics who registered the curriculum development in the second semester of 2016 academic year. They were selected by cluster random sampling using classroom as the random unit.

Variables Studeid

Independent variable is the jigsaw cooperative learning management.

Dependent variable is the academic achieve of the curriculum development.

Research Instruments

1. One lesson plan of 8 hours of the jigsaw cooperative learning management.
2. Achievement test pretest-posttest designs with 4 multiple choices answering options and 30 units. The quality has been checked by a qualified person on content validity and reliability.
3. Worksheets that corresponding to the curriculum content.
4. A questionnaire was used to measure students' opinions toward learning activities using the jigsaw cooperative learning. It is 5 rating scale according to Likert's method.

Data Collection

1. The samples take pretest designs with 4 multiple choices answering options and 30 units. (30 minutes)
2. The instructor organizes the students into 4 groups of 5-6 called "Our Home" and distributes worksheets.
3. Ask each group "Our Home" to select one group leader to coordinate the operation and summarize the task.

4. Ask the leader of “Our Home” divide the content into groups, 1 for each student in the group. The members in each home choose a station according to the topics in the worksheet that they are interests. (15 minutes)
5. The leader of the house group explains to the members about the source of the information that each member is responsible for, such as from journals and the internet, etc. and set actuation time and to present summary of the responsibility for the next class to check the accuracy in the basics.
6. Our home team leader distributes the worksheets assignments to each member, who is an expert on each assigned topic, collapse to each station together with experts from other groups assigned to the same topic call “Expert Group” o share the same topic, study together to find a conclusion on the topic to return to teaching friends in the home group. (1 hour)
7. Each group of experts presented the topic of interest to the instructor to verify the accuracy of the content before returning to educate our group. (original group)
8. Experts return to our home group (original group). The experts conclude from a large group of experts. Other members ask questions, discuss, conclusions, do it all together.
9. The leader of the group summarizes the whole of the group’s work. (doing jigsaw puzzle), report to the group again for confirmation, and presentation in class conclude with the instructor until it is understood.
10. The samples take posttest designs with 4 multiple choices answering options and 30 units. (30 minutes)
11. The samples take the questionnaire to study students’ opinions and suggestion on appropriateness in the jigsaw cooperative learning management on the curriculum development model in four aspects; content, teaching methods and techniques, personalities of teachers, teaching media, and measurement and evaluation.

Data Analysis

The researcher analyzed the data from the following data collection:

1. Multiple choice test measures cognitive learning achievement, graded analysis by percentage compared to the criteria set at 75 percent, and using comparative statistics t-test for dependent Samples to compare pretest and posttest.
 2. A questionnaire was used to measure students’ opinions toward learning activities using the jigsaw cooperative learning. It is 5 rating scale according to Likert’s method (1967).
 - 5 score means teaching and learning is at the highest level.
 - 4 score means teaching and learning is at the high level.
 - 3 score means teaching and learning is at the medium level.
 - 2 score means teaching and learning is at the low level.
 - 1 score means teaching and learning is at the lowest level.
- Meaning value of mean according to appropriateness level:
- 4.50-5.00 means the appropriateness is at the highest level.
 - 3.50-4.49 means the appropriateness is at the high level.
 - 2.50-3.49 means the appropriateness is at the medium level.
 - 1.50-2.49 means the appropriateness is at the low level.
 - 1.00-1.49 means the appropriateness is at the lowest level.
3. An analysis of opinions and suggestions on appropriateness of activities of the jigsaw cooperative learning management. The mean, percentage, standard deviation and content analysis of the open-ended questions by synthesis were used for data analysis. Then presented in a sort of arrangement and summarize the results in the form of analytical narrative.

RESEARCH RESULT

1. The Study of Academic Achievement Pretest and Posttest Using Jigsaw Cooperative Learning

The findings of this research was as the jigsaw cooperative learning management on the curriculum development model makes academic achievement posttest scores higher than that of the pretest at statistically significant at .05 levels. This is based on the research hypothesis.

2. The Study Students’ Opinions of Appropriateness for Learning Activities Using Jigsaw Cooperative Learning

The finding of this research was as the overall learning activity component was at a high level. (\bar{x} = 4.40, S.D. = 0.66) When considering the components of learning activities, it was found that content, teaching methods and techniques were appropriate at the high level. (\bar{x} = 4.42, S.D. = 0.75) Second, the personalities of teachers. (\bar{x} = 4.30, S.D. = 0.42) And the teaching media. (\bar{x} = 4.35, S.D. = 0.58) The measurement and evaluation were appropriate at the low level. (\bar{x} = 4.31, S.D. = 0.75)

3. The Analysis of Opinions on Appropriateness of Activities of the Jigsaw Cooperative Learning Management

- 3.1 The content, teaching methods and techniques aspect on the jigsaw cooperative learning management found that 1) The learners can understand the content well and remember better than ever. 2) The jigsaw cooperative learning management makes the teaching in this novel. This encourages students to be eager to learn. Always awake 3) The jigsaw cooperative learning management is a very good teaching style, giving students more responsibility.
- 3.2 The personalities of teachers found that teachers teach on time. It creates an atmosphere of teaching and learning that is fun, interesting and beneficial.
- 3.3 The teaching media found that the teachers use textbooks/instructional materials to manage their learning and have a single sheet of work in groups, consistent with the content taught. The teachers review the lessons using PowerPoint to help make the teaching process more effective.
- 3.4 The measurement and evaluation found that the test is quite difficult but cover all issues. The evaluation is fair to the learners meet the criteria set.

SUMMARIZE AND DISCUSSION

Summarize

1. The 23 sample students who have been organized the jigsaw cooperative learning management to develop knowledge, understanding, curriculum development on the curriculum development model have academic achievement posttest scores higher than that of the pretest at statistically significant at.05 levels.
2. The overall learning activity component was at a high level. ($\bar{x} = 4.40$, S.D.= 0.66) When considering the components of learning activities, it was found that content, teaching methods and techniques were appropriate at the high level. ($\bar{x} = 4.42$, S.D.= 0.75) Second, the personalities of teachers. ($\bar{x} = 4.30$, S.D = 0.42) And the teaching media. ($\bar{x} = 4.35$, S.D = 0.58) The measurement and evaluation were appropriate at the low level. ($\bar{x} = 4.31$, S.D = 0.75)
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 - 3.1 The content, teaching methods and techniques aspect on the jigsaw cooperative learning management found that 1) The learners can understand the content well and remember better than ever. 2) The jigsaw cooperative learning management makes the teaching in this novel. This encourages students to be eager to learn. Always awake 3) The jigsaw cooperative learning management is a very good teaching style, giving students more responsibility.
 - 3.2 The personalities of teachers found that 1) All learners agree that the teachers r has a good knowledge and give a clear example. The learner clarifies the learning activities and the presentation clearly. Choose the content that is taught is not difficult or easy to understand. This can be used to further analyze the content of the lesson. 2) Teachers teach on time. Use the right words, clean clothes, good role models, students' good personality, teacher and student friendly. It creates an atmosphere of teaching and learning that is fun, interesting and beneficial.
 - 3.3 The teaching media found that 1) The teachers use textbooks/instructional materials to manage their learning and have a single sheet of work in groups, consistent with the content taught. The teachers review the lessons using PowerPoint to help make the teaching process more effective.
 - 3.4 The measurement and evaluation found that the test is quite difficult but cover all issues. The evaluation is fair to the learners meet the criteria set.

DISCUSSION

1. The 23 sample students who have been organized the jigsaw cooperative learning management to develop knowledge, understanding, curriculum development on the curriculum development model have academic achievement posttest scores higher than that of the pretest at statistically significant at.05 levels. This is based on the research hypothesis which corresponds to Sukhon Sinthapanon (2007) that said the cooperative learning is a teaching method that design learning activities by encouraging students to collaborate in small groups focusing on interaction between learners in each group will have members who have different abilities. Each student must cooperate in learning together, help each other, the better people will help the weaker. Group members must share responsibility for the learning of all members of the group, because the concept that everyone's success will be included in the success of the group.
2. The analysis of opinions on appropriateness of activities of the jigsaw cooperative learning management found that the overall learning activity component was at a high level which corresponds to Wisitsri Pengnoom (2008) the study results of teaching and learning for Bachelor of Nursing Science Program students using the jigsaw cooperative learning management. The objective to study the results of teaching and learning management for undergraduate nursing students

using the jigsaw cooperative learning management. The populations were the third year students of Bachelor of Nursing Science Program students. The research found that The learners value the satisfaction score toward the jigsaw cooperative learning management was at a high level. The highest score is the teacher and the jigsaw teaching method is found that the instructor has a role as a stimulus and guide of study, provide students with fun learning experiences, engaging with learning activities. The result is an enthusiastic learning experience, more self-study, and a collaborative learning society.

3. The analysis of opinions on appropriateness of activities of the jigsaw cooperative learning management.

3.1 The content, teaching methods and techniques aspect on the jigsaw cooperative learning management found that content is not overloaded. The content brought teaching is not difficult or easy to understand. This can be used to further analyze the content of the lesson. The group of 5 people is small or too small with multi-ability of good, moderate, and poor in all groups 8 hours teaching time. Members have embarked seriously and the learners have summarized the knowledge to review the lesson enabling learners to understand the content well and remember better than ever corresponds to Piyanart Jitkongsong (2007) study the solution learning about Charset's actions in Applied Mathematics 1 of vocational students 2 Commerce by using jigsaw to solve the set learning problem in Applied Mathematics 1 of Vocational Secondary School students. The target groups for the study were 5 vocational students in vocational school 2, 5 in the computer business. The results showed that the 5 students passed the minimum criteria of more than 70% meeting the criteria set. From observation of behavior during activities, each student was encouraged to learn by being recommended by a group of skillful friends. Accounting branches have reached the minimum criteria of 90%, followed by the computer business sector with the minimum evaluation criteria of 80% and the sales of 76%. And classify meaning Difference of vocabulary with some overlap and suggested that the instructor should be more flexible in time.

The personalities of teachers found that the teacher teaches on time, polite attire, good personality of teacher and student friendly. Help create a learning atmosphere. Make fun, interesting and very useful corresponds to Nonglak Sutthiwatphan (2002) teacher teaches on every time, use verbal polite to suit students and can control the mood while teaching well. The teacher has a good social personality: 1. Humor 2. Good mood 3. Cool mood 4. Emotional intelligence Instructors should teach by inserting ethics, ethics, professional ethics and values during teaching more than this.

The teaching media found that Teachers use the syllabus/syllabus for curriculum development syllabus and individual and group worksheets are correspond to the content taught.

The measurement and evaluation found that lesser learners suggest that the test is quite difficult. The teacher has issued cover all issues. The evaluation is fair and justice to the learners.

Suggestions

1. The suggestions for applying research results:
 - 1.1 To use the jigsaw cooperative learning management in activities continuously as appropriate of the activity model.
 - 1.2 Preparation media, documents and equipment for the jigsaw cooperative learning management should be regard into account the appropriateness of time, language content and interest for maximum efficiency in learning.
2. The suggestions for the next research:
 - 2.1 The research should be conducted the jigsaw cooperative learning management according to the nature of the content.

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