ENHANCING THE QUALITY OF LEARNING BASIC MATHEMATIC APPROACH FOR PROBLEM BASED LEARNING THROUGH CONSTRUCTIVISTIC AT THE DEPARTMENT OF HOME ECONOMIC

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Abstract

Pursuant to research result, indicating that constructivistics throughs of applying the method of problem-based learning in management of the subject activity of Basic Mathematic have a positive impact to effectiveness storey; levels posed attainment of lecturing at the target through growth of result learn the reality of the participant of lecturing. For Health and Beauty studies program, at the cycle of I, students average value of 66.9, the final average value of the cycle of II is 70.8 and average student value at the cycle of III is 77.2. While average values during treatment (3 cycles) instruction of Basic Mathematic is 71.63 meaning the value was higher before the Than All That is 60.8. Through this approach of instruction, more student besides also learn motivational level Mathematic student at the subject. Meanwhile for Fashion Design study program, at the cycle of I, students average value of 66.6, the final average value of the cycle of II is 79.16 and student average value at the cycle of III is 94.33. While average values during treatment (3 cycles) instruction of Basic Mathematic is 79.80 meaning the value was higher before the Than All That is 66.6. Through this approach of instruction, more students besides also learn motivational level Mathematic student at the subject and independent for studying this subject.

Keywords: enhancing, constructivistics, mathematic, problem, based, learning, motivational, home economic.

1. Introduction

The Basic Mathematic subjects is one of the compulsory subjects, which is a fairly difficult subject for students including those who take majoring in Home economic department. This is because of the mathematic concept and theory is abstract and rigid. Besides advanced mathematic have not been studied continuously at the department of Home economic except statistics. So the interest and motivation to learn Mathematic is minimum.

Home economic Students consists of Catering, Dressmaking and Makeup should take advantage of logical mathematic, because they have to deal with macro-economic classes, statistics, research methodology, basic physics, basic chemistry, the practice of cloth/clothing, and management. Based on the observation that the authors have a negative perception of students about the subjects of Mathematic. This course is considered a daunting for college students as well as lecture instructors always considered a "killer". Resulting in low spirit of students to attend lectures, because students always feels tense and insecure. It is characterized by an atmosphere of passive students when learning Mathematic in the classes: listen more than to respond to or discuss the material being taught lecturer. Classroom interactions between professors and students in the learning context is at its lowest, so there tends to be one-way communication. This situation gets worse because the method of teaching Mathematic professor who conducted the lecture method by using the frequently asked questions, practice problems and homework as a way to increase students' skills in working on problems.

Therefore necessary to increase student interest and ways of teaching materials to suit the needs and knowledge level of students. Among others, by changing teaching methods (conventional) with the constructivist approach through Problem Based Learning method. Through a constructivist approach to student self-directed learning and thinking realistically to construct a concept that got its own, in hopes of better student retention. One way to train memory is to give students about cases or problems directly related to the interests of study or daily occurrence. This is done to further vary the teaching methods, in addition of course to improve and optimize the ability of lecturers in delivering course material, which is expected to help students to better absorb the material being taught, so that learning outcomes are achieved can be optimized.

2. Main Content

Based on expert opinions, conceptually Mathematic learning outcomes defined as change of behavior of cognitive ability obtained by students
after attending the lectures of Mathematic during the period of time. While operationally defined as the ability to learn the results obtained through achievement test that includes knowledge, comprehension, application, analysis, synthesis, on the facts, concepts, principles and operating procedures Mathematical theory.

Teaching and learning process is the combination of two activities, namely teaching and learning, they are inseparable and will form an interaction. Teaching and learning processes have components which exist in kirkulum. The components in question include the objectives, teaching materials, methods and tools, and assessment (evaluation). The four components are interrelated and influence each other. Therefore, the lecturers as executor of learning process is expected to make preparation for teaching and learning, implementing and evaluating learning outcomes.

In carrying out a good and right activities in teaching and learning, it takes the existence of a systematic preparation and adequate teaching. Through this preparation is expected to be predicted about what it is to be realized during the learning process. There are several components that need to be specified, the forms of determining teaching goals, determine the material (matter) a lesson, determine the teaching and learning activities (methods and strategies), determine the assessment of learning outcomes.

After making preparations to teach, then faculty activity is to realize what had been predetermined in the form of real activity during the learning process takes place. Actions lecturer in teaching this course will influence every step that make up the learning process. Sudjana (1989: 68) defines teaching as a step by step step lecturer / teacher in implementing the learning process and how the lecturer / teacher in developing student learning activities, in connection with the material to be taught.

There are several steps that must be taken in implementing the teaching faculty, namely: the beginning stage, the stage of teaching and assessment and follow-up phase (Sudjana, 1989; 108). Beginning stage is the stage which aims to set conditions for learning that can facilitate students receive lessons. At this stage there should be a pretext. This is done to determine the abilities possessed by students, as prescribed in teaching purposes. By looking at the results of the pretext, faculty can determine the material that may no longer be served.

Stages of teaching is the core stage, the stage of adding material that had been prepared previously. At this stage must always adhere to the preparation of teaching that had been prepared. The activities at this stage will be influenced by the type of teaching approach used by lecturers / teachers.

Hence the need for skill mix all forms of the supporting element for the successful implementation of teaching.

Evaluation of the teaching process conducted by the professor as an integral part of teaching itself, meaning that the evaluation should be an integral part of the preparation and implementation of teaching. The evaluation aims to assess the effectiveness and efficiency of teaching as a material for the development and improvement of preparation and implementation of teaching.

In essence the result of learning is influenced by various psychological aspects, attention, namely concentration of psychic energy is focused on an object, the consciousness that accompanies an activity being carried out, observations, namely how to recognize objects by sight, hearing, smelling, tasting, touching (the five senses ), either himself or about where he is, response, namely a picture that lives in memory of someone once observed, so the effect on subsequent individual behavior, memory, namely the influence of processes taking place in the past in some way be reinstated in the present.

Therefore Mathematic curriculum should include three elements: concepts, skills, and problem-solving. The concept shows the basic understanding, skill refers to something done by a person and tend to grow and can be enhanced through training and problem solving is daari application of concepts and skills.

Constructivist learning is a process attaches new information on relevant concepts contained in a person's cognitive structure to establish and develop students' ability in mastering the course material (Dahar, 1995). So, the learning process not just memorize the concepts or mere facts (root learning), but trying to link these concepts to produce a full understanding (meaningful learning), so the concept is learned will be well understood and not easily forgotten.

In the constructivist view, freedom of initiative is seen as a critical success because of the control initiative is seen as a determinant of success. Application of constructive learning in the learning process is expected Basic Mathematic: information learned will be longer remembered, the information lead to increased differentiation of thinking, thus facilitating the learning process next to a similar material, and although the information already been delivered not be called again by the memory or there have been forgotten due to obliterate thinking (subsumsi damaged), but still leave residual effects in subsumer, making it easier to learn things like the next (Novak & Gowin, 1977 in Sholahuddin, 2000).

One way is through a constructivist approach to learning Problem Based Learning method. Problem Based Learning By Tjipko and Ruijter (1994:84-86) is called a systematic problem-
solving. Lawrence Senesh (1996) in Saptono (2003), suggests there are three stages in the process of solving mathematical problems, namely: motivation phase, the development stage, and culmination stages. Teaching problem solving itself is in the second phase is under development with completion of these steps as follows: symptom of the problem, aspects of the problem, definition of the problem, and scope of the problem. Problem based learning methods can be stated that students will actively participate and will also be actively thinking and reasoning develops.

Given the number of students attending Basic Mathematic pretty much, in order to obtain optimal results then formed groups to study and analyze the results about the problem based learning was presented in front of the class or group of mahasiswa wisiwa which usually are small, organized (classified) for the sake of learning (Roestiyah 1991).

Another definition of group work is presented by Muhammad Nur and Retno Wikandari in his book To the Student-Centered Teaching and Constructivist Approaches in Teaching (2000: 25), which states that the Cooperative Learning (Cooperatif Learning) is a teaching method where students work in groups with mixed abilities. Here the students are divided into small groups, usually between three to five people and groups that will continue for several weeks or months. One method of cooperative learning according to Slavin (1994) who quoted Mohammed Nur & Wikandari is the method of Student Teams Achievement Divisions – (STAD) or Student Team, Group Achievement. Learning method is very suitable to teach learning objectives that are formulated with a sharp single correct answer, as characterized by mathematical calculation and application, the use of language and mechanics, geography and map reading skills and the fact –science facts and concepts. The aim of the working group is to motivate students toward activities related to existing problems and to work together in groups of data and information materials will be collected to solve more problems in no time.

Presentation is one form of teaching methods with simulation. Simulation is the behavior of a person to act like someone who intended to aim for that person to learn some more about how people feel and do something. Merger group work and presentation methods are used to further create better results. Results of the working group then presented by the group to share the information obtained to classmates, with the aim to provide experience to students to be more familiar with leadership and experience to communicate something in front of an audience problem. In Mathematical Economics course, group work is useful for sharing knowledge and ability to read and understand a story about the application of mathematical theory in economics and business. So the faster students understand about the story given faculty can explain to friends sekelompoknya, for members of the group can also understand the matter in question. In this group work, teachers act as facilitators who guide and provide various types and kinds of problem-solving story as well as the correct way.

Constructivist thinking recognizes that learning is something that is complex and multidimensional that goes far beyond the various methodologies that only exercise-oriented and stimulus / response (stimulus-response). Modern learning suggest that learning occurs only when students process new information or knowledge in such a way that felt reasonable in accordance with the framework of thinking that has (memories, experiences, and responses). Naturally, when there is new knowledge, one's mind to work to find the meaning of new knowledge in a real context, and can only occur through unreasonable searches and links useful. Subject matter mix with the everyday context students will produce the basics in-depth knowledge in which students are rich in understanding the problem and how to solve them. Students are able to independently use the knowledge to solve new problems and have never encountered, and have more responsibility to learn along with increased experience and knowledge.

Constructivist learning should have eight major components of making meaningful connections, doing significant work, self-regulated learning, collaborating, critical and creative thinking, nurturing the individual, reaching high standards, and using authentic assessment. Conceptually, the quality of learning is not derived from the meaning of the effectiveness of the PBM, when viewed from the indicator evaluations. Sudjana (1990) uses a number of indicators to assess PBM, such as the quality of learning, skills, teaching skills, student activity, motivation and so forth –. Researchers argue that the quality of learning can be viewed in terms of utilization of time in class (time of learning and time of the task), and active participation of students, changes in behavior and attitude to learn, and learning outcomes. In a constructivist approach to learning with the pressure there is on student activity.

The student must be considered is contained in the Mathematic curriculum manuals UNJ academic lectures and events Mathematic unit basis. Students are also equipped with the knowledge of Mathematic and learning materials.

To monitor the use of various instruments such as a diary that made the students, lecturers, questionnaires, interviews, observation and documents. As for the tests used to measure learning outcomes are open to both a group or an individual. Data being collected includes quantitative and qualitative data.
Therefore, the analysis carried out quantitatively and qualitatively as a reference reflection. Where the results of reflection is used to make improvements plan the next cycle. In summary brief step-reflection analysis as follows: Analysis - Understanding - Explanation - Conclusion - Identification of follow-up. If the I cycle is not satisfactory, then the initial plan is repaired or modified where necessary.

Learning achievement of students after attending the course Basic Mathematic which is the compulsory subjects, showing significant progress by using the approach of learning through Problem Based Learning constructivistic. This development is shown from the results of reflection on the first cycle, second and third. The Basic Mathematic course material is designed as an application concept of learning Mathematic. This course is a basic science that supports student's understanding of other college students and help control the field of expertise Catering, Makeup and dressmaking. The approach of Mathematic learning through the completion of the case can be made by the students through the four stages of learning, namely: identifying problems, developing mathematical modeling, calculating data and selecting the appropriate option.

This is evidenced by an increase in student learning achievement Makeup Course starting from the first cycle the average value of 66.9, the average value of 70.8 cycles II and III is 77.2 cycles with an average increase of 5 changes, 15 points. While student learning outcomes for each cycle Dressmaking Studies Program is the first cycle, 66.6 math scores, the average value of cycle II was 78.16 and the average score of students in cycle III is 94.33. While the average value during treatment (3 cycles) Basic Mathematic teaching is 79.80 which means higher than the previous value of 66.6. Through this teaching approach, in addition to more independent students also increased students' learning motivation in the field of Mathematic.

Observation of students through observation Mathematical problems in everyday life, providing a very positive contribution in improving student understanding of conceptual abstract. Students get real experience through the matter of the case. Formation of group discussions and class discussions by students with enough critical situations to discuss the problems of Mathematic. In addition, these activities can increase confidence and facilitate the students make decisions rationally. Making consolidated results of group discussions and exercises work on the problems that varied add their insights about learning and teaching Mathematic.

Reflection sessions that evaluate student learning outcomes on the quality of constructivist learning, identify problems, create a model or hypothesis of the concept of problem solving through the mastery of Mathematic, giving encouragement and motivation to students to be more active and collaborative discussions Mathematical concepts gradually. This has an impact on students' memory in terms of resolving problems in a systematic and gradual plan.

Results of a questionnaire distributed to students at the end of the cycle indicate a positive assessment of Mathematic learning.

(A) The Basic Math clear learning objectives.

(B) The contents of the material provided is easy to follow

(C) How to present the material more attractive students

(D) Exercise matter more varied, but felt increasingly difficult to resolve, because the mathematical variables entered in cases that must be identified by the student.

(E) The time provided for basic college Mathematic inadequate.

3. Conclusion

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