

Implementation of Contextual Learning Models to Improve Student Learning Results on Architecture Study and Environment

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Abstract—Implementation of contextual learning model backed by the results of preliminary observations on the eyes of entrepreneurship which shows that learning activities have some constraints such as the lack of activeness of students in expressing ideas and problems faced. Students also lack interaction with both lecturers and fellow students so that students' difficulties cannot be known. Implementation of contextual learning model is expected to increase students' activeness and openness in learning activities. In this research, we use classroom action research techniques, where there are three cycles in each cycle, consists of several stages of planning, action, observation and reflection. From the results of this study obtained an increase in learning outcomes in each cycle.

Keywords—contextual learning model; student learning results; architecture study and environment

I. INTRODUCTION

Today the development of science and technology every time gaining progress. This should be followed by the development of the quality of human resources in it. The development of the quality of human resources cannot be separated from the development and quality of an education. Education is a very basic thing in the formation of quality human resources. Therefore, to create creative, innovative and productive human resources, a quality education system is required. So the need to improve the education system in Indonesia in suitable with the development and the changing eras.

One of the things that must be improved is the process of teaching and learning in the classroom. The teaching and learning process is the most important activity in school education. This process will create the goals of education in general and or special goals such as changes in students' behavior towards the better. So that students have the ability and can face the changes and the demands of the times, in the whole education process, teaching and learning activities are the main activities.

Hamalik states that "learning is a process of changing individual behavior through interaction with the environment" [1]. Changes in behavior in question include aspects of knowledge, understanding, habits, skills, appreciation,

emotional, ethical and attitude. Sudjana in Kunandar, states that "a result of the learning process by using measurement tools, namely in the form of tests arranged in a planned manner, both written tests, oral tests and deeds tests [2]. Changes in behavior due to the learning process are called learning outcomes. Learning outcomes achieved by students are one indicator of the success of teaching and learning. According to Sudjana learning outcomes are abilities possessed by students after he has received experience from the learning process. To achieve optimal learning outcomes and in accordance with the demands of the curriculum requires, an alternative model of learning and the use that leads to active student learning in the hope of improving conceptual satisfaction and developing students' communication skills in Architecture and Environment courses [3].

To improve students in Architecture and Environment courses. In order to achieve results in accordance with the KKM is to develop a contextual learning model. Contextual is the concept of learning where the lecturers present the real world in the classroom and encourage students to make connections between their knowledge and the relation in their daily lives. As defined by Sandjaya contextual is a learning strategy that emphasizes the process of full student involvement to be able to find the material learned and connect it to real life situations so as to encourage students to be able to apply it in their lives [4].

The subjects of Architecture and Environment requires students to play an active role, while contextual learning is the activity of students doing and experiencing, not only writing, and development of socialization ability. in Dharma Kesuma, there are seven principles in contextual learning that can be distinguished from other models, they are constructivism, inquire, questioning, learning community, modeling, reflection, and authentic assessment [5]. Jhonson points out the steps of contextual teaching and learning to build attachments in class, namely by building an attachment to how students get information in your class, write down specific things that you want your students to know and implement and use some authentic assessment methods that requires students to study hard [6].

Based on these descriptions, the authors are interested to apply this contextual learning model by improving the weaknesses that exist in an effort to improve the understanding of student concepts.

II. RESEARCH METHODS

The method used in this research is Classroom Action Research with experimental type. According to Arikunto classroom action research is an examination of learning activities in the form of an action, which is deliberately raised and occurs in a class together [7]. While Wiratmaja in Tukiran Taniredja, suggests that "classroom action research is how a group of teachers can organize the conditions of their learning practices, and learn from their own experiences [8]. Whereas Classroom Action Research with experimental type is when classroom action research is conducted by trying to apply various techniques and models effectively and efficiently in a learning activity. In relation to teaching and learning activities there may be more than one model for achieving instructional objectives, with the implementation of this classroom action research we expected to determine which way is more effective in order to achieve the purpose of teaching. Wijaya Kusumah argues that there are several Classroom Action Research including individual action research and collaborative action research [7].

In the course of action research, the main step that must be implemented is planning, taking action, observing and reflecting which is a cycle in classroom action research, cycle always repeats. After a cycle of completion if there is a problem of the reflection process then a review process will be conducted through the next cycle which includes the re-planning, re-action and re-observation activities so that the problem can be solved.

III. RESEARCH RESULT

A. Description of Research Setting

Classroom Action Research that takes the setting in the Department of Architecture Engineering Education, its execution follows the planning flow includes the determination of learning materials and the determination of time allocation of its execution. Actions cover the entire process of teaching and learning activities through contextual learning models. The observations were conducted simultaneously with the learning process including, material development, learning outcomes and student activities. Reflection involves the analysis of the learning outcomes and at the same time preparing the improvement plan for the next cycle. Before doing the research, the researcher made a preliminary observation to know the class situation to be studied.

B. Preliminary Observations Pre-Action

Based on the preliminary observation, directly to the learning phrase and interviews with the lecturers, then found the following things:

- The learning process is still centered on the lecturer and the method of delivering the material is dominated by

conventional methods of lecturing and noting, so that the students only receive knowledge from lecturers.

- Lack of interaction and aspects of openness both between lecturers and students and between students and students so that all student difficulties in the learning process can not be known and solved together.
- The dominant learning source used by the students is the notes given by lecturers in teaching and learning activities. After the interview is done then continued with the researcher.

After the interview is done then continued with the researcher gave the first evaluation to the students to measure and know the level of student ability. From the result of pre-action, averagely 33.5 can be concluded that the learning activities on the subjects of Architecture and Environment more dominant delivered through lecture method and note. Based on pre-action observation, the researcher holds the first reflection for improve the learning process in class.

C. Reflection on Preliminary Learning Activities

Based on the findings obtained from the initial observation on the learning process, the researchers will try to apply contextual learning models in the learning process. By using a contextual learning model is expected to increase student learning outcomes and activities. Because in the contextual model there are stages of lessons that can help lecturers to direct students in solving problems. Thus expected learning process will be more meaningful and imprint on student memory. The learning process will be more interactive because students can solve problems by conducting group discussions, so the learning process is not just transferring knowledge from the lecturers of the students only.

D. Learning Activities In Cycle I

1) *Learning outcomes*: The learning outcomes of each action can be analyzed from the evaluation value as one of the characteristics of complete learning. Judging from the acquisition of students' study result after the first cycle, the results are evaluated for the average Pre cycle is 33.5 while for the average of cycle 1 is 52.8. Based on that average result can be seen an increase between the Pre cycle and cycle 1 is high enough.

In the Pre cycle there are no students who enter the category good and very good, but in the first cycle there is an increase. In the enough category there are about 0% in the Pre Cycle, and increased in Cycle I to 55%, it means there is an increase of about 55%, and the low category decreased, at Cycle Pre around 55%, decreased in Cycle I to 45%, about 5%, this happens because the numbers rise to sufficient category. While the very good and good category is still 0%, there are no students in very good and good category. The decline in percentage very low and low category on the Pre Cycle, so there is an increase for the enough category.

2) *Students' activity*: Based on the researcher's observation on students' activity during the learning process in the first cycle as a whole is 52% so that it included in the "moderate"

category of students, which are still seem to be less active in the learning phase. The students still look hesitant in expressing opinions, ideas and problems that they are facing. The interaction between lecturers and students is also poorly intertwined.

3) *Lecturers' activity*: Based on the score obtained from the result of lecturers' activity observation on learning in the first cycle is 60% and is in the "moderate" category. The discussion result that the observer and lecturer do is that on the next encounter, the lecturer will be better at communicating with the students during guidance, both on question and answer, discussion and presentation, so the communication between students and lecturer can be well established.

4) *N-gain in cycle I*: The increase (N-gain) in learning cycle I has an average value of 0.29 so it can be categorized as low. The effectiveness of learning in the first cycle has not all received the expected results based on the comparison of the average value increase during the pre cycle and cycle I so there's many has to be increased, revised, and improved by the lecturers, or in this case researchers.

5) *Reflection*: After the discussion show the results of field notes that occurred on this first learning activity, the lecturer, as together with the observer discuss to fix it. The aspects that has to be improved are as follows:

- On the learning process of study preparation and motivation the students are not good enough so that there would be some of them that can't focus in the activity of learning.
- On the implementation of group presentation and discussion, the students still cannot be condive in condition so that the class is noisy.
- On answering questions, the lecturer gives, the students seem not active enough and hesitate to tell their ideas individually, they prefer do it together.

To fix the deficiencies in cycle I, the implementation of the next cycle or cycle II as for the aspects that must be improved is as follows:

- The lecturers provide motivation to the students so that students have a passion for learning.
- The lecturers try to control the students during the presentation to be more active.
- At the end of teaching, the lecturer invites students to collectively draw conclusions about which lessons have been learned so that it is expected that in the next cycle students are more courageous to convey their ideas

E. Cycle II Action Planning

1) *Learning outcomes*: The learning outcomes of each action can be analyzed from the evaluation value as one of the characteristics of complete learning. Judging from the acquisition of students' study result after the second cycle, the results are evaluated for the average cycle I is 52,8 while for the average of cycle II is 69,6. Based on that average result

can be seen an increase between the Cycle I and Cycle II is high enough.

In Cycle I, there is no student in the category of good and very good, but in Cycle II there is an increase. In the good category there is about 0% in Cycle I, and increasing in Cycle II to 33%, that means there is an increase of about 33%, the sufficient category there is about 55% in Cycle I, and decreased in Cycle II to 52%, the less category decreased, in Cycle I about 45%, decreased in Cycle II to 15%, it means there is a decrease of about 30% this happens because the numbers rise to the category enough and good. While the great category is 0%, there are no students in very good category.

2) *Students' activity*: Overall, the student activity in the first cycle learning process is 66% so it can be categorized as "high". Students still seem less active in the learning phase. Students still look hesitant in expressing opinions, ideas and problems that are happening. The interaction between lecturers and students is also poorly intertwined.

3) *Lecturers' activity*: Based on scores obtained from the observation of lecturer activity in learning in the second cycle 79% is in the "high" category. In this cycle there is an increase in lecturer activity in almost all stages. The lecturers seem to have been able to control the class and more motivate the students to express their opinions. Lecturers are also getting used to the contextual learning model. The interaction between lecturers and students has been good enough although only some students are active in the discussion or question and answer.

4) *N-gain in cycle II*: The enhancement (N-gain) in cycle II learning has an average value of 0.36 so it can be categorized as moderate. The effectiveness of learning in cycle II is good enough to be seen based on comparison of the increase during cycle I evaluation and second cycle evaluation although there is still much to be improved and improved by lecturers in this case researchers.

5) *Reflection*: Based on the analysis and reflection results at this second meeting, there are some things that could be suggestions for the next meeting:

- The lecturers are still guiding and motivating only to some students.
- In arranging the time, the lecturers seem to have not performed well which can be seen in the learning process has not been using the time that has been planned. So in the process of learning, the lecturers still not be able to evaluate the learning process.
- Students' activities have improved but some students seem still hesitant to share their opinions or to ask questions.

To fic the deficiencies in cycle II, the implementation of the next cycle or cycle III as for the aspects that must be improved is as follows:

- The lecturers guide and motivate so that every individual can play an active role in learning activities

- The lecturer controls the dynamics of the learning activities so that they run effectively, and each stage can be carried out properly, so the lecturer does not seem to be in a hurry.
- Lecturers improve the attitude of openly on the interaction between students and lecturers so that students are brave to express their opinions or ask questions.

F. Cycle III Action Planning

1) *Learning outcomes*: The learning outcomes of each action can be analyzed from the evaluation value as one of the characteristics of complete learning. Judging from the average of students' learning result after the third cycle, the results are evaluated for the average cycle II is 69,6 while for the average of cycle III is 83,8. Based on that average result can be seen an increase between the Cycle I and Cycle II is high enough.

In Cycle II no students are in the category of very good, but in Cycle III there is an increase. There's 0% of the very good category in Cycle II, and increase to 30% in Cycle III, means there is an increase of about 30%, in the good category there is about 33% in Cycle II, and increase in Cycle III to 70%, it means there is an increase of about 37%, the average category decreased, in Cycle I about 52%, decreased in Cycle III to 0%, the less category decreased, in Cycle II about 15%, decreased in Cycle III to 0%, this happened because the number rose to average category, good, and very good.

2) *Students' activity*: Overall, students' activity in learning process of the first cycle is 84% so it can be categorized as "very high". Students still seem less active in the learning phase. Students still look hesitant in expressing opinions, ideas and problems that happened. The interaction between lecturers and students is also poorly intertwined.

3) *Lecturers' activity*: Based on scores obtained from the observation of lecturer's activities on learning in the third cycle is 90%, categorized to "very high". This shows an increase in lecturer activity from second to third action. Lecturers are able to communicate better to the students so there is a positive interaction. The students are not shy anymore to ask or express their opinions. In addition, improvement is also shown by good time management. Lecturers are getting used to the contextual learning model.

4) *N-gain on cycle III*: The enhancement (N-gain) in cycle III learning has an average value of 0.49 so it can be categorized as moderate. The effectiveness of learning in cycle III is good enough to be seen based on comparison of the increase at the time of evaluation in the previous cycle, so that the learning process has been said good enough and no improvement in the next cycle.

5) *Reflection*: Based on this third cycle, the learning activities that have been done have improved overall. Students in expressing opinions and answering questions have been very good, students have dared to express their ideas and opinions, as well as bring up the problems they have found in their life. The lecturers often give praise to students when they

answer and express their opinions. This is a positive thing to make the condition of learning activities take place with fun and able to increase student motivation so that the students can easily be able to understand the concept of the given lesson.

The method used by the lecturers has improved by providing variation with question and answer method, presentation, discussion and lecture. Develop the material by giving examples of real-life applications that students can easily understand.

IV. DISCUSSION OF RESEARCH RESULT

A. Learning Outcomes

Implementation of contextual learning model can improve students' learning result as stated in pre cycle, Cycle I, Cycle II and Cycle III which increase in each cycle.

The level of mastery of students based on the test results is in average on the pre cycle is 29.7 and in the first cycle the average result is 52.8 so an increase of about 23.1, in cycle II the average result increased to 63.87 so it does increase of about 11.07, the same as the third cycle the average result increased to 82.84 so there's an increase of about 18.97. This shows that the actions performed can improve students' learning result on the cognitive aspect.

B. Students' Activities

Assessment of student activity during learning activity is using student's observation sheet which is observed in every cycle. Student activity is the student's response to the lessons that have been given by the lecturers with the predetermined aspect of assessment.

Students activity in the first cycle to cycle II increased from 52 to 66, and in the third cycle there was an increase from 66 to 84. In the first cycle, the students in average reaches the "moderate" category responds to the lecturer's lesson, in cycle II the student in average reaches the "high" category responds to the lecturer's learning, and in the third cycle the students in average achieves the "very high" category responding to the lecturer's learning.

In the implementation of the research, the research results show that there is increasement in students' learning outcomes, it is revealed starting from the learning process the better, the increase in student activity and the increasing learning outcomes of each action undertaken. This shows that contextual learning can motivate students to participate in any learning activities that can ultimately improve students' learning outcomes.

C. Lecturers' Activity

Overall implementation of learning activities by using contextual learning model implemented by lecturers step by step has been implemented well. In each cycle the lecturer has improved every deficiency so that the planned learning objectives are achieved. Lecturer activity is an activity in carrying out each of the learning stages, assessed by using observation sheet of lecturer activity every cycle.

The activity of lecturers in carrying out every learning activity has increased, that is on the first cycle with the assessment of 60 in the medium category, and in the second cycle the judgment rose to 79, and in the third cycle there was a significant increase. The increase of rating from 79 in cycle II increased to 90 in cycle III with very high category. Thus the activities of lecturers have been able to support to improve student activities and student learning outcomes.

D. N-gain in Every Cycle

After applying the learning process using contextual learning model from cycle I to III, it is obtained the normalized Gain which shows the measurement of student's mastery improvement on learning materials which measured through pre cycle, cycle I, cycle II, and cycle III in each cycle. With the Gain measurement for cycle I which is 0.29, cycle II increased to 0.36, for the third cycle increased to 0.49. Based on the above data, the improvement of students' understanding on architecture and environment with contextual learning model is seen from the increase of normalized gain (N-gain) value for each cycle. Overall from the above description it can be concluded that learning by using contextual learning model can increase lecturer activity, student activity, and learning result which can be seen from N-Gain improvement in architecture and environment course. The obtained N-Gain data shows an increase in students' understanding of architecture and environment by using Contextual learning model. From lecturers' activities, there is a gradual increase in each cycle. Lecturers' positive activities during the learning process and motivate the students to the end of the learning activities. With the increase of lecturer activity also happened increase of student learning activity during learning process progress, the improvement can be seen from activity of learning indicate that application of Contextual learning model in architecture and environment subject can increase in every cycle.

E. The Advantage and Struggle of Contextual Lesson in Entrepreneurship Course and on Students and Lecturers.

From the results of observations and interviews with students and with lecturers, obtained the impression and responses of lecturers and students' impressions and responses which are grouped into positive impressions and responses and negative impressions and responses.

Positive responses and impressions are the advantages of the contextual learning model:

- Increase knowledge of knowledge and ability of lecturer in preparing lesson plan according to contextual learning model that is placing student experience and material relation with real life application as base in planning of learning.
- Lecturers gain new knowledge and experience in applying contextual learning model through stages: contact, curiosity, elaborasi, nexus and evaluation. In its application lecturers are able to use many teaching methods (lectures, demonstrations, presentations and frequently asked questions). It seems to motivate students and students more interested and creative in implementing learning.

- Learning concepts learned are given by attracting and providing the relationship between the material with the application in real life so that students more quickly understand and not quickly forgotten.
- With the group presentations and discussions make the learning activities more interesting and the students more excited. Presentation and discussion activities lead to a cooperation and interaction in solving problems and foster self-confidence in each student.
- Overall the learning activities with an application of contextual learning models in entrepreneurship courses can take place smoothly and well.

Meanwhile, things that seem to be the impression and negative responses from lecturers and students are the constraints or febleness in application of contextual learning model, as follows:

- Since each learning plan is connected to existing concepts, it takes time and enough learning resources to gather materials and examples of their application in each learning material.
- Lack of equipment and infrastructure in the demonstration process used as a tool for learning activities.

V. CONCLUSION

The improvement of students' understanding ability after learning by using contextual learning model as stated in the value of learning result for each cycle is increasing although in medium category. It can be seen from the average gain of N-Gain for each cycle starting from cycle I is 0.29 (low), continued in cycle II to 0.36 (medium) and last from cycle III to 0.49 (medium). From this research has been found the relationship of student learning activity with learning result. This is indicated by observation data starts from cycle I, cycle II and cycle III that shows each cycle increase learning activity and accompanied by improvement of student learning outcomes.

Based on the observations made in the classroom, overall student activity has increased in each cycle, in cycle I, the average score of students' activity is 52% which is categorized as moderate, in cycle II there is an increase to 66% which is categorized as high and in cycle III occurs the increase to 84% is categorized as very high.

Overall lecturer activity has increased in each cycle. This is shown from the observations that use observation sheet of lecturer activity. In the first cycle the average score of lecturer's activity is 60% is in the moderate category, in the second cycle of lecturer's activity increased to 79% are in the high category and on the third cycle lecturer activity continues to increase to 90% are in very high category.

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