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THE 2ND ANNUAL INTERNATIONAL SEMINAR ON TRANSFORMATIVE EDUCATION AND EDUCATIONAL LEADERSHIP

Educational Research to Endorse Productive and Innovative Generation in the 21st Century

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“Educational Research to Endorse Productive and Innovation Generation in The 21th Century”

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October 16-17, 2017

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Preface

The 2nd Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL with web link is http://aisteel2017.unimed.ac.id/) was held on October 16-17, 2017 in Medan City, Indonesia. This conference was organized by Postgraduate School, State University of Medan (Unimed) and is the routine agenda at Unimed now. The Second Annual International Seminar on Transformative Education and Educational Leadership’ is realized this year with various presenters, researchers, lecturers and students from universities both in and out of North Sumatera participate in the theme of which is “Educational Research to Endorse Productive and Innovative Generation in the 21st Century.”

2nd AISTEEL is the annual international seminar with main aim is to discuss of recent research special for Transformative Education and Education Leadership. Several topics like: Teachers Education Model, Research Global Issue in Education, Mathematics and Science Education, Social, Language Education, Vocational Education, Curriculum, Economic, History and Management Education have been discussed at the 2nd AISTEEL 2017. 2nd AISTEEL international seminar provided experts’ view on transformative education and educational leadership as well as curriculum article presentation. There were five keynote speakers have been came Professor Keiichiro Yoshinaga, Dr. Bambang Sumintono, Dr. Sitti Maesuri Patahuddin, and Dr. Yulia Rahmawaty. The organizer had been use online submission system to receive all abstract, full paper and also communication with authors. All of information include with comment of reviewer can be checked real time by author.

Chairperson

Dr. Rahmad Husein, M.Ed
Welcoming Speech of Director of Postgraduate School State University of Medan

The Second Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL)

The honorable,
- Rector of State University of Medan, Prof. Dr. Syawal Gultom, M.Pd.
- Vice Rectors of UNIMED
- Professor Keiichiro Yoshinaga, PhD, Institute of Liberal Arts and Science, Kanazawa University – Japan
- Dr. Bambang Sumintono, M.Ed., University Malaya – Malaysia
- Dr. Sitti Maesuri Patahuddin, Faculty of Education, Science, Technology and Mathematics, University of Canberra – Australia
- Yuli Rahmawati, Chemistry Education Program, Universitas Negeri Jakarta
- Deans of Faculties of Education, Languages and Arts, Social Sciences, Natural Sciences and Mathematics, Engineering, Sports Sciences, and Economics
- Vice Directors of Postgraduate School of UNIMED
- All speakers, lecturers, researchers, students, and participants

Good Morning
Welcome the honorable guests speakers Professor Keiichiro Yoshinaga, Dr. Bambang Sumintono, Dr. Sitti Maesuri Patahuddin, Assoc. Prof. Emilia Zulmira de FAN, and other speakers, lecturers and students from outside and inside Unimed to this international seminar which is the routine agenda at Postgraduate program of Unimed now. I’m glad that ‘The Second Annual International Seminar on Transformative Education and Educational Leadership’ is realized this year with various presenters, lecturers and students from universities both in and out of North Sumatera and participate in the theme of which is “Educational Research to Endorse Productive and Innovative Generation in the 21st Century.”

Ladies and Gentlemen,
In this second seminar excels the first one related to the administration by online and the publication index by either Thomson Reuters or Google Scholar. By the new policy on student’s publication, postgraduate program really matches the system, particularly for the students who will sit in the oral defence examination. Through the seminar, the postgraduate students improve their article journal writing and it is proved by many articles are submitted by the students.

The plenary speakers coming from 15 provinces in Indonesia will present topics covering multi disciplines. They will contribute a lot of inspiring inputs and new knowledge on current trending educational research topics all over the world. The expectation is that all potential lecturers will share their research findings to educational scientists and researchers as well for improving their teaching process and quality. Thus, this will contribute to the next young generation researchers to produce innovative research findings in education and educational leadership contexts.

This second seminar continues the promotion of the first sequel ‘Developing Future Teachers’ Education Model. Therefore, the propose of this second seminar on the transformative education and educational leadership research will trigger the young professional lecturers and educators to compete in the invention of innovative educational teaching and learning strategies, techniques and leadership.

I hope that the scientific attitude and skills through research will promote Unimed to be a well-known university which persists to be developed and excelled in the future.

Thank you the Rector of Unimed who always supports us in organizing the seminar. Thank you all guest and plenary speakers. Special thanks to both steering and organizing committee who have well-coordinated and collaborated in actualizing the seminar.

Director of Postgraduate Unimed

Prof. Dr. Bornok Sinaga, M.Pd
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Daulat Saragi
The Effect of Question Students Have Strategy on The Result of Students Learning in Mathematics

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Abstract—This study aims to see whether or not it exists the effect of learning strategy “question students have” on the result of students learning in mathematics. This study is a quantitative research with experimental research. The population of the study is thirteen classes with samples are thirty nine students of experimental classes and forty three students of control class. Instruments used is an essay test in the form of pretest and posttest which amounts to 10 items. The findings indicate that the class was taught by uses “question students have” strategy have increased by 28.205% with average 75.7 and standard deviation 16.9, while the class taught by the expository strategy have increased by 10.116% with an average 66.3 and standard deviation 15.3. Based on hypothesis show it was concluded that learning strategies “question student have” has had significant effect on result of students learning in mathematics.

Keywords—question students have strategy, expository strategy, result of student learning in mathematics.

I. INTRODUCTION

Education is means and the right tool to form community and nation that aspired, namely culture society and intelligent. Mathematics is subjects that require skills counting for completed questions related with numbers for understanding concept mathematics. Mathematics very important in everyday life, because without realizing whether they like and don’t like it have used mathematics in everyday activities such as counting a spending money, measuring an object, etc.

The results of student learning is the ability gained after the child through learning activities (Ahmad Susanto, 2013). Because learning is a process where someone will obtain a form of change behavior and understanding. And children who are categorized as successful in the learning are successful in achieving learning goals or instructional goals (Ahmad Susanto 2013).

When teachers and students were asked what resulted of students learning in mathematics were low. Based on the observations and interviews with one of the mathematics teachers with Mr. Muhammad Nur Eddy, said that "if students are asked to do the questions, they are generally silent and require the answer from other students or teachers, some students do not want to ask and prefer to remain silent if they do not understand the material because that shame with other friends, and some students can’t solve the problem at the time of post test so that be impact for the result of learning student."

From the problems that have been described it to takes an effort that can affect the results of students learning in mathematics. One of the efforts is choose a strategy to order the lesson more precise in order to effect the results of students learn especially on eye lesson math. And the efforts that are considered could solve problem with use cooperative learning strategy type questions student have which is expected to involve students on active to involve students on active in learning mathematical. question student have strategy is a way that does not make the fearful side to learn what they need and expect. This method utilizes a technique that invites participation through writing, instead of the conversation (Melvin L. Silberman, 2013).

Question student have strategy which means in the Indonesian language is a question that starts from the students developed training learners to have skills ask a questions. Questioning skill is a used to get answers from others. Questioning can be viewed as a reflection of every individual’s curiosity. While answering the question shows a person’s ability to think. In the process of learning to teach the role of questions is very important, because through the question the teacher can guide and direct the students find any material to be learned, understand what really is not understood by students either in the form of questions asked by teachers or questions come from themselves, as well as questions that students start can be the main ingredients in learning activities to achieve the goals that have been determined.

II. METHODOLOGY

The population in this study is the students of class XI which consists of 13 classes with the average number of
students class is 40 students. Take the sample using cluster random sampling.

A. Types and Research Design

This research includes experimental research, the research is intended to determine whether there is the effect of using strategies of student question have for learning outcomes of the mathematics class XI MAN 2 Model Medan years 2015/2016.

Table I. Two Group Research Design (pre-test and post-test)

<table>
<thead>
<tr>
<th>Class</th>
<th>Pre-test</th>
<th>Treatment</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>$T_1$</td>
<td>$X_1$</td>
<td>$T_2$</td>
</tr>
<tr>
<td>Control</td>
<td>$T_1$</td>
<td>$X_2$</td>
<td>$T_2$</td>
</tr>
</tbody>
</table>

Information:

$T_1$ : Pre-Test

$T_2$ : Post-Test

$X_1$ : Learning strategies of question student have

$X_2$ : Learning with expository

Collection technique of data in this study are questions in shape description / essay test on the material composition and function of the inverse function through a pre-test and post-test.

B. Analysis Technique

Analysis techniques of data to test the hypothesis using $t$ - student (t-test), the formulation of research hypothesis is:

$H_0$: There is have not effect of the question student have strategy for result of learning mathematic student in class XI MAN 2 Model Medan years 2015/2016.

$H_1$: There is a have an effect of the question student have strategy for result of learning mathematic student in class XI MAN 2 Model Medan years 2015/2016.

III. DISCUSSION

A. Result learning of experiment class

Students are given a pre-test to determine the initial ability of 10 items. The assessment is done on a scale of 100 and the score of each question is 20. then the post-test is given 10 items.

The results of pre-test and post-test in the experimental class are presented in the following table:

Table II. Summary Value Grade Experiment

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Pre-test</th>
<th>$P_{o$t – test}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>Number of Problems</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Amount of Value</td>
<td>1855</td>
<td>2955</td>
</tr>
<tr>
<td>Average</td>
<td>47,564</td>
<td>75,769</td>
</tr>
<tr>
<td>Variance</td>
<td>343,252</td>
<td>288,866</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>18,527</td>
<td>16,996</td>
</tr>
<tr>
<td>Maximum Value</td>
<td>75</td>
<td>100</td>
</tr>
<tr>
<td>Minimum Value</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

The table shows that the students in the experimental class before being given a treatment derived average value of 47,564 with a standard deviation of 18,527 and after the lesson taught by the student question have obtained an average value of 75,769 with a standard deviation of 16,996.

B. Results Learning Control Class

Students are given a pre-test to determine the initial ability of 10 items. The assessment is done on a scale of 100 and the score of each question is 20. then the post-test is given 10 items.

The results of pre-test and post-test in the control class are presented in the following table:

Table III. Summary Value Grade Control

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students</td>
<td>43</td>
<td>43</td>
</tr>
<tr>
<td>Number of Problems</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Amount of Value</td>
<td>2415</td>
<td>2850</td>
</tr>
<tr>
<td>Average</td>
<td>56,163</td>
<td>66,279</td>
</tr>
<tr>
<td>Variance</td>
<td>208,949</td>
<td>234,635</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>14,386</td>
<td>15,32</td>
</tr>
<tr>
<td>Maximum Value</td>
<td>75</td>
<td>90</td>
</tr>
<tr>
<td>Minimum Value</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

The table shows that the students in the control class before being given treatment obtain an average value of 56,163 with a standard deviation of 14,386 and having taught with conventional learning, the value of an average of 66,279 with a standard deviation of 15,31779.

C. Effect using strategies of Questions Students Have to result of learning mathematic student.

The results of the calculation of data normality test in summary can be seen in the following table:

Table IV. Summary Table of Normality Test

<table>
<thead>
<tr>
<th>Class</th>
<th>Data</th>
<th>$L_{count}$</th>
<th>$L_{table}$</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>Pre-Test</td>
<td>39</td>
<td>0, 101</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>Post-Test</td>
<td>43</td>
<td>0, 109</td>
<td>0.13</td>
</tr>
<tr>
<td>Control</td>
<td>Pre-Test</td>
<td>39</td>
<td>0, 101</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>Post-Test</td>
<td>43</td>
<td>0, 109</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Thus, from the table shows that both samples have the distribution of the normal distribution and homogeneous. Then the next step is make test hypothesis for post-test only with the use t test.

Table V Summary of Hypothesis Testing

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Experiment Class</th>
<th>Control Class</th>
<th>$t_{count}$</th>
<th>$t_{table}$</th>
<th>CONCLUSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>75,76</td>
<td>66,27</td>
<td>2.72</td>
<td>1.99</td>
<td>$H_0$ accept</td>
</tr>
<tr>
<td>Variance</td>
<td>288,86</td>
<td>234,63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>16,99</td>
<td>15,31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Samples</td>
<td>39</td>
<td>43</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The table can be concluded that if \( t_{\text{count}} > t_{\text{table}} \) then \( H_0 \) rejected and \( H_1 \) in receive. This means that states that there are significant variations in learning outcomes and conducted by researchers.

To prove whether there is a significant and variations of learning outcomes by using the t test, the test results obtained by \( t_{\text{count}} > t_{\text{table}} \) is \( 2.72 > 1.99 \) on the level \( \alpha = 0.05 \) is means significant and variation of learning outcomes conducted by researchers, which means the alternative hypothesis which states that there is or there is effect strategies of question students have to result of students learning in mathematics.

In the study seen that students in the experimental class taught by cooperative learning model student question have a more active and motivated to learn. Thought cooperative learning question student have not only active mentally, but also physically, as seen when the student participate to learn by asking questions and avoid saturation. With teachers' guidance, they learn in a discussion to make inquiries from things they do not know, not understand, and what they want to know about the composition and function of inverse functions, and also they learn to make better questions for questions which they prepare to be the best choice representing the questions of their respective groups. This makes students creative in learning mathematics. In addition, the cooperative learning model question students have aspects of communication between students and students and between students and teachers can be established and bring a more positive direction so as to improve the result of students learning in mathematics.

And the students in the control class taught by the expository starategi in receiving the lessons are quite low because the learning process is still impressing monotone, where the students just sit and listen to the teacher's explanation. The learning process also takes place passively because it does not involve students actively in the learning process so that the learning atmosphere feels stiff and sometimes feels slower.

IV. CONCLUSIONS

1. Based of data concluded that using cooperative learning model type question student have higher than expository model on teaching because that strategies have more active learning to make active student, more creative, and critical in learning, while in expository learning the learning atmosphere tends to be monotone and students still tend to be passive in learning.

2. There is a cooperative learning model type question student have effect to the result of students learning in mathematics on teaching. Based on the statistical test \( t \) obtained that \( t_{\text{count}} > t_{\text{table}} \) is \( 2.72 > 1.99 \) it means \( H_1 \) accepted and \( H_0 \) rejected, which means "There is an effect question student have learning strategies to the result of students learning in mathematics. So, use of question student have learning strategies have had a positive effect on result of learning mathematics students.

REFERENCES