STUDENT MOTIVATION IN LEARNING THE MATERIAL MEASURES OF CENTRAL TENDENCY STATISTICAL DATA THROUGH INQUIRY LEARNING STRATEGIES IN DENTAL NURSING PROGRAM OF POLYTECHNIC HEALTH MINISTRY OF HEALTH TASIKMALAYA INDONESIA 2015

Yayah Sopianah

\^\textsuperscript{1}Poltekkes Kemenkes Tasikmalaya

Email address: yayahsopianah@yahoo.com

Abstract

In the learning process encountered various problems one of which is a lack of willingness and motivation of students in the learning process in the classroom. Motivation is an important part of the learning process because a lot of research that shows that motivation is closely related to someone learning outcomes on certain subjects. The purpose of this study was to determine differences in learning motivation of students in the subject matter of statistical measures of central tendency of data before and after learning by using the inquiry method. The sample in this research is the students of Dental Nursing of Polytecnic Health Ministry of Health Tasikmalaya. The research instrument that learning motivation questionnaire consisting 24 statement consists of positive and negative statements. The instrument used first tested for validity and reliability. This study of its kind pre-experimental results constitutes the dependent variable is not solely influenced by independent variables. This can occur, in the absence of a control variable, and the sample was not chosen randomly. The study design used in the study this is one group pretest-posttest design. In this design, before treatment is given prior samples were given a pretest (scratch test) and the end of the study sample given the posttest (final test) test in question is to provide learning motivation questionnaire. Based on the results of data analysis of significant value is 0000 so Ho rejected and concluded that there are significant differences learning motivation of students before and after learning with learning strategies Enquiry.

Keywords: Motivation, Learning Enquiry

A. Introduction

Statistics an integral part of mathematics. This is because of the statistical birth of their first mathematical. Statistika has developed very rapidly so that now almost at all areas, ranging from education to politics to economy in which there are statistical sciences. A small example when a general election required statistical sciences in surveying one candidate, the process requires statistical science in it.

A chaser both teachers and lecturers should be aware of the difficulties of students in learning subjects statistics. Thus the need for a renewal in the learning process so that the impression of statistics difficult subjects is not too prominent, and students can learn comfortably. But the reality on the ground, teachers still have difficulty learning how to implement to create a comfortable student in the classroom. As stated Zamroni (Supinah and Agus D. W. 2009: 1- 2), orientation of education in Indonesia generally have the following characteristics: (1) tend to treat the student's status as an object; (2) serves as a teacher of science and indoctrination otoritastertinggi holder; (3) the material is subject-oriented, and (4) management to be centralized. These characteristics indicate that the absence of an active role of students in the learning process. Lecturer in the class to act more as a subject of learning (learning centered on faculty), while the students as objects, as well as learning do not associate with the daily life of students.
The state also experienced investigators on teaching, namely at the Polytechnic of the Ministry of Health Tasikmaya in the Department of Dental Nursing Program most dental students are less attentive to the course statistics. This is not surprising because of the fear of possible early mathematical arising from their bad experience when learning mathematics when they sit in the Upper Secondary School (SMA). Ruseffendi (2006: 157) states "many children, after studying mathematics, part simple too many did not understand, many of the concepts are understood wrongly, regarded as a mathematical science that difficult, complicated and a lot of overreaches. " This has an impact on student results were less than satisfactory. Based on the data held last year, the number of students that have, only 30% of students are able to work on the problems in the material measures of central tendency of data.

One of the problems is the low motivation of the students in the classroom. Uno (2007: 1) states that motivation is the basic impulse that drives a person to behave. This push is a person who moves to do something that fits the impulse within him. The main source of motivation emergence according to Gagne and Driscoll (Pujjati, 2008: 11) is curiosity (curiosity), the desire of achievement (achievement), and confidence (self-efficacy). Curiosity can be built from the stimulus to things new, complex, and things that are unusual. The desire of achievement as a source of the emergence of motivation, because there is a desire to achieve something, custody or control over something, and to produce something. While confidence is the belief of the skills to achieve success or to be able to do something and avoid failure.

Motivation can be divided into two, namely intrinsic motivation (inner) and extrinsic motivation (from outside). Uno (2011: 23) argues that:

"The essence of motivation to learn is the internal and external encouragement to students who are learning to make changes in behavior, in general, with some indicators or elements that support. Indicators motivation to learn can be classified as follows: (1) the desire and work, (2) lack of motivation and needs in learning, (3) their hopes and ideals of the future, (4) the award in learning, (5) their interest in learning activities, and (6) the existence of a conducive learning environment ".

Sudjana also provides motivation to learn about the indicators of students. According to Sudjana (2009: 61):

"This feature or aspect of students' motivation in learning activities are: (1) the interest and attention of students towards learning, (2) the spirit of the students to perform the tasks of learning, (3) the student's responsibility in the tasks of learning, (4) indicated student reaction to the stimulus provided by the teacher, (5) a sense of happy and satisfied in a given task ".

One thing that is a weak point is the low motivation of the students in the learning process in the classroom. For that, we need their efforts in addressing the low motivation of the students in learning. Effort done is to apply the inquiry learning strategy.

The strategy was developed by Richard Suchman inquiry to teach students to understand the process of researching and explaining an incident. According to Sanjaya, (2007: 194) "inquiry learning strategy often also called heuristic strategy, which is derived from the Greek, meaning that heuristic I find". Inquiry word is derived from the English language meaning inquiry, inspection or investigation. Sund (Trianto, 2007: 135), stated that the discovery is part of the inquiry or inquiry is an expansion of the discovery is used in more depth. According to Sugiyono (2010: 17) "means the inquiry learning process based on the search and discovery through a process of critical thinking". Inquiry learning model in principle is a learning model that it makes students find the concept or knowledge through an analysis of the new concept. Thus, the inquiry learning model will be the more meaningful learning process, so that the process of making knowledge more easily absorbed by the students.

Based on these opinions, in the learning process, students will not only act as a receiver lessons by lecturers explanation verbally, but their role is to find their own core of the subject matter itself. The participation of lecturers in learning rather than as a source of learning, but as a facilitator and motivator of learning. Learning activities usually done through a process of questions and answers between faculty and students, so the ability of lecturers to use questioning techniques is the main requirement to conduct inquiry learning. Students are not only required in order to master the lesson but how they can use their potential. students who just learned the lesson is not necessarily able to develop the ability to think optimally, while students will develop the skills of thinking when he could master the subject matter.

In the use of inquiry learning strategy, there are several principles that should be considered by every teacher. According to Sanjaya, (2007: 197) the principles of inquiry learning strategy are as follows:
1. Oriented intellectual development.
   The main objective of learning strategy is the development of thinking skills. Thus, in addition to learning strategies oriented to learning outcomes also oriented learning process.

2. The principle of interaction.
   The learning process is basically the process of interaction, better interaction between students and student interaction with teachers, even the interaction between students and the environment.

3. Principal asked.
   Various types and techniques necessary to ask mastered by every teacher, whether it was asked merely to call attention to the students, asked to develop the ability or ask for the test.

4. The principle of learning to think.
   Learning is not just remembering some facts, but learning is the process of thinking (learning how to think), which is the process of developing the potential of the entire brain.

5. The principle of openness
   The task of the teacher is to provide space to provide opportunities for students to develop hypotheses and openly validate the hypothesis.

   Based on these opinions, the inquiry learning strategy oriented to the development of thinking skills or learning outcomes, as well as process-oriented learning. So the criteria for the success of the learning process is determined by the extent to which students move search and find something that can be found. In the process of learning a process of student interaction with faculty, even among students with an environment. This means that the placement of teaching not as a source of learning, but as an environmental regulator or regulatory interaction itself. In order to work effectively, the teacher inquirers are required to enable various types and questioning techniques should be mastered by every teacher. Each question is basically a part of the thought process, which develops the potential of the whole brain to the fullest. In the process of thinking, students need to be given the freedom to try out in accordance with the development of logic skills and his reason.

   In this study the stages of learning are used adapted from the stage of inquiry learning proposed by Eggen & Kauchak (Trianto, 2009: 15) is as follows: (1) Present the question or issue, (2) Make a hypothesis, (3) Designing the experiment, (4) Conduct an experiment to obtain information, (5) Megumpulkan and analyze the data, and (6) Make a conclusion. Here are a step table steps inquiry learning.

<table>
<thead>
<tr>
<th>Fase</th>
<th>Teacher Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Present questions or problems</td>
<td>Teachers guide students to identify issues and problems written on the Board. Lecturer divide students in groups.</td>
</tr>
<tr>
<td>2. Make a hypothesis</td>
<td>The teacher gives the student the opportunity for brainstorming in the form a hypothesis. Teachers guide students in determining the hypotheses that are relevant to the problems and memproiritsakan the hypothesis which is a priority of the investigation.</td>
</tr>
<tr>
<td>3. designing experiments</td>
<td>The teacher gives the student the opportunity to determine the steps that are in accordance with the hypothesis that will be done. Teachers guide students sort of experimental steps</td>
</tr>
<tr>
<td>4. Conduct experiments to obtain information</td>
<td>Teachers guide students get information through experiment</td>
</tr>
<tr>
<td>5. Collect and analyze data</td>
<td>The teacher gives a chance to every group to convey the results of processing of the data collected.</td>
</tr>
<tr>
<td>6. Make inferences</td>
<td>Teachers guide students in making conclusions.</td>
</tr>
</tbody>
</table>

   Source: Trianto (2007:141)

   Based on these problems, researchers interested in investigating the learning motivation of students in statistics courses conducted using the inquiry learning strategy at the V semester students
of Department Dental Nursing Program of Polytechnic Health Ministry Tasikmalaya. Based on the description of the background of the problem, the researchers aim to find the motivation to learn the students in the subject of statistics before and after learning by using the inquiry method.

B. METHODS

The method used in this research is the method Pre-experiment. According to Sugiono (2010: 109) that "pre-experimental research results constitute the dependent variable is not solely influenced by the independent variable." This can happen, in the absence of the control variable, and the sample was not chosen randomly.

The study design is the design of how research is conducted. The research design used in this study is one group pretest-posttest design. In this design, prior to the treatment given the first sample given pretest (Initial test) and the end of the study sample was given the posttest (Final test) test in question is the provision of student learning motivation questionnaire. This design is used in accordance with the objectives to be achieved is to know the difference learning motivation of students before and after implementation of the inquiry learning strategy. Here is a table design of the study one group pretest-posttest design.

**Tabel 2**

**One Group Pretest Posttest Design**

<table>
<thead>
<tr>
<th>Pretest</th>
<th>Treatment</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1</td>
<td>X</td>
<td>O2</td>
</tr>
</tbody>
</table>

Information:

O1: initial tests (pretest) before treatment is given.
O2: final test (post-test) after the treatment was given.
X: treatment of the group is to apply the model of the inquiry.

The sample in this study were all students of the Department of Nursing Dentistry Year 2015-2016 which amounted to 27 people. A research instrument is a tool used to measure in this study. The research instrument was made by grating learning motivation questionnaire that has been created by researchers. In a study evaluating instrument or tool should qualify as a good instrument. Two important requirements that are validity and reliability should be high.

The data analysis is one very important step in research activities. With data analysis will be able to prove the hypothesis and interesting on the subject to be studied. Data analysis techniques used in this research is a method of non-parametric Wilcoxon test is a test of a refinement of the test mark (sign test). Wilcoxon test used for ordinal data in the form or tiered (Muhid, 2010: 204).

**Table 3 question form lattice Motivation After Learning by using Model Enquiries**

<table>
<thead>
<tr>
<th>No</th>
<th>Indicator</th>
<th>The number of Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>positif</td>
</tr>
<tr>
<td>1.</td>
<td>The passion and desire to succeed</td>
<td>2</td>
</tr>
<tr>
<td>2.</td>
<td>Encouragement and needs in learning</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>The hopes and ideals of the future</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>Award in learning</td>
<td>2</td>
</tr>
<tr>
<td>5.</td>
<td>Interest and passion against mathematics</td>
<td>2</td>
</tr>
<tr>
<td>6.</td>
<td>Persevering and resilient in the face of difficulty and math assignments</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>The total number of item questions</td>
<td></td>
</tr>
</tbody>
</table>
C. RESULTS AND DISCUSSION

The results of the study give a picture of the student motivation to learn before learning with learning strategies implemented the inquiry and after using the inquiry learning strategies. The data obtained in this study of data result of learning motivation questionnaire given to 27 students twice: before and after learning. The data is then used to calculate the difference. The full results are as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Motivation Learn Before Learning Enquiries</th>
<th>Learning Motivation After Learning Enquiries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>91.07</td>
<td>106.81</td>
</tr>
<tr>
<td>StandarDeviasi</td>
<td>7.61</td>
<td>8.23</td>
</tr>
<tr>
<td>max</td>
<td>104</td>
<td>118</td>
</tr>
<tr>
<td>min</td>
<td>78</td>
<td>86</td>
</tr>
<tr>
<td>Median</td>
<td>89</td>
<td>110</td>
</tr>
</tbody>
</table>

Based on the results of the calculations in Table shows that the average score of students’ learning motivation pretest was 91.07 with a standard deviation of 7.61 to a maximum value of 104 and a minimum value of 78. While the average score posted motivation to learn is 106.81 with a standard deviation of 8.23 with a maximum value of 118 and the value minimum 86. To see the difference can be made following bar chart:

**Figure 1**

![Bar chart Comparison Score average motivation of Learning before and after the Learning Strategy Enquiries](image)

Based on the bar chart shows that the average score of students' learning motivation after learning higher when compared with prior learning. Nevertheless, it should be tested whether really there is a difference. Tests carried out is the Wilcoxon test for ordinal data in the form.

**Table 5**

recap of Results Wilcoxon Test
Test Statistics\textsuperscript{a}

<table>
<thead>
<tr>
<th></th>
<th>After-Before</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{Z}</td>
<td>-4.242\textsuperscript{a}</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.000</td>
</tr>
</tbody>
</table>

\textsuperscript{a}. Based on negative ranks.
\textsuperscript{b}. Wilcoxon Signed Ranks Test

Based on Table can be seen that significant value is 0.000 so Ho rejected and concluded that there are significant differences learning motivation of students before and after the inquiry learning with learning strategies.

Statistical learning using inquiry learning model it makes students more active learning. At the time of learning in study groups, all members work together to find the concepts they do not know, every member of the group dared to express his own views. This is consistent with the opinion of Trianto (2007: 135) "The main objective inquiry learning is (1) the maximum student involvement in the learning process; (2) the direction of the activities in a logical and systematic learning objectives; (3) develop a confident attitude of students about what was found in the proceedings ".

At the first meeting, and learning activities using strategies learning inquiry time-consuming, because each student is unfamiliar with inquiry learning model and most of the students are confused by way of inquiry learning. But after being given the direction and guidance of the students began to follow the process of inquiry learning time although it still exceeded the plan.

Learning by using inquiry learning model starts by giving direction and guidance on learning by inquiry learning. Then the students were divided into six groups based on the heterogeneous cognitive ability, the goal in order to avoid imbalances in the group. After that lecturers begin introducing the material and give the problem. Each group was asked to provide a temporary answer (hypothesis) on the problem given. After that, each group was given a teaching material for discussion and as a guide to finding an answer to a problem that has to be given. Next representative group was asked to present his findings and with the assistance of professors to make conclusions. The last step is the evaluation.

Motivation to learn students on the material measure of central tendency of data obtained that the average score of students' learning motivation pretest was 91.07 with a standard deviation of 7.61 to a maximum value of 104 and a minimum value of 78. While the average score postest motivation to learn is 106.81 with a standard deviation of 8:23 with a maximum value 118 and a minimum value of 86.

Inquiry learning model can improve student learning motivation. One factor that makes student learning motivation there is a difference before and after the learning is during the learning process, it is in accordance with the theory of Piaget (Trianto, 2007: 16) states that cognitive development largely depends on how far the child actively manipulating, and actively interact with
the environment, of the other factors in terms of educators, in this case, it gives students the opportunity to develop the knowledge in accordance with its own merits.

After conducting tests of significance value is 0000 so Ho rejected and concluded that there are significant differences learning motivation of students before and after the learning model Enquiry.

D. CONCLUSION

Based on the results of data processing and analysis concluded that there are significant differences learning motivation of students before and after the inquiry learning with learning strategies. The difference occurs because the application of the inquiry learning can increase the activity of students in the classroom.

E. REFERENCE


