Influence of Concept Map Based Information Communication and technology (ICT) on Student Learning Outcomes Biology Education STKIP-PI Makassar

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Abstrak: The study aims to determine the effect of the use of ICT concepts on student learning outcomes of STKIP-PI Makassar Biology. The subject of this study is the students of the semester of the academic year 2016/2017 which program the courses of Nutrition and Health. The study was conducted in each class of 8 hours of study. Data completion technique in this research using instrument. Data analysis using descriptive statistics using inferential percentages and statistics with t-Test. The result of descriptive research, the mean of the learning result of experimental class biology student 75.25 while in the control class 67.05 (b) from the result of inferential analysis using the level of trust t0.05 result of law. The critical area H0 is rejected if the p value (Sig. (2-tailed)) = 0.027. Because the p-value test statistic (Sig. (2-tailed)) <0.05 then it can be rejected willingness to conclude that there are differences in learning outcomes between students taught by using ICT-based concept maps and without using concept map media.

Keywords: ICT-based concept map, Learning outcomes

A. Preliminary

Along with the development of science learning activities using the conventional system where the activity is dominated by lecturers or teachers, students are passive, silent, listening, and occasionally pay attention to make students feel lazy to learn, less attention to lessons and less interested to learn. Seeing from the above problem is very closely related to the procurement of learning media for lecturers on campus. Where the media is a means or information intermediary tool that certainly has a strong influence in motivating learners during the learning process takes place. Learning media designed in such a way, with various models tend to attract the attention of students, so students have the will to learn more about the material presented by the lecturer.

The fact that can be seen in the field is, when lecturers are still using conventional media, there are still many students who look indifferent to what brought by lecturers, various attitudes and characters that can be seen from them when the process of teaching and learning, some students have a sense of laziness to fall asleep in the classroom, often disturbing friends, giving blank stares, until when the lecturer asked, students feel confused.

It is believed that each lecturer has different experiences, knowledge, abilities, styles and even views in teaching. Lecturers who think that teaching is only limited to convey the subject matter, will be different from the lecturer who considers teaching is a process of providing assistance to students. Increased student learning outcomes will be influenced by the quality of the learning process in the class. Therefore, to improve students' learning achievement, the learning process in class should be well run, efficient and effective. The learning process will
run well if supported by lecturers who have high competence and performance, and as a curriculum developer (Widoyoko, 2008).

Quality education is determined by various factors. Theoretically according to Purwadhi (2000), one of the elements that must be considered in designing an effective learning process, one of which is the teaching medium. In addition, the learning process is also part of the communication process. Thus, the effectiveness and quality of learning or education is also determined by the elements of communication such as sources, participants, media and feedback.

Use of good learning media. Able to improve student learning outcomes. Referring from the above then the lecturer should choose an efficient media in line with the development of science and technology, namely ICT-based media, on the grounds that ICT media has a unique uniqueness that can be made designed in such a way by combining several media so that integrated into one. One example is an ICT-based concept map. This media is a systematically organized learning media can be integrated with media and media images, video and animation. The advantage of this medium is being able to display sub-topics to detail clearly to the smallest sub subject.

Based on the above description, we propose the research team with the title "The Influence of Using Concept Map Based Information Communication and technology (ICT) to Student Learning Outcomes of Biology Education STKIP-PI Makassar".

B. Problem Formulation

Based on the background that has been described above, then the problems that can be reviewed in this study "Is there any influence of the use of concept maps based on Information Communication and technology (ICT) on the results of Student Learning Biology Education STKIP-PI Makassar?"

C. Research Methods

This research was conducted at STKIP Pembangunan Indonesia. The subject of the study was the program of nutrition and health courses in the academic year 2016/2017.

The implementation of the research is divided into two stages: the preparation and implementation phase. The preparation stage is first to review the competency standard and basic competence, the determination of indicators, and the development of the material so that it can be known teaching materials to be taught. Both Design SAP and create an RPS or learning scenario based on SAP with an 8-hour time allocation. All three provide Mind Manager media (ICT-based concept maps) that will be used in class and design and create instruments or evaluation tools. In Implementation Stage that is describing media that is used media of concept map based on ICT. The media is presented in a structured and integrated form with animations, images, videos, materials and exercises. ICT-based concept maps basically have a shape that is not much different from the concept map presented in general. However, this concept map is presented in the form of presentation using the help of LCD so that the material presented is structured and more easily understood by the students. This can make the learner focus on the material being lectured by the lecturer. ICT concept map leads to the concept of students being able to learn actively. Using design technologies that can be categorized as modern learning media. ICT-based concept maps in the making are done using Mind manager software.

D. Research Results

1. Learning Results of Student Biology

After doing research until the stage of student evaluation, it is obtained the descriptive statistic of student learning result which is taught by using learning media of ICT based concept map and concept map which is not based on ICT can be seen in table 4.1.

Table 4.1. Distribution of learning outcomes Biology of students who learned by using ICT concept-based learning media and concept maps that are not based on ICT

<table>
<thead>
<tr>
<th>No</th>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control Class</td>
<td>Experimental Class</td>
</tr>
</tbody>
</table>
Table 4.1. In the post test, it can be seen that the lowest score is 40.00 while the highest score in the class taught by using ICT berbsis concept map is 91.11, in the class which is not taught with concept map without ICT the lowest value is 37.78 is and the highest value is 88.89. Differences in learning outcomes can be seen from the average scores obtained by students. The average of student learning outcomes taught using concept maps without ICT is 67.05 ± (2x11.54). While taught without using ICT-based concept maps is 75.25 ± (2x11.59) If the students' learning outcomes are categorized qualitatively it will be obtained results such as table 4.2

Table 4.2. Distribution of frequency, percentage and categories of student learning outcomes by using ICT-based concept-based learning media and not using concept maps based on ICT

<table>
<thead>
<tr>
<th>Value interval</th>
<th>Category</th>
<th>Using concept maps without ICT</th>
<th>Using ICT based concept maps</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of students (%)</td>
<td>Number of students (%)</td>
<td></td>
</tr>
<tr>
<td>80 – 100</td>
<td>Very good</td>
<td>6 15.00 9 22.50</td>
<td></td>
</tr>
<tr>
<td>66-79</td>
<td>Good</td>
<td>13 32.50 19 47.00</td>
<td></td>
</tr>
<tr>
<td>56-65</td>
<td>Enough</td>
<td>15 37.50 9 22.50</td>
<td></td>
</tr>
<tr>
<td>40-55</td>
<td>Less</td>
<td>5 12.50 3 7.00</td>
<td></td>
</tr>
<tr>
<td>≤ 39</td>
<td>Very less</td>
<td>1 2.50 0 0</td>
<td></td>
</tr>
<tr>
<td>amount</td>
<td></td>
<td>40 100.00 40 100.00</td>
<td></td>
</tr>
</tbody>
</table>

The table above shows the value of the students who get the learning outcomes after being taught using ICT-based concept maps that is 9 students (22.50%) with very good category that are in the interval of 80-100, 19 students (47.00%) with good category are at interval 66-79, 9 students (22.50%) with sufficient category are at intervals of 56-65, 3 students (7.00%) with less categories are in the interval 40-55, 0 students (0%) with very less categories are at intervals ≤ 39. And the taught using the concept map without ICT is 6 students (15.00%) with very good category that is at interval 80-100, 13 students (32.50%) with good category are at interval 66-79, 15 students (37.50%) with the categories are sufficient at intervals of 56-65, 5 students (12.50%) with less categories are at the interval of 40-55, 1 student (2.50%) with very less categories are at intervals ≤ 39.

2. Inferential Analysis

Based on normality and homogeneity test of variance, t-test statistic is used to test the research hypothesis. This test analysis process used SPSS software. Where H0: m1 = m2 there is no difference between classes taught using ICT-based concept maps and classes taught without using ICT-based concept maps. H1: m1 = m2 there is a difference between classes taught using ICT-based concept maps and classes taught without using ICT-based concept maps with significance levels = 0.05. The critical area H0 is rejected if p value (Sig. (2-tailed)) = 0.027. Because the p-value test statistic (Sig. (2-tailed)) <0.05 then H0 is rejected so it can be concluded that there is a difference in learning outcomes between students taught by using ICT-based concept maps and without using ICT-based concept maps.

Based on the results of descriptive analysis the highest score obtained by students who were taught using concept maps without ICT was 88.89 with the lowest score of 37.78. While the taught by using ICT-based concept map the highest value is 91.11 and the lowest value is 40.00. The use of ICT-based concept map media used in the teaching and learning process can improve learning outcomes. It is proven by the difference between learning result obtained by students using ICT based concept maps and concept maps without ICT.

In this research, the concept map is used on the concept of nutrition and health and the result
can increase the students' learning outcomes. For the use of ICT-based concept map media students are very enthusiastic in working on the subject matter, this is due to their interest in media that has not been used in teaching and learning process, discuss the results of ICT concept maps they have filled. Giving pieces of paper containing material then randomized and reassembled allows students to show their creativity with a good group work. It is known that students' activeness is more expressed by using this instructional media. This is in accordance with the opinion Hamalik (1994), the learning media has a number of functions, among others, clarify the presentation of messages that are not verbalities that only in the form of words or oral, overcome the limitations of space, time, sensory power such as objects that are too large or too small Can be replaced by using appropriate and varied media, such as the use of ICT-based concept maps.

For the usage of concept map media which is not based on ICT student activeness also seen, but not significant like ICT-based media, in the usage of this media there are still some students who are not active learning process. At this meeting, the learning process is not maximal because there are still some students who are confused and like to interfere with friends. In the second, third and fourth, the learning process is also not too maximized this is because there are students who are not able to control himself so that disturb the state of a group of friends.

There are several factors that cause students have not succeeded during the learning process and have not been able to achieve the standard value of the average in accordance is internal factors and external factors. Internal facts include the lack of interest of students to learn while external factors can be seen from the circumstances in which teachers are not able to control all activities and activities of students outside of school hours. Like student facilities at home, the balance between playing hours and hours of student learning. Typical students in choosing friends also participate in determining student learning outcomes. When a student is in the same group with a student he or she enjoys in the sense of a friend or a close friend, the student will be passionate about learning, otherwise if the student is in an unfavorable study group then the student will feel stiff in the sense of being confused with what to do Fibers feel alien in the group that will impact on the decline in student learning outcomes. In addition, habit factors can also affect student learning outcomes. Students who are usually taught by the media whiteboard and marker or chalk are then suddenly given learning media that has never been taught to make students need time to adapt to the learning media. From some things, it can be said that the activity and psychological conditions of students is instrumental in improving learning outcomes.

E. Conclusions and Suggestions

A. Conclusion

Based on the results of research that has been done in STKIP Development Indonesia Makassar, data analysis, and discussion, it can be concluded that:

1. Learning outcomes of biology students of STKIP-PI Makassar taught using ICT-based concept maps obtained an average score of 75.25.
2. Learning outcomes of biology students STKIP-PI Makassar taught without using concept maps based on ICT obtained an average value 67.05
3. There is influence of the use of ICT-based concept map media to the learning outcomes of biology students STKIP-PI Makassar in nutrition and health courses.

B. Suggestions

In connection with the conclusion of the above research results, the suggestions that can be put forward by researchers are:

1. Expected in the learning process, can choose the media that can activate the student one of them is the concept of ICT-based map media.
2. For other researchers, it is expected to study more deeply in developing and strengthening the results of this research by conducting further research.

F. References


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