



The Effect of Inquiry-Based Audiovisual Media on The Communication Skills of Biology Students

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Abstract

Communication skills is ability to explain concepts or materials. This study aimed to determine the effect of inquiry-based audiovisual media on students' communication skills on human excretion material. This quasi-experimental research employed a Post-test – Only Control Grup Design. This study's sample was class XI IPA2 as a learning class taught using audiovisual learning media and class XI IPA1 as a comparison class taught without using audiovisual learning media. Data on students' communication skills was collected by a test and analyzed using a descriptive statistical and inferential analysis using the t-test. The research result indicated that the use of inquiry-based audiovisual media has significantly influenced the students' communication skills on human excretion material.

Keywords: Audiovisual Media, Inquiry, Communication Skills

A. Introduction

Media is a tool used by teachers or educators to communicate with students. The use of media in learning will help teachers convey the message and content of the lesson. According to Hamzah & Nina (2010), the classification of media is the classification of media based on their physical form, i.e. whether the press included in the media group that can be heard through audio or can be seen visually or a combination of audio and visual. Added by Amriyeni (2013) to report that audiovisual media can increase the results of learning local dance arts.

One of the essential skills in the learning process is communication skills because, without good communication, learning will not be sufficient. Using the inquiry approach can improve student communication skills. Widiyanti (2013) concluded that there are differences in biology learning achievement between students learning with inquiry learning models and direct learning models.

One feature of the inquiry learning approach is the teacher as a facilitator. The teacher can facilitate students in carrying out teaching by using audiovisual media. This media can motivate students, and students can actively ask questions and opinions by looking at the material on audiovisual media to communicate in the learning process.

Based on observations on October 15, 2014, at Lambuya 1 Public High School, data obtained from the biology learning process carried out by teachers in the classroom were still not optimal. The classroom conditions were less conducive, and instructional media was not optimal. Besides, many students did not respond during the learning process. Hence, students' learning outcomes in communicating the understanding of the material are still low, which the average value of students in biology subjects 76.00 in the 2013/2014 academic year can represent clearly.

Inquiry learning aims to provide students with intellectual skills (thinking skills) related to reflective thinking processes (Wahyudin, 2008). Through inquiry learning, students should be able to communicate the things they have understood, and what they have in mind to build the knowledge they will get.

Based on these problems, the need for a solution by the teacher is to use audiovisual learning media, which can maximize teaching more exciting and enjoyable. The achievement of student learning outcomes in constructing material understanding can be supported by applying the inquiry approach. This approach helps students gain hands-on learning experiences and makes their knowledge to communicate.

B. Literature Review

1. Communication Skills

The learning process is a communication process, namely delivering messages from learning sources through channels or media to the head's recipient. In this case, the message delivered or communicated is the subject matter that is in the curriculum. Interpersonal communication becomes essential in learning activities. The teacher has a strategic role in organizing a learning process involving many things (Sianipar, 2011).

Communication skills also known as the ability to explain concepts or materials. According to Latif (2013), to explain something needs to be considered several things, namely emphasizing what will be described, affirming the relationship between the supporting elements, and affirming the general principles underlying the association. Indicators of Communication Skills (by) is Concept understanding skills.

The Communication skill indicator is (1) Skills in understanding concepts. In this indicator, students must understand the meaning of words related to the material and discuss new terms that are easy to understand to reinforce ideas. (2) Skills made relations. In this indicator, students must connect between words, look for relationships and make a frame of mind. (3) logic sequence skills. In this indicator, students must conclude the message (material) in detail and logically (Latif, 2013)

2. Inquiry Learning Based Audio Visual Media Learning

Audiovisual media helps students gain knowledge, attitudes, and ideas from the message conveyed (Suprijanto, 2007). The primary purpose of audiovisual aids, if related to education, is not for entertainment. However, it can create the atmosphere of the learning process becomes more exciting and enjoyable. Audiovisual aids are not a separate form of education but are a means to supplement printed material in transferring knowledge, concepts, and ideas (Suprijanto, 2007).

Inquiry learning is a series of learning activities that emphasize the process of thinking critically and analytically to seek and find the answers themselves to a problem in question. The thinking process consists of questions and answers between teachers and students (Sanjaya, 2006).

The syntax of inquiry-based audiovisual media learning is: (1) the orientation stage; (2) formulate the problem. In this stage, each group develops a problem based on the teacher's video; (3) Creates a hypothesis. This stage, students prepare quick answers; (4) collect data. This stage, students determine to problem-solve based on the teacher's phenomena on the video; (5) testing the hypothesis. This stage, students convey the results of the discussion (6) formulate conclusions. This stage, students conclude the answers to the existing problems. At each step in inquiry-based audiovisual learning, students do some activities such as discuss and exchange information with their group friends so that they can improve students' communication skills (Sanjaya, 2006).

C. Methodology

1. Research Design

This research is quasi-experimental research that aims to determine the effect of audiovisual media on communicating student biology material by using a comparison without audiovisual media. The design used in this study is the Post Test Only Control Group Design, as stated in Table 1.

Table 1. Post-test research design - only control group design

Group	Treatment	Post-test
E	XE	O1
K	-	O2

The study was conducted on 17 November 2014 - 6 April 2015, Academic Year 2014/2015 on the Human Excretion System's material located at Lambuya 1 Public High School. The study's population were all students of class XI IPA in Lambuya 1 Public High School at the 2014/2015 academic year, it consists of two parallel classes, namely class XI IPA1 with 30 students and XI IPA2 with 32 students. Because the population consists of two class, with the ability of learning outcomes that are relatively the same, the whole class was the experimental class, and the control class, the class with the lowest mean value, is used as the experimental class. This sample used total sampling.

2. Instruments

The instrument used was a syllabus, lesson plan (RPP), student worksheets (LKS), and learning achievement test questions of 12 questions to measure communication skills.

3. Technique of Data Analysis

This study's data were analyzed using two types of analysis: descriptive analysis and inferential analysis. The descriptive analysis describes the research data to acquire the average score, median, maximum value, minimum value and standard deviation. The test result scores have a scale of 5 and a scale-5 conversion means dividing the standard scores into five plates, five numbers/letters or five qualifications (Table 2).

Table 2. Category 5 Scale

Interval	Category
$96 \leq X \leq 100$	Very high (ST)
$85 \leq X < 96$	High (T)
$73 \leq X < 85$	enough (C)
$62 \leq X < 73$	Low (R)
$0 \leq X < 62$	Very low (SR)

(Rofieq, 2004:26)

Then the scale is arranged based on five categories: excellent category (SB) for interval A, good category (B) for interval B, enough category (C) for interval C, less category (K) for interval D, and very less (SK) for the E. interval.

The researcher used inferential analysis to test research hypotheses using the t-test. The normality test with Kolmogorov-Smirnov and the variance homogeneity test using the Levene Statistical formula. The t-test does hypothesis testing.

D. Findings and Discussion

1. Findings

a. Descriptive Analysis Results of Class XI IPA1

The distribution of student communication skill in class XI IPA1 is the value obtained by students without any treatment in audiovisual learning media. However, it is taught by displaying two-dimensional images in still photos, sketches and diagrams with inquiry approaches (Table 3).

Table 3. Distribution of student communication skill grade XI IPA1

<i>Interval</i>	<i>Category</i>	<i>f_i</i>	<i>%</i>
96≤X≤100	Very high (ST)	1	3.33
85≤X<96	High (T)	10	33.33
73≤X<85	Enough (C)	8	26.67
62≤X<73	Low (R)	7	23.33
0≤X<62	Very low (SR)	4	13.33

Table 4 shows that the percentage of students' communication skills in the very high category is only 3.33%. In conclusion, students who learned using audiovisual media have less than optimal communication skills.

b. Descriptive Analysis Results of Class XI IPA2

The distribution of student communication skill in class XI IPA2 is the value obtained by students after treatment in the form of inquiry-based audiovisual learning media (Table 4).

Table 4. Distribution of student communication skill grade XI IPA₂

<i>Interval</i>	<i>Category</i>	<i>f_i</i>	<i>%</i>
96≤X≤100	Very high (ST)	4	13.33
85≤X<96	High (T)	8	26.67
73≤X<85	Enough (C)	13	43.33
62≤X<73	Low (R)	5	16.67
0≤X<62	Very low (SR)	0	0.00

Table 4 shows that the percentage of students' communication skills in the very high category is only 13.33%. Thus, it can conclude that students who received treatment in inquiry-based audiovisual media had higher communication skills than students who were not taught using audiovisuals.

c. Comparison of Learning Outcomes of Experimental Classes and Control Classes

Comparison of student communication skill in class XI IPA2 as a treatment class taught using audiovisual learning media with class XI IPA1 as a comparison class taught without audiovisual learning media, can be seen in table 5.

Table 5. Comparison of student communication skill in class IPA1 and IPA2

<i>Class</i>	<i>Average</i>	<i>Standard Deviation</i>	<i>Variance</i>
IPA ₁	76,07	11,873	140,961
IPA ₂	82,13	1,888	106,947

2. Discussion

The result shows that the experimental class taught using inquiry-based audiovisual media has a better (higher) score than the control class taught without audiovisual media and diagrams while applying the inquiry approach. This difference shows that students' communication skills in constructing an understanding of the teacher's material are determined by the presence of highly interactive learning media that stimulates the senses of hearing and sight. The use of instructional media helps teachers explain the material presented to students and helps improve student learning outcomes. The use of learning models also supports success in teaching.

In the inquiry learning approach, students are involved in the learning process with the problem determination stage to present the answer as the end of learning. In the experimental class, after listening to a visualized problem, students could solve the problem by constructing an answer based on what was understood and learned during learning. Meanwhile, students in the control class cannot build their solutions based on what they learned; the constructed discussion is inaccurate or detailed.

In the experimental class, students are more active in participating in learning. It is easier to understand and explain the material they know again. Students find it easier to answer questions from the teacher. Besides, this audiovisual media can clearly show the excretory organs' metabolic processes so that these metabolic processes are easily understood. According to Suprijanto (2007), the primary purpose of audiovisual aids, if it is related to education, is not for entertainment. However, so that the learning process is more exciting and fun. Amriyeni (2013) concluded that audiovisual media could affect increasing learning outcomes of regional dance

The treatment applied by the teacher using audiovisual media has several limitations in listening and recording the teacher's material, a lack of interest and motivation to participate in learning, so that students' communication skills are deficient. Arsyad (2007) suggests that learning media in the teaching and learning process can increase interest in learning, motivation and stimulation of learning activities, and even bring psychological influences on students.

Based on the results of descriptive analysis, the researcher found that there were differences in students' communication skills in the experimental class and the control class. The average value of students' communication skills in the practical class was 82.13, while in the control class, the score was 76.07. In line with these result, it proved that there was an influence of audiovisual media on the ability to communicate the human excretion system material in SMA Negeri 1 Lambuya students.

The effectiveness of using audiovisual media on the ability to communicate the material can achieved because the use of inquiry-based audiovisual media that is applied can trigger the desire, interest and motivation of student learning. Besides, students are more active in visualizing material content that is more interesting and fun with audio (sound) and visual (images) combined with video and animation. Students can construct themselves and re-explain the material understood during the learning process, both orally and in writing.

E. Conclusion

The ability to communicate human excretion system material to students taught using audiovisual media reaches an average value of 82.13. In contrast, students who are taught without using audiovisual media reach an average of 76.07 with a significant level of 95%. Thus, audiovisual media affects the ability to communicate biology material for students taught using audiovisual media with students taught without audiovisual media in class XI SMA Negeri 1 Lambuya.

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