Guided note taking based on students worksheet effect towards students learning outcome

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Abstract. This research aims to discover the effect of students worksheet based on guided note taking towards the learning outcome of students both individually and as a group. The method implemented in this research is Quasi-experimental research with the Nonequivalent Control Group Design of 138 population and 82 students as samples. Instruments used in this research are multiple-choice questions to measure the learning outcomes, syllabus, learning implementation plan, and learners’ worksheets. The data collection process was conducted by looking for the post-test and pre-test values as well as t-test to compare it to pre-test and post-test scores. Data analysis was conducted using an Independent Sample T-test testing at a significant level of 0.05. The result of Independent Sample T-test testing at the outcome of control class indicates that the outcome (Mean=77.48, Standv=4.830) is different from the value in experiment class (Mean=84.93, Standv=3.672), t_count= 7.89 > t_table 1.66 at the Sig. (2-tailed) level of 005. It can be concluded that students who use the guided-note-taking based learners’ worksheet as a group show a better learning outcome compared to the students who use guided-note-taking based learner worksheets individually at Ingin Jaya High School Aceh Besar.

1. Introduction
Learning is a process that contains a series of actions of teachers and students on reciprocal relationships that take place in educational situations to achieve certain goals [1]. Teachers have an important role in the learning process; among the roles of the teacher is to make learning designs using learning materials that are tailored to the conditions of students and school conditions [2]. A good teacher is a teacher who is not only able to master the material being taught, but also can create a learning atmosphere that can make students interested and motivated so they could be active in the learning process [3].

One of the problems faced today is that teachers do not encourage students to be active in taking notes that consist of important points. One way that teachers can do to overcome this problem is to use teaching materials. Teaching materials surely determine teaching and learning activities since teaching materials are the core of the learning process. Teaching materials also help students to improve their understanding and even expected to improve the learning outcomes [4]. One example of teaching materials that can be used by teachers is the Student Worksheet or currently called the Learner Worksheet.

Learner worksheets are one of the learning resources that can be developed by educators as facilitators in learning activities. Learner worksheets that are arranged can be designed and developed
According to the conditions and situations of learning activities that will be encountered [5]. According to [6], Learner worksheets are sheets containing assignments that must be done by students. Student worksheets contain a set of basic activities that must be carried out by students to maximize understanding in an effort to form basic abilities according to indicators of learning achievement that must be taken [7].

Guided Note Taking is one of the active learning strategies chosen to assist in the delivery of teaching material using hand-outs by summarizing the key points of a lesson delivered through a lecture [8]. Guided Note Taking is also one of the lessons that use a summary guide of the main points derived from the learning material. Some parts of the summary of notes that are considered important are made by providing blank spaces that will later be filled in by students [9]. The main purpose of taking notes is to capture important points from a textbook or lesson and save them, so that they can be used later on for revision, especially for taking exams or writing summaries and reports that require notes [10]. Guided Note Taking used in a very interesting way to know the level of ability or attitude of students in the classroom. The advantage of this strategy is that teachers can quickly find out the abilities of students in large classes. Another advantage is that students can be active in learning [11]. Guided notetaking can also be a teaching material (handout) that is included in the sub-topic of the subject matter, by giving enough free space so students can make notes in it [12].

Based on the results of initial observations at Ingin Jaya High School of Aceh Besar through interviews with biology teachers, the learning outcomes for the Biology subject of students with current learning styles have a relatively low average exam score. This can be seen from the average test scores of the Biology subject regarding the excretory system, which is below the average minimum completeness criteria of around 75%. The learning process of Biology in Ingin Jaya High School of Aceh Besar does not use learner worksheets. This causes students to be less eager to learn the materials. Thus, other innovations are required; one of which is in the form of student worksheets that can refine students’ abilities in producing an important note that contains important summaries of teaching material. One of the innovations needed is a Guided-note-taking based learner worksheet.

2. Methodology

2.1. Approach/Type of Research

The approach taken in this research is a deductive approach, which is through concluding from general to specific conclusions based on observations. Qualitative research method also implemented which is to describe, conclude and solve problems using numbers that include numerical data collection, data summaries and drawing conclusions based on data [13]. The type of research is quasi-experimental research, which is an experiment that has a control class but does not fully control the external variables that influence research [14]. The design used is Pretest-Posttest Non-equivalent Control Group Design [15] as shown in Table 1.

| Table 1. The Pretest-Posttest Non-equivalent Control Group Design |
|---------------------------------------------------------------|
| Group | Pretest | Treatment | Posttest |
|-------|---------|-----------|---------|
| E     | O₁      | X         | O₂      |
| C     | O₃      | -         | O₄      |

Descriptions: E= Experiment Group; C= Control Group; O₁ = Provision of Pre-test for experiment group; X= Learning process using guided-note-taking based learner worksheets; O₂= Provision of Post-test for experiment group; O₃= Provision of Pre-test for the control group; O₄= Provision of Post-test for the control group
2.2. **Time and Place**
This research has been conducted at the Sub-District of Ingin Jaya, Regency of Aceh Besar, specifically at the High School No. 1 Ingin Jaya and Al-Falah Islamic High School. Data collection was conducted in the Even Semester of 2016/2017 Academic Year from March to April 2017.

2.3. **Research Instruments**
The types of instruments developed include learning tools, such as Learning Implementation Plans, Guided-note-taking Learner Worksheets, as well as the pre-test and post-test questions.

2.4. **Population and Samples**
The population chosen in this research is the entire students of class XI of Ingin Jaya High School Aceh Besar as many as 138 students. The sample collection process was conducted using purposive sampling technique, which means the sample was chosen because of certain characteristics or objectives; usually, the sample was chosen based on previous researcher's knowledge of the population, including the elements contained in the sample in accordance with the purpose of the study [16]. Samples chosen for further analyzed in this research are 41 students of Ingin Jaya High School No. 1 and 41 students of Al-Falah Islamic High School.

2.5. **Data Collection Technique**
Data to measure learning outcomes on excretion material is obtained through multiple-choice objective tests (pre-test and post-test).

2.6. **Data Analysis**
The data obtained will be analyzed through a normality test using Kolmogorov-Smirnov with the help of SPSS software version 18. This software is also used to analyze the differences between the pre-test and the post-test by using the homogeneity Paired sample t-testing using Levene Statistics and hypothesis testing with the Independent sample t-test.

3. **Result and Discussion**
The normality test was conducted using Kolmogorov-Smirnov testing which aims to determine the harmony or suitability of the data with whether a normal or not-normal distribution. The significance level is $\alpha = 0.05$; if significant value resulted is $> \alpha$ it can be assumed that the data is normally distributed. Meanwhile, if the value is $< \alpha$ data is considered as not normally distributed. The normality of learning outcome is listed in the following Table 2.

**Table 2. Normality test for Pre-test and Post-test of learning outcome at the control and experiment class**

| Class     | N  | Average | Normality Test | Homogeneity Test |
|-----------|----|---------|----------------|------------------|
| Control   | 40 | 77.48   | 0.87 > 0.05 (Normal) | 0.25 > 0.05     |
| Experiment| 42 | 84.93   | 0.86 > 0.05 (Normal) | (Homogen)       |

Table 2 above indicates that the pre-test score of both control class and experiment class has a significant value of $\text{Sig. } \alpha > (\alpha = 0.05)$ so it can be concluded that the data is normally distributed. Moreover, the score of the post-test for both control and experiment class has a significant value of more than $\alpha = 0.05$. Thus, the data is distributed normally, and this process is continued to the homogeneity test.

The homogeneity test of learning outcome indicates the value of 0.25 > 0.05, so it can be assumed that the data is homogenous.

To further observe the mean (average) value of pre-test and post-test scores, the data is shown in Table 3 below.
Table 3. The average value of pre-test and post-test of students at Ingin Jaya High School

| Class            | N  | Maximum | Minimum | Mean    | Standard Deviation |
|------------------|----|---------|---------|---------|-------------------|
| Pretest_Control  | 40 | 84      | 55      | 66.73   | 8.086             |
| Posttest_Control | 40 | 87      | 67      | 77.48   | 4.830             |
| Pretest_Exp      | 42 | 84      | 55      | 66.62   | 7.796             |
| Posttest_Exp     | 42 | 92      | 78      | 84.93   | 3.672             |

According to Table 3, the pre-test value could be observed which indicates the data of students’ initial ability before the learning process takes place as well as the post-test score which shows the data of students’ final ability. The average pre-test score of the control class is 66.73 and the experiment class is 66.62. Meanwhile, the average post-test score for the control class is 77.48 and 84.93 for the experiment class. These scores are also proven by the significance test of the average value of learning outcome which shown in the following table.

Table 4. Significance Test for Students’ Average Pre-test and Post-test Score

| Statistics                   | t_{count} | t_{table} | Conclusion         |
|------------------------------|-----------|-----------|--------------------|
| Paired Sample Test Post-test control – Pre-test control | 7.79      | 1.68      | Significantly different |
| Post-test Exp - Pre-test Exp | 15.24     | 1.68      | Significantly different |

Table 4 indicates the result of the Paired Sample Test. For the control class, t_{count} value is 7.79 which is more than t_{table} value of 1.68. As in the experiment class, the value of t_{count} is 15.24 > t_{table} 1.68 which means there is a significant difference after the use of guided-note-taking Learner Worksheet. To further study the average difference between experiment class and control class, an Independent Sample t-Test testing was conducted.

Data that has been analyzed in the hypothesis test is the post-test score with difference-testing of the two Independent Sample T-test parametric statistical tests. The result of this hypothesis test indicates that the learning outcome of students who use Guided-Note-Taking based Learner Worksheets in a group is different from the one using it individually. This learning outcome is listed in Table 5 below.

Table 5. Difference test of two means of Students’ learning outcome in Experiment class and Control class

| Statistic | t_{count} | t_{table} | Conclusion         |
|-----------|-----------|-----------|--------------------|
| T         | 7.89      | 1.66      | Significantly different |

The result of the means difference in Table 5 shows that t_{count} value of 7.89 > t_{table} 1.66 at the significant level of 0.05 for the learning outcome of both experiment class and control class which use Guided-Note-Taking based Learner Worksheets. This means that there are significantly better differences in the learning outcomes of the two classes. Therefore, a hypothesis that stated “Students who use the Guided-Note-Taking based Learning Worksheets in a group demonstrated a better learning outcome compared to the student who uses the Guided-Note-Taking based Learning Worksheets individually” is considered to be acceptable.

The result of hypothesis testing indicates that the learning outcome of students who use guided-note-taking based learner worksheets in a group is different from the one who uses it individually. Learner Worksheets are very important to be used by teachers in both individual and group forms. Using learner worksheets, students are expected to be able to complete the assignments given by the teacher. Moreover, the use of learner worksheets is intended to improve the learning outcome of students. This expresses the same idea as mentioned by [17] who stated that students who participate
in group learning can develop a sense of appreciation and respect for their peers, respect the opinions of others, also cooperate with the group in an effort to achieve common goals. The Guided Note Taking method appeals to be used in knowing the abilities and attitudes of students in the class. The advantage of this method is that teachers can quickly determine the ability of students in large classes. Another advantage is that students could be active in the learning method [12]. Collingwood and Hughes in [18] added that the use of guided notes helps students concentrate more on receiving subject matter because it is likely that students feel confused by the application of various learning strategies. Students who are given guided notes can capture information from the teacher during the lecture and use it to study before taking the exam. Guided notes during the learning process help student in understanding the material provided [19]. This view is in line with the result of research conducted by Ilma in [18] which indicated that the application of Guided Note Taking learning models can improve student learning activities as well as the outcomes. Student learning activities using the Guided Note Taking learning model are increasing. This is proven by how the students who used to be hesitant to express their opinion became confident and the students who refuse to work together became cooperative. Based on this point of view, it is perceivable that students who utilize the guided note-taking learning method have the same learning goal which is to achieve better learning outcomes.

4. Conclusion
Students who use the Guided-Note-Taking based learner worksheets as a group demonstrate a better learning outcome compared to the students who use the Guided-Note-Taking based learner worksheets as an individual at the Ingin Jaya High School of Aceh Besar. Thus could indicate that the use of guided-note-taking based learner worksheets is affecting students’ learning outcome.

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