The correlation between students’ interest and learning outcomes in biology

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Abstract. This study aimed to determine the correlation between students’ interest in learning biology with student learning outcomes in SMTA Banda Aceh. This research was conducted on October to December 2018. This research used quantitative and qualitative approaches with survey methods. Learning outcomes were obtained from grade ten report card in 2018. Research parameter was to see the correlation between students learning interest with student learning outcomes. The study population was all 404 students of nine grade IPA of SMTA in Banda Aceh. Purposive sampling was used for gaining sample consisting of 192 respondents. The data analysis used Product Moment Correlation with a significance level of α 0.05. The results of the study was that there was a significant correlation between students learning interest in learning biology with the learning outcomes of students in SMTA Banda Aceh with a mark of $r = 0.229$ at SMA N 5 Banda Aceh, a mark of $r = 0.246$ at SMA Insyafuddin Banda Aceh, a mark of $r = 0.040$ at MAN 1 Banda Aceh City. The conclusion of this research that it was found a significant correlation between students learning interest in learning biology with students learning outcomes in SMTA Banda Aceh.

1. Introduction
High School Biology Learning is one of the most important lessons in school learning, as stated in the Minister of National Education Regulation No. 22 of 2006 concerning educational content standards one of which is to develop the ability to think analytically, inductively and deductively using biological concepts and principles. Hoping that the role of biology is very important, students must take learning seriously. Not just learning, but it must be instilled with the strong intention to truly understand biological concepts, so that students are able to conduct scientific analysis, as well as be able to do research and everyday life. The quality of students who are assisted by teachers depends on what the teacher is doing in the classroom. In order to prepare students to become successful individuals in the future, biology teachers must teach effectively and have good teaching knowledge. The effort that should be taken by the teacher in the learning process is a learning approach that is more centered on students and directs to the learning outcomes of students.

Biology is one of the most important lessons in Senior High School, as stated in The Minister of National Education Regulation Number 22 Year 2006 concerning the standard of educational content, one of which is to develop analytical, inductive and deductive thinking skills by using biological concepts and principles. Considering the role of biology is very important, students must take the learning seriously [1]. Not just learning, but it must be instilled with the strong intention to truly understand biological concepts, so that students are able to conduct scientific analysis, as well as be
able to apply in research and daily life. The quality of students assisted by teachers depends on what teachers do in the classroom [2]. In order to prepare successful students in the future, biology teachers must teach effectively and have good teaching knowledge. The effort that should be taken by the teacher in the learning process is a learning approach which is more focused on students and leads to student learning.

In preparing students to become successful individuals in the future, biology teachers need to ensure effective learning. Effective learning is characterized by its nature which emphasizes the active empowerment of students. The learning emphasis on mastery of knowledge about what is done, but more emphasis on internalization, about what is done so that it is embedded and functions as a conscience and biological load and is practiced in daily life by students [3]. It is concluded that effective learning is a process of behavior change of the learning outcomes which they get from his experience and from his environment which brings certain influences, meanings and benefits. Teachers must have good teaching knowledge for learning biology. The effort which can be done by the teacher in the learning process is by using a learning approach which is more focused on students and directs to the learning outcomes of students. Student learning outcomes in learning biology are obtained through the students’ report card grades of students in learning biology in the last semester. Assessment of learning outcomes is defined as the process of assigning values to learning outcomes achieved by students with certain criteria. The assessment is conducted to determine the level of understanding of students towards biological material during the learning process. This research involves and exposes students to the conditions of learning which means that students continue to be cultivated in sustainable practice. Based on this, explaining the biological material in schools must be very meaningful and very useful to students as they build a competency framework.

In learning assessment is more emphasized on the results and tends to be cognitive in the form of objective test. Objective test in biology learning is less effective in knowing students' abilities because it can be manipulated by students by cheating on their peers. If the assessment is only tested through cognitive course, the purpose of education will not be achieved. Regarding students’ interest in learning, the problem has been studied by any researchers, but the results are not that satisfying. Based on previous research, it said that students’ interest in learning has a significant correlation with biology learning outcomes with weak correlation values [4]. Assessment is not only to find out whether the objectives have been set, but also to find out how students achieve it. Students’ interest in learning is needed as an impulse to achieve goals to meet needs. These needs are closely related to the learning process.

Based on preliminary observations on one of the Biology teachers at SMA Negeri 5 Banda Aceh about students’ interest in studying biology class XI, it was found that there were number of students who had an interest in learning Biology. The learning interest of students towards school subjects has been given at the beginning of school. However, students' interest can generally change during the learning process, it is shown from the attitude of students who change at the time after the previous grade promotion, class X students there were 57 male students and 100 female students of IPA classes in which there was Biology subject, but when they got up to class XI it turned into 53 male students and 89 female students. Based on this problem, it is necessary to know why each student can experience a change of learning interest in school subjects. One of the subjects is biology, which seems difficult to understand so that students tend to have low interest in learning. Student interest in learning is important because it can motivate students in achieving learning success. Therefore, it is needed to conduct research on the correlation between learning interest in Biology so that it can be a reference in developing methods and strategies in learning and also can improve students’ learning outcomes in Biology.
2. Methodology

2.1. Time and place
The research was conducted at Banda Aceh 5 High School, Banda Aceh Insyafuddin High School, and MAN 1 Banda Aceh City. This research was conducted for three months, in the even semester of October to December 2018/2019 Academic Year.

2.2. Research Instruments
The students’ learning interest in this study used a Likert scale questionnaire instrument. The Likert scale uses several questions to measure individual behavior by responding to 4 choice points on each question item. The use of a Likert scale with a 4-point score category is used to avoid students having doubts in answering questions, so it can show a maximum score in accordance with the condition of the students. Student biology learning outcomes in this study were measured through the final report card grades of class X even semester of 2018 received by students.

2.3. Population and samples
The population in this study were all students of class XI Science at SMA Negeri 5 Banda Aceh: 155 students, SMA Insyafuddin Banda Aceh: 65 students, and MAN 1 Banda Aceh City: 184 students. 2018/2019 school year, with a total population of 404 students.

Taking the number of samples in this study using purposive or purposive sampling. Sampling is done by taking subjects not based on strata, random or region, but it was based on the existence of certain objectives, specifically the science class related to learning biology. Each member of the population has the same opportunity to be elected as a sample member, namely all students of class XI IPA SMAN 5 Banda Aceh: 60 students, MAN Model Banda Aceh: 71 and SMA Insyafuddin Banda Aceh: 61 students with a total sample of 192 participants students.

2.4. Research Design
Judging from the relationship between variables, the independent variable is given the symbol X and the Bound Variable is given the symbol Y. The intended independent variable is Interest (X) in biology learning, the dependent variable is Student Learning Outcomes in learning biology (Y).

![Figure 1. Conceptual correlation of research variables](image)

2.5. Data collection techniques
The collection of data in this study through a survey method by distributing questionnaires containing writing questions to the research sample. Research does not rise a risk to the respondent, confidentiality of records regarding the respondent's data is maintained by not writing the respondent's name on the questionnaire. The data obtained from the respondent only be used for research purposes. Then the researchers asked respondents to fill out the questionnaire. The completed questionnaire was checked for completeness of the data. Then the researchers looked the correlation of variables to learning outcomes. Student learning outcomes was seen from the report card grades of students in class X.

2.6. Data analysis
The data that related to learning interest in learning Biology, first researcher know the preliminary test in research. In the preliminary test that needs to be counted is the Normality Test and Homogeneity Test using SPSS 20 for Windows. Data normality test in this study used the Kolmogorov-Smirnov
test, because the data used are interval scale or ratio (quantitative) data, single data / not yet grouped in the frequency distribution table and can be for large or small quantities [6]. Homogeneity test in this study uses the Levene Test. The levene test proposes to regress the absolute value of the residual to the variable [7]. The testing criteria is if \( \text{Sig} \geq 0.05 \) then \( H_0 \) is accepted and if \( \text{Sig} < 0.05 \) then \( H_0 \) is rejected [8]. The next step is calculating the data using correlation coefficient analysis which aimed to find the correlation between the variables studied. If the data is normal, then parametric tests are performed using Product Moment Correlation. The use of this correlation is conducted to test the correlation between variables X and Y. Product moment correlation technique is used to find the correlation and prove the hypothesis of the correlation of two variables, if the data both variables are in intervals or ratios. The product moment correlation technique uses SPSS ver 20 for windows. Product Moment correlation coefficient formula [9] with the correlation coefficient interpretation [10].

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 r_{xy} = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{(n \sum x^2 - (\sum x)^2)(n \sum y^2 - (\sum y)^2)}}
\]

| Coefficient Interval | Correlation Level |
|----------------------|-------------------|
| 0.00 - 0.199         | Very low          |
| 0.20 - 0.399         | Low               |
| 0.40 - 0.599         | Middle            |
| 0.60 - 0.799         | Strong            |
| 0.80 - 1.000         | Very strong       |

3. Results and Discussion
The description of student learning outcomes in Biology learning of Banda Aceh High School is obtained from the student report card grades displayed in the data table of the average student report cards. The average report card grades of students can be seen in Table 2.

| School               | Student Total | Mean |
|----------------------|---------------|------|
| SMA N 5 Banda Aceh   | 15            | 83.05|
| SMA Insyafuddin      | 29            | 80.19|
| MAN 1 Kota Banda Aceh| 44            | 86.35|

Based on table 2 shows the average value of student learning outcomes in each school has a difference. It can be seen that the highest average student report is the MAN 1 Banda Aceh with an average value of 86.35, while the lowest average student report is the Insyafuddin Banda Aceh High School with an average value of 80.19.

The number of test samples for learning interest of students of class XI IPA from all three schools is 192 students. Obtained the average value of student interest in learning Biology for 42.78 SMA N 5 Banda Aceh, 42.44 SMA Insyafuddin and 39.22 at MAN 1 Banda Aceh City. Based on the results of the average student interest in learning, SMA N 5 Banda Aceh obtained the highest score in student interest in learning by 42.78 and MAN 1 Kota received the lowest score in student learning interest at 39.22.

Furthermore, after each total from the independent variables and the dependent variable, prerequisite test was conducted. After knowing that the variables are normal and homogeneous, data analysis is performed. Data analysis uses product moment correlation test. The summary analysis of product moment correlation conducted with SPSS program tools can be seen in Table 3.
Table 3. Test the Correlation between Learning Interest in Biology Learning and Student Learning Outcomes in SMTA Banda Aceh City High School.

| School                  | Normality Test *) | Homogeneity Test **) | Learning outcomes | r *** | Mean | Sig |
|-------------------------|-------------------|----------------------|-------------------|-------|------|-----|
| SMA N 5 Banda Aceh     | 0.791 (Normal)    | 0.736 (Homogen)      | 83.05             | 0.229 | Sig  |
| SMA Insyafuddin Banda Aceh | 1.219 (Normal)     | 0.217 (Homogen)      | 80.20             | 0.246 | Sig  |
| MAN 1 Kota Banda Aceh  | 0.844 (Normal)    | 0.190 (Homogen)      | 86.35             | 0.285 | Sig  |

*) Kolmogorov-Smirnov Test, if P> 0.1 (Normal)
**) Gleijser Test, if P> 0.1 (Homogeneous)
***) Product Moment Correlation Test (Pearson)

In Table 3 Correlation Results between learning interest towards learning outcomes obtained correlation coefficient (r = 0.229 SMA N 5, r = 0.246 Insyafuddin SMA and r = 0.285 MAN 1 Banda Aceh City. Results in SMA N 5, SMA Insyafuddin and MAN 1 banda Aceh shows that there is a correlation between learning interest with learning outcomes and it refers to the category of low coefficient interpretation, is at the correlation coefficient interval r = 0.20 - 0.399. Based on the results of analysis of tests that have been conducted, the conclusion of hypothesis is “there is a correlation between Interest in Learning Students on biology learning towards student learning outcomes in Banda Aceh High School” were accepted.

Based on the results of research on learning interest in SMTA Banda Aceh, it is known that the average value of learning interest of students in learning biology is in high category with learning outcomes above the minimum completeness criteria (Kriteria Ketuntasan Minimum [KKM]) value of 70.00-75.00. The level of correlation between learning interest and student learning outcomes shows adequate interpretation (Table 1). The low interpretation of the correlation between students' interest in learning outcomes can be seen from the results of students' interest questionnaires. From these results there are factors that affect interest, namely internal factors such as interest and pleasure in biology lessons, convenience in learning and enthusiasm in participating on the biology learning process. Besides intensive attention in receiving learning, a strong curiosity to know more about something is also a factor that comes from within self, giving rise to a strong desire and enthusiasm to achieve the goals of good learning outcomes. In addition, external factors also affect students' interest in learning, such as the learning strategies is not suitable and is not enjoyable. It affects the students feeling bored and cannot concentrate on participating in learning, so that it can cause decreased interest in learning. The material that is felt too much can also cause students to be lazy in learning. Inappropriate and monotonous methods can also affect students' interest in learning.

Based on preliminary observations on the thoughts and student’s point of views in determining and carrying out learning activities depend on the biological learning situation experienced by students in the classroom, so that it can cause a sense of interest or disinterest in learning students. An interesting learning process is designed by teachers to attract the interests of students so that learning is more effective. Teachers who are successfully foster and attract learners in learning, means they have done the most important thing in the learning process [11]. The interests of students and the learning process can be related each other, also they are expected to interact and influence development [12]. Both of student’s interest and teacher’s behavior have a significant interactive influence on learning outcomes [13]. Insufficient time in implementing the method can hamper learning and cause a decrease students' interest. This study is in line with Kpolovic who states that students’ learning interest can predict the decline and increase in academic performance of students and teachers play an
active role in improving learning interest in biology learning [14]. In this case, the teacher is encouraged to use a variety of materials and approaches that increase students’ learning interest.

4. Conclusion

The results of research and discussion about the correlation of learning interest with student learning outcomes, it can be concluded: There is a positive and significant correlation between learning interests with learning outcomes in learning biology of students in SMTA Banda Aceh City. Thus, the higher of students’ learning interest is in line with the higher learning outcomes they have.

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