The relationship between learning process interactions and student’s learning outcomes in environmental sustainability matter geography-social science education subject

A E Sejati¹, S Kasmiatı², F A Ikhsan³
¹Department of Geography Education, Universitas Sembilanbelas November Kolaka, Southeast Sulawesi, Indonesia
²Department of Archeology, Haluoleo University, Kendari, Indonesia
³Department of Geography Education, Jember University, Jember, Indonesia

*E-mail: andriest@usn.ac.id

Abstract. Interaction is one of the vital points for success in the learning outcome. This paper aims to determine the relationship between interactions in the learning process and students learning outcomes in the environmental sustainability matter. This paper is a correlation. The research sample used proportional random sampling in a total of 46 students. The paper results show a significant test by the F-test is F-count 53.350 with F-table 4.03 (F-count> F-table) or a significant level of F of 0.000 <α = 0.05, interaction variables learning has a significant effect on student learning outcomes. Simple Linear Regression can be explained that the regression coefficient for the learning interaction variable is 0.548 times, can be interpreted as a positive relationship between the interaction of learning and student learning outcomes will increase 0.548 times. There is a relationship between interactions in the learning process with social studies learning outcomes of students at Junior High School State 1 of Meluhu reaching 54.8%.

1. Introduction
Many factors influence student goal in the learning process. These factors include: how to organize material, methods, and media. Another factor that contributes to the success of learning is learning interaction. Teaching and learning interactions must consider the tools, facilities, and media that will be used that can increase learning goal [1].

Learning interactions mean the existence of interaction activities from teachers or teaching staff who carry out teaching tasks with students carrying out learning activities. One indicator of quality education is the acquisition of student learning outcomes. Learning outcome in this paper focuses on the river environment sustainability, one of matter in Geography-Social Science Education subject. Factors that influence the success in teaching and learning activities are: (1) Input instruments include: curriculum, library, and teacher. (2) Raw input includes students and learning motivation. (3) Environmental inputs include the physical and socio-cultural environment. Social cognitive theory is constructed from two main factors; there are (1) student (internal) behavioral factors; and (2) student (external) environmental factors in learning [2].

This paper focused on the students interacting in the matter river sustainability in part of Geography-Social Science Education subject. Rivers in Meluhu mountains get erosion from land use and other human activity. Students can survey it and get the wisdom on how to protect from erosion.
The student interacts with the teacher in both the class and the outdoor class. Students faced the authentic matter in the real environment in the form of the real world, picture, and video. Education enhances human abilities, which can be influenced by habituation [3].

Educational goal are fulfilled determined by various elements that support them. Things that are contained in the teaching and learning process are (1) Students, with all their characteristics trying to develop themselves as optimally as possible through learning activities; (2) Learning goal, things that are expected after the teaching and learning activities. (3) Teachers always strive to create the right situation so that it allows the learning process to occur. Law No. 20 of 2003 education aims to develop the potential of students [4].

Increasing motivation and student learning achievements can’t be separated from the role of the teacher as the part who teaches guiding students. This implies that both the teaching and learning process is the process of interaction between teachers and students based on educational relationships in order to create goals. The activities of interaction and reciprocal communication between teachers and students in an educative atmosphere can achieve learning goals [5].

Interaction in the learning process is one of the most decisive factors. Complete teaching material given, the method used, if the learning interaction is not good, then the learning objectives cannot be achieved. Interaction is also an important point in teaching and learning activities because students get benefits, and the teacher gets a picture of the many students who absorb the material. Interaction is one of the factors which has an enormous influence on learning outcomes. Students who interact a lot are thought to have good learning outcomes. The learning process there is a process of interaction between teachers, students, and learning resources in one a learning environment that makes education programs work well [6].

Junior High School State 1 of Meluhu as one of the schools in the Meluhu sub-district of Konawe District based on preliminary observations is known that the teacher only gives assignments to note to students and explains its results. Students are not allowed to ask questions, so there is no feedback between the teacher and the students, which results in the students tend to be quiet. Learning that does not provide opportunities for students to develop themselves is because they still view students as objects [7].

Student’s interaction in the learning process is rarely counted in form correlation in other research and also the relation with the learning outcome. The research 1 count interaction tools way by chi-square test and relation with using whiteboard technology [8]. The second research count interaction with multiple regression and relation with student learning comfort [9]. The research three descriptions the interaction and relation with learning model [7]. This study aims to find out the relationship between interactions in the learning process and students social studies learning outcomes in river environment sustainability matter — one of Geography-Social Science Education subject.

Research in this paper, students trace the upstream environment and record the damage and preservation that occurs. The upstream environment determines the downstream condition. Other research focuses on education in river pollution [10]. Other research focuses on education about benefit river in daily life, like watering farming field and garden [11].

2. Method
This type of paper research is quantitative. This paper used a survey method with correlation. This study was designed to know the relationship between independent variables (learning interactions) and dependent variables (learning outcomes in river environment sustainability matter). This research was conducted at Level 1 students of Meluhu Junior High School in the Meluhu sub-district of Konawe District at VIII class semester two of the 2016/2017 school year with a total of 46. The taken time from February to August 2017. This paper used research matter about river environment in the mountains of Meluhu, Konawe district. The environmental sustainability is one of subject matter in Geography-Social Science Education subject.

Data collection techniques used documentation to obtain student learning outcomes and data that has been available or documented by the school, such as the number of students. The questionnaire is
used to measure interaction variables in the learning process. Questionnaires are developed based on references to theories built and conditions in the field. Facilitating the data analysis, the respondent obtained score is necessary to know [12]. A positive statement of choice of the very agree scoring criteria (score 4), agree (score 3), average (score 2), disagree (score 1) — negative statement of answer choices and reverse scores.

3. Results and Discussions

3.1. Result
Interaction variable data from questionnaires consisting of 20 statements with a scale of 1 to 4. Theoretically, the highest score is 80 (4x20), and the lowest score is 20 (1x20). The questionnaire score is averaged by then the average is converted into the form of the value of the variable X. Data distribution can be visualized using SPSS 16 for windows help generate interaction columns and learning outcomes columns. Data from the description of learning interaction variables (X) are N 46, average value 58.05, standard deviation 988, highest value 70, lowest value 38, median 59.00, mode 54, variance 44,935, and range 32. Based on these data, it can be seen that the amount of learning interaction scores achieved by students empirically is in the range 38-70 with an average value of 58.05.

Learning outcomes data are shown in the following table.

| No | Value | Category | Student | Percentage |
|----|-------|----------|---------|------------|
| 1  | ≤60   | Less     | 0       | 0%         |
| 2  | 60-70 | Enough   | 8       | 17.4%      |
| 3  | 71-79 | Good     | 30      | 65.2%      |
| 4  | 80-100| Very Good| 8       | 17.4%      |
| Σ  |       |          | 46      | 100%       |

Based on table 1, there are 30 students or 65.2% are categorized into the good category of learning outcomes, there are eight students or 17.4% categorized into the excellent category. The good dominant category in achieving student learning outcomes. Student learning outcomes (Y) obtained the following data details: N (46), mean (76.02), standard deviation (6,500), maximum value (93), minimum value (65, 00), median (75.00), modulus (70), variance (42,244), and range (28).

The normality test of the data is intended to find out whether there is a study from a population that is distributed normally or not — test for normality using SPSS 16.0 for Windows. The normality of the data is determined using the Skewness ratio and Kurtosis ratio. Skewness ratio is the Skewness value divided by Skewness error standard, while the kurtosis ratio is the kurtosis value divided by the kurtosis error standard. If the ratio of Kurtosis and Skewness is between -2 to +2, then the data distribution is normal. Normality results using SPSS 16.0 for windows obtained a Skewness statistic of 0.780, std error 0.350, so the Skewness ratio 0.780/0.350 results 2. Kurtosis statistic 0.095 and std error 0.688 then the Kurtosis ratio 0.095 / 0.688 the result is 0.1. Skewness ratio and Kurtosis ratio are between -2 to 2; it can be concluded that Learning Interactions (X) and Student Learning Outcomes (Y) are distributed normally.

The linearity test of measuring instruments aims to determine whether a linear measuring instrument or not. The linearity test results processed using SPSS 16.0 for windows data show that the deviation from linearity of research for X * Y is p 0.001 < 0.05. This indicates that the data analyzed has linear.

By using the research data, as illustrated in the description of the variable description, simple regression methods are used that are processed using the SPSS 16.0 for windows program. This is done to find out whether there is a relationship between the interaction in the learning process and the
student learning outcomes. Linearity Testing The measurement tool uses the Regression equation: 
\[ \hat{Y} = a + bx. \]
From management using SPSS 16 for windows produces Coefficients which means Coefficients. Then the regression line can be calculated: 
\[ Y = 34,357 + 0.718X \] (Fh = 53,350; p < 0.000). And the results of regression linearity testing that has been obtained by 
\[ Y \times X \text{is} p = 0.001 < 0.05, \] which means the regression coefficient Y on X is linear and significant.
Based on the estimation results using the SPSS 16 for Windows program, the following coefficient values are obtained:

\[ Y = 34,357 + 0.718X \]

The above value shows the regression coefficient for the interpersonal variable in the learning process is 0.718 times; it can be interpreted that there is a positive relationship between interactions in the learning process and the student learning outcomes. So that it can be interpreted that if the interaction variable in the learning process increases one time, then the dependent variable of Social Sciences learning outcomes will increase by 0.718 times. To prove the interaction variable in the learning process has a significant relationship to student Social Studies learning outcomes, the correlation test, t-test and determination coefficient (R2) are used as follows: First, after it is known that the interaction data in the learning process is normally distributed, the data are tested for correlation. The results of the correlation analysis using SPSS 16.0 for Windows obtained 
\[ r_{\text{count}} = 0.740. \] These results were compared with r table at the level of \( \alpha = 0.05 \) with \( dk = n - 2 = 46 - 2 = 44 \), so that \( r_{\text{table}} = 0.297 \) was obtained. Then \( r_{\text{count}} > r_{\text{table}} \) can be concluded that \( r \) is significant and H0 is rejected. This means there is a significant relationship between interactions and student learning outcomes.

Second, before testing, we first formulate the statistical hypothesis, namely: 
\[ H0: b_i = 0 \text{ and } H1: b_i \neq 0. \] Hypothesis testing can also be done by comparing the F-sig value with \( \alpha = 0.05. \) If \( F - \text{sig} < \alpha \) then accept H1 or reject H0. Conversely, if \( F - \text{sig} > \alpha = 0.05 \), then reject H1 or accept H0. Based on calculations using the SPSS 16.0 program obtained F-count value of 53.350 with f-table 4.03 (F - count > F - table) (F-count> F-table) or with a significant level of F of 0.000 < at \( \alpha = 0.05 \), then concluded that the interaction variable in the learning process has a significant effect on student learning outcomes.

Third, the determined coefficient (R2) in the measure measures how far the model's ability to explain the dependent variable. Knowing the magnitude of the contribution of interaction in the learning process to the learning outcomes of Junior High School State 1 of Meluhu students can be done by looking at the coefficient of determination (R2). After finding out there is a correlation and significance between variable X and Y variable then the coefficient of determination analysis is performed to find out how much the prediction level between variable X and variable Y applies to the entire population of students studied. This determination coefficient is calculated using SPSS 16.0 for Windows. R square or R2 = 0.548 is obtained or 54.8% of the variation that occurs in student social studies learning outcomes (Y) can be determined by learning interaction variables (X) through the regression equation \( \hat{Y} = 34,357 + 0.548X \) while the remaining 45.2% is explained by other variables not examined in this study. This study shows that to improve student learning outcomes, good learning interaction is obtained. The better the learning interaction that is owned by students, the higher the student learning outcomes, conversely if the interaction of learning is done by teachers, students, and other students, the lower the student learning outcomes.

3.2. Discussion
The implementation of good teaching is dependent on good planning. Teaching cores interaction between teacher and student in the learning process. The process of learning and teaching is a different thing but forms a unity, like a two-sided coin. Learning is an activity carried out by students. Teaching activities carried out by teachers can affect student learning activities. Teaching is the process of organizing several potential sources properly and correctly so that the learning process occurs [13]. Teaching is a process of organizing, organizing the environment around students so that it can grow and encourage students to do the learning process [14].
Learning interactions between teachers and students instead involve students who are in the classroom, do not only involve one or several people so that the process of delivering material between learning information both of them. For that one, the role of teachers as a mentor, learning leaders, and facilitators in the class able to create a pleasant and enjoyable atmosphere and the possibility of students developing their potential to be greater. Interaction in learning takes place with as much time as possible, involving all students, and the media [15].

A pleasant learning atmosphere will result in students becoming motivated and activated in learning in class and more confident in interacting with the teacher when the learning process occurs; the impact will be intertwined with good interaction between teacher and students when the learning process takes place. So that, it builds learning interactions in a better direction and is expected to improve student learning outcomes. Learning about the surrounding river environment makes the process of interaction better, especially the sustainability of the river environment. The environment with good interaction makes student learning successful [16].

The teacher teaches with approaches that are prescriptive or expository, so students will learn by accepting, and if the teacher teaches using an approach that activates students more, such as the discovery incur approach, students are also learning actively too. The use of models in different learning makes interactions different [17].

Educative interaction means that the interaction takes place in order to achieve educational goals. Interaction, in this case, aims to help students develop their full potential. In accordance with his ideas and his life can benefit himself, society and the Nation. Interaction in the learning process is a factor that significantly determines learning outcomes because however perfect the method is used, but if the teacher's relationship with students is not harmonious, it can create an undesirable outcome [18]. The interaction between educators and student participants occurs because of mutual need; students want to learn, and educators guide and foster students by providing several knowledge to students in need [19].

More obstacle is authoritarian attitudes, introvert from the teacher, passive students, the number of students who are too large, the situation and background of the teacher itself, and the students. It is necessary to develop a democratic and open attitude of the teacher. There needs to be activated by the students, and the teacher must be friendly. Otherwise, students must be polite. Respect for mutual respect, if this can be fulfilled, there will be a harmonious interaction between teacher and students in the learning process. Students 'high chance of interacting by avoiding large class and forming small groups so that students' understanding increases [20].

Direct observation of the material of the river environment in the mountains of Meluhu, Konawe district makes student interaction higher among students, with the teacher, and the object being studied. This can improve student learning outcomes. Outdoor study learning increases student motivation because it interacts directly with both human and physical objects and between students and teachers [21].

Hypothesis testing in this study used simple linear regression analysis and the correlation between learning interactions (X) and student social studies learning outcomes (Y). From the results of regression testing, the higher the learning interaction, the higher the social studies are learning outcomes of students. The lower the learning interaction, the lower the social studies learning outcomes of students. Interaction is one thing that can increase student success in understanding the matter [22].

The Determination Coefficient Test shows that there is a very positive significant relationship between learning interactions and students' social studies learning outcomes. One of the variables that must also be considered in improving student learning outcomes is the learning interaction. Thus H0 is rejected, which means that there is a very positive relationship between the interaction of learning and social studies learning outcomes of students. Interactions in learning contain more meaningful learning [23].

The river environment is related to the coastal environment. Its because river estuary ended in the coastal area, for example, river in Konawe like Konawehe river and other ended in the coastal line in
Kendari and Eastern area in Konawe. If there are big erosions, it makes sedimentsations in the coastal area big too. Big sedimentsations make the fish in the coastal area decrease. If there is little erosion, make sedimentsations in the coastal area small too, and the fish can live life in a good environment.

The student's interaction in the river environment can save the environment from erosion and can support people in the coastal community to protect fish in the coastal area — sediments fluxes from watersheds affecting to the worldwide coastal system [24].

The effect after students in VIII class Junior High School State 1 of Meluhu understands about the damage and preservation that occurs. Students apply what they find in the learning process to their surrounding environment, such as small plant tree in the river swales, set the sign "not build a building and cut the trees in river swales". Learning with outdoor can form person familiar surrounding environment and can direct nature respect and its sustainability [25]. According to Özdilek et al. (2011), education with outdoor in the environmental theme can increase awareness, and positive attitudes related to the environment [26].

This theoretical paper benefit is added the reference about learning interaction correlates to the learning outcome. The practical paper benefit is teacher information to perfect in the next learning. The recommendation for teacher big attention in interaction, they make high interaction for the high learning outcome. Teacher in applying learning to improve interaction can influence student quality [27].

4. Conclusion
This paper conclusion there is a significant relationship between learning interactions and social studies learning outcomes of students at Junior High School State 1 of Meluhu. This means the higher the students learning interaction, the higher the students learning outcomes. The student improves their understanding of the river environment and apply it in theirs Surrounding environment, such as plant small tree in the river swales and set the sign river environment awareness.

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