THE INFLUENCE OF LEARNING STYLE ON SCIENCE PROCESS SKILLS AND STUDENT LEARNING OUTCOME OF DIGESTIVE SYSTEM MATERIAL

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ABSTRACT

This study aimed to analyze the learning style on science process skill and learning outcome class XI digestive system in State Senior High School of Kisaran, Asahan. This method applied a descriptive study with a quantitative approach. Samples were taken from four schools, each one class totaling 144 students by using purposive sampling. To obtain the data, the description test was used as a questionnaire to determine student learning styles. The high results are visual with a percentage of 38.19. Then the student science process skills instrument with indicators such as observing, classifying, interpreting, predicting, asking questions, hypothesizing, planning experiments, applying concepts, and communicating in biology learning. The results on science process skills of the digestive system material were categorized as good with a score of 82.06 and the highest indicator for observing obtained a mean score of 86.63.with a very good category and the lowest indicator for applying the concept obtained a score of 79.16 a good category. The learning result test obtained a score of 89,04with a very good category. The high score of C6 was obtained at 91.43. and lowest C5 obtained 72.22.

Introduction

According to (Masruddin, 2018) learning style is a combination of cognitive, affective, and physiological characteristics that serve as a relatively stable indicator of how students perceive, interact, and respond to the learning environment, consciously or unconsciously, when a person is absorbing information, that's where learning generally occurs. But in general, they are not aware of how to absorb information, through seeing (visual) listening, and speaking (auditory) or practicing (kinesthetic) so that the information receivedcan last a long time in student feeling and memories. A person may predominantly learn using either one. Another possibility that occurs is absorbing information through a combination: visual-auditory, visual-kinesthetic, auditory-kinesthetic; or a combination of the three evenly, or one is slightly more dominant than the other. Learning style needs to be known by students and teachers including;

students, by knowing their learning style, they are expected to be able to absorb information maximally. For a teacher, so that, they can facilitate learning in their class according to the learning style that students prefer.

The aim is to ensure the learning need of students in each category of students can be met. This is often referred to as "teaching around the cycle". Based on the results of research in upper-middle-class schools in the united state (Posey-Maddox et al., 2014). The percentage obtained is 20-30% auditory, 40% Visual, 30-40% kinesthetic learning style. Also stated that for the high school level, the percentage of learning style most often was visual 30%, mixed 30%, auditory 25% and kinesthetic 15% learn each student in one class. After knowing each student's learning style, developing the realm of attitudes, knowledge, and skill are very influential in the development of education today. One of the skills that students must have in learning biology is science process skills consist of observation, classification, prediction, predicting, asking questions, formulating hypotheses, designing experiments, applying concepts, and communicating (Karamustafaoğlu, 2011). To develop science process skills, students must have a good learning style, because students are required to be able to carry out according to indicators that will affect the experience knowledge and learning outcome (cognitive, affective, and psychomotor) of students maximally (Rumapea et al., 2017).

Based on observations on March 2, 2020, which was carried out at state senior high schools in Kisaran on learning biology utilizing interviews with teachers and student, information has been obtained that the problems found in the field are that so far the state senior high schools in the range have made efforts to improve the quality of education, including, innovative learning strategies, use of instructional media and use tools in assessing the level of student success (Ampofo et al., 2020). However, in terms of getting to know each child with their learning style, there is still less attention. They realize that in one class each student has different learning style characteristics. Some have one learning style but there is also a student who has multiple learning styles, this can be seen at the end of the assessment in each lesson. In biology lessons, some ingredients can make students active, especially in practicum activities

(Duda et al., 2019). There it can be seen that some chilidren are very enthusiastic and there also some children who do not respond to learning activities. Biology teachers at state senior high schools in all cities are aware of this and the need for strategies and assisting students in achieving their learning outcomes. Then based on the result of an interview with students, information was obtained that most of them had not yet recognized their respective learning styles. Class XI students Senior High School in Kisaran prefer biology learning activities when see directly (visually) be it from viewing the picture, practicum directly, and field activities. Studies realize that each of them has weaknesses in their learning style in each material that is explained even randomly, sometimes in one chapter is easy or not to accept the material being taught (Forsyth, 2014).

According to (Schmeck, 2013) referring to the background description in advance it is necessary to research to reveal student learning style on science process skill

student learning style on learning outcome so that author very interested in researching the effect of learning style on science process skill and student learning outcome biology subject. Which is expected that student will later know, understand their respective learning styles so that they can receive learning with optimal results (Tileston, 2010).

Based on this, it is necessary to conduct research feel the need to conduct of study entitled "the influence of learning style on science process skills and student learning outcome in the digestive system material of class XI State Senior High School in Kisaran District, Asahan Regency (Ambrose et al., 2010).

Research Methods

This study applied a descriptive study using a quantitative approach. The population was all State Senior High Schools in Kisaran District for the academic year of 2020/2021. Research on conducted in four schools with total a population of 792 students. The sample was taken from each school in one class with a total of 144 students. The sampling technique was carried out by purposive sampling which previously gives a questionnaire to determine the learning style tendency. The research is a quantitative study with a correlational descriptive method that is *expostfacto.* the instrument used to test science process skills previous learning outcome has been validated. The data obtained were analyzed statically with the help of SPSS 22, before tasting the hypothesis, the normality test carried out using *Kolmogorov Smirnov* and homogeneity test using *leave test*. Furthermore, hypothesis testing carried out using the ANOVA test, and further testing using to see the effect of a more dominant learning style on science process skill and learning outcome.

A. Data Collection Technique

The data collection technique used a question sheet in the form of a description questionnaire learning style which consists of question items arranged based on visual, auditory, kinesthetic, auditory-visual, visual kinesthetic, audio kinesthetic aspects of the category. Instrument of science process skill easy test consist 9 of point a retest of science process skills, to determine the ability of students' science process skills. The latticework of this instrument can be seen in Table 1.

Table 1
Latticework of Science Process Skills

No.	Instruments	Indicators
1.	Observing	
2.	Classifying	
3.	Interpreting	
4.	Predicting	
5.	Asking question	
6.	Hypothesizing	
7.	Planning experiment	

8.	Applying concept

Sumber: (Susanti et al., 2021)

Instrument learning outcome multiple-choice consist 30 item question. Instrument test is arranged based on bloom taxonomic rules consisting of C1, C2, C3, C4, C5, C6, with indicators according to the syllabus.

B. Data analysis technique

The data analysis learning style by using:

$$A = \frac{n}{N} \text{ X } 100$$

Description:

A = Value of learning stylen = Total score obtained N = Maximum score

The data analysis science process skill done by looking for the percentage and presented in a descriptive form, to count done in a way:

$$S = \frac{R}{N} \text{ X } 100$$

Description:

S = Value science process skillR = Score obtained correct

N = Maximum score from the test

The data analysis learning outcome a score 0f 1 is correct and 0 incorrect. Change score into valueon student answer.

$$\text{Value} = \frac{cquisition\ score}{Maximum\ Score} \text{ X } 10$$

Table 2
Criteria for the Process Skills and Learning Outcomes Assessment

No.	Score	Criteria
1.	86 - 100	Very Good
2.	76 – 85	Good
3.	66 – 75	Medium
4.	56 - 65	Low
5.	≤ 55	Very low

Sumber: (Oloruntegbe, 2010)

Before data analysis using a parametric statistic, the data first tested for normality, and homogeneity. Furthermore, to find out how much influence the

learningstyle has on the science process skill and learning outcome digestive system material for class XI Senior High School, multiple linear regression is performed with the help of SPSS 2.2.

Results and Discussions

The data on students learning style on science process skills and learning outcome in digestive system material in class XI senior high school Kisaran district, Asahan regency T.P. 2020/2021 amounted to 144 students divided into 4 class with 36 people in the class, researchers collected data through a questionnaire filled out by student then were given a score on each statement item so that data could be analyzed then calculate total score obtained from each learning style (visual, audio, kinesthetic, audiovisual, visual – kinesthetic, audio – kinesthetic) next look at the highest score among six student learning style. Based on data it found that percentage of visual 38.19%. audio 13.89%, kinesthetic 8.33%, audio and visual 9.02%, `visual and kinesthetic 12,05%, audio and kinesthetic 18,06%, so it can be concluded that tendency of the learning style of class XI senior high school range districtis a visual.

The result of science process skill data with an average value of 82,06, with good category, large distribution was obtained at 76 – 85 value internal. In each indicator of science process skill of 144 students e seen in Figure 1.

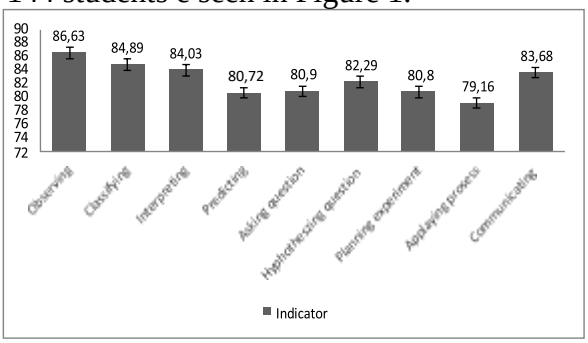

Figure 1
The data of science process skills in the digestive system in State Senior High Schools in Kisaran District, Asahan Regency.

From Figure 1 aforementioned above it could be explained that the results of students' science process skills were in a good category. In each indicator of science process skills 144 students, observation of 86.63, classification 84.89, interpreting 84.03, predictive 80.72, asking question 80.09, hypothesized 82.29, planning experiment 80.08, applying concept 79.16, and communicating 83.68. the indicator of science process skill which has the lowest percentage is an indicator of applying the concept of 79.16.

The high level of indicator, namely throughdiscussion activities, it also reinforced by research from Musman, which state that when learning process takes place student taught to find out for themselves knowledge from discussion activities, so that result of science process skill on observation indicator has highest score criteria. The indicator of

science process skill that has the lowest percentage the indicator applying the concept of 79.16, causing factor low indicator because the student is not serious about participating in online learning activities being taught so that students not understand.

Then the acquisition value of learning outcome in digestive system material obtained an average value of student learning outcome in digestive system material obtained an average value of student learning outcome 86.04. with a value interval of 86-100. The existence of this value indicates that the biology learning outcome of students is included in a very good category. The learning result of digestive system material for class XI senior high school range obtained the highest score C6 with 91.43. the high C6 score is due to a small number of questions as stated in Appendix 3 so the proportion of questions is different from other question domains. And the lowest bloom taxonomic domain and the lowest bloom taxonomic domain C5 with a value of 72.22 due highest number question level at C5. Learning outcome abilities that students have after receive a learning experience but in form cognitive, affective, psychomotor aspect (Park et al., 2016). The factor that affects cognitive learning outcomes is very complex involving internal and external factors, such as; interest, motivation, attitude, intelligence, learning environment, learning strategies physical condition, and others.

According to (Poehner & Infante, 2015) learning outcomes are formulated mental or psychological activity, which takes place activities to interact with the environment which results inchange value of understanding, skills, and attitude.

Conclusion

It was concluded that the results of the science process skills of the digestive system material were classified as good with a score of 82.06 and the highest indicator for observing obtained an average value of 86.63. In the very good category and the lowest indicator for applying the concept, a score of 79.16 was obtained in the good category. The learning outcomes test obtained a score of 89.04 with a very good category. The highest value of C6 was obtained 91.43. and the lowest C5 obtained 72.22. There is a significanteffect of the learning style of learning in the high category.

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