



Analysis of Student Difficulties in Learning Biology

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Abstract

The difficulties experienced by students in the learning process can be seen from internal factors and external factors. Based on the results of interviews and observations, it can be seen in the form of students' difficulties in the learning process, namely a lot of scientific language, less interesting material causing boredom and lack of enthusiasm, lack of focus making it difficult to concentrate. On external factors such as the teacher's teaching methods, lack of attention and motivation from the family, and student learning methods. The purpose of this study was to find out students's difficulties in learning biology. Sampling in this study used a non-probability sampling technique, namely purposive sampling where the total number of students from 4 classes was taken as much as 25% of the total population, so that a sample of 31 students was used as a sample for all students. The instrument used is a questionnaire in the form of a closed statement using a Likert scale and documentation. The data analysis technique used descriptive analysis quantitatively in the form of percentages. Data analysis by using the percentage (%) of student answers. The result of student learning difficulties in biology subjects has high category, internal factors with high criteria and the average percentage of external factors with high criteria. It can be concluded that biggest internal factor causing learning difficulties in biology is the factor of fatigue and the biggest external factor is the family factor.

Keywords: biology; external factors; internal factors; learning difficulties

INTRODUCTION

Learning is a matter of learning which means it refers to all efforts how to make someone learn, how to produce learning events in that person. In the learning process, the components of the learning process play a very important role. The learning process will be meaningful if the learning activities of students occur (Rahmah, 2018; Prasetya *et al.*, 2021). The first factors of student learning difficulties are students' factors including poor IQ, lack of learning activities, no motivation in learning. Second, school factors include unqualified teachers, unfavorable school atmosphere, incomplete libraries. And lastly, family factors include parents who pay less or no attention to their children's education, a crowded or noisy home atmosphere is unlikely to make children able to study well (Riswanto & Aryani, 2017; Awal, 2018; Narca & Caballes, 2021). Learning methods, approaches and strategies are also needed by teachers in teaching and learning so that they can help students understand teaching materials and their application in everyday life for students' understanding and to achieve learning goals (Setyosari, 2017; Sani *et al.*, 2019; Syamsinar & Yusuf, 2019).

The first factors for student learning difficulties are student factors including poor IQ, lack of learning activity, no motivation in learning. Second, school factors include teachers who are not qualified, the school atmosphere is not pleasant, and the library is incomplete. And finally, family factors include parents who pay less or do not pay attention to their children's education, a busy or noisy home atmosphere makes it impossible for children to study well (Awal, 2018; Watoni, 2019; Yessa & Marna, 2022). In this educational design, students carry out the learning process to motivate their growth and development according to educational goals. The curriculum is laid out in such a way as to enable students to carry out a variety of learning activities. Children with learning difficulties can be seen from their low learning achievement, their effort in learning is not proportional to the results they achieve, their indifference in following lessons (Ghufron & Risnawita, 2015; Helentina, 2017; Yessa & Marna, 2022).

This is also seen in the results of research (Helentina, 2017; Zamzami & Sakdiah, 2020; Yessa & Marna, 2022) which states that the factors causing student learning difficulties consist of learning tools, method/strategy factors, teaching teachers, school environment factors, parental factors, motivational factors, intelligence factors, factors learning media, health factors, interest factors, and student attention factors. Based on the results of interviews with Biology subject teachers on April 16 2022, information was obtained that during the implementation of the 2013 curriculum there were several difficulties such as students not wanting to find information on their own subject matter, being less active in the teaching and learning process, and not interested in studying biology. While the method used is Discovery Learning and sometimes the method used adjusts to the time. Students have difficulty memorizing scientific names and their classifications, besides that students are not concentrating, there is no motivation from students and families, they do not do the assignments/homework given, students do not repeat lessons at home so that student learning outcomes are not optimal and are under the completeness criteria minimum of 75. From each class it was found that the average student did not reach the minimum completeness criteria, namely 40%. Based on the results of interviews with students, information was obtained that students experienced difficulties in learning biology including difficulties in memorizing Latin names, difficulties in classifying, not having books, lack of concentration in learning, and lack of interest in learning biology, the teacher delivered boring lessons. does not vary, does not remember learning because it is not repeated, lacks motivation from oneself and family, friends interfere in class. Based on the description of the background of the problems above, the authors want to conduct research with the title Analysis of Students' Difficulties in Learning Biology.

METHOD

This research was conducted in July-August. This research is a descriptive research. This research serves to see, review and reveal the circumstances as they were at the time the research was conducted. It can describe a population, situation, or phenomenon accurately and systematically. The population in this study were all students of class XI MIPA MAN 1 Padang City. Sampling in this study used a non-probability sampling technique, namely purposive sampling. These subjects have particular characteristics that the researchers pick the participants on purpose. For this study, where the total number of students in class XI MIPA MAN 1 Padang City was taken as much as 25% of the total population, so that a sample of 31 students. The instrument used was a modified questionnaire from Siska (2022) questionnaire, research tool featuring a series of questions used to collect useful information from respondents.

The instrument used is a questionnaire in the form of a closed statement using a Likert scale and documentation. Close ended questions have predetermined answers for respondents to choose from. It will ease respondents to make an answer. The Likert scale is a five (or seven) point scale that is used to allow an individual to express how much they agree or disagree with a particular statement. The Likert scale (typically) provides five possible answers to a statement or question that allows respondents to indicate their positive-to-negative strength of agreement or strength of feeling regarding the question or statement. A Likert scale assumes that the strength/intensity of an attitude is linear and makes the assumption that attitudes can be measured.

Purwanto (2010) the data were analyzed using descriptive analysis quantitatively. This type of data analysis helps describe, show or summarize data points in a constructive way such that patterns might emerge that fulfill every condition of the data. Its formula is in the form of percentages, a number that represents the fractional part out of 100. Data analysis uses the percentage (%) of students' answers with the formula, namely:

$$NP = \frac{R}{SM} \times 100\%$$

Note: NP is Percentage value sought, R is Score obtained, SM is Maximum Score

Riduwan (2010) after the data was analyzed using the percentage technique, the results were given criteria. The following criteria are used 0% - 20% as very low, 21% - 40% as low, 41% - 60% as moderate, 61% - 80% as high, and 81% - 100% as very high. To calculate the percentage of marks, we can take the total marks we earned and divide them by the number of marks available. The result will show the quality of respondent contribute in our research.

RESULT AND DISCUSSION

Based on the research that has been done to the students, the percentage of factors causing students' biology learning difficulties is 67.70% which can be seen in Table 1.

Table 1. Percentage of Outcome Factors that Cause Difficulty in Learning Biology

Sub Variable	Percentage %	Criteria
1. Internal Factor		
A. Physical Factors	63.91%	High
B. Psychological Factors	68.5%	High
C. Fatigue Factors	70.69%	High
Average	67.70%	High
2. External Factors		
A. Family Factors	70.32%	High
B. School Factors	69.24%	High
C. Community Factors	66.33%	High
Average	68.63%	High

From the analysis of the data that has been carried out, it was found that the results of learning difficulties in Biology. On the internal factor, the physical factor sub-indicator was caused by a health factor of 63.91% with high criteria. This is influenced by the fact that most students do not have breakfast before going to school and lack sleep so they are not enthusiastic about learning. Therefore it is expected that students can maintain their own body health starting from small things like breakfast. Health is an important thing. The health of students greatly influences student learning outcomes. In order for a person to study well, he must always maintain his health (Ghufron & Risnawita, 2015; Solo *et al.*, 2019; Zaputri & Lufri 2021). Psychological factors, learning difficulties students are caused by intelligence of 63.17% with high criteria. This is influenced by students who do not understand scientific language in biology material, students' lack of understanding of the material being studied. This is influenced by students who do not understand scientific language in biology material. Students lacked understanding of the material being studied. Intelligence or intelligence is an ability to apply existing knowledge in solving various problems. Indicators of intelligence difficulties in this study include difficulty remembering, difficulty memorizing, difficulty understanding and difficulty analyzing (Aulia, 2018; Mahardika *et al.*, 2020; Zaputri & Lufri, 2021).

Lack of student concentration when the teacher explains the lesson, because student attention can be focused on one point if it interests him. This is caused by the student attention factor of 74.73% with very high criteria. The attitude aspect of students is a factor causing learning difficulties, some students do not pay attention when learning is carried out and the lack of routine studying/repeating material

(Muhaiba *et al.*, 2013; Mahardika *et al.*, 2020; Astija *et al.*, 2022). The lack of interest of most students in biology lessons can also cause learning difficulties. The difficulty in learning Biology is caused by an interest of 68.54% with high criteria. This is caused by the fact that most students are lazy to study biology because they memorize a lot and don't want to study majors related to biology. Interest is a feeling of liking or being happy about something. Interest has a great influence on student learning outcomes (Suprihatin, 2015; Aulia, 2018; Zaputri & Lufri, 2021).

Talent is innate from birth where every student has different talents. The difficulty in studying Biology caused by talent of 73.38% with very high criteria. This is influenced by the presence of some students who are not enthusiastic in learning biology and do not complete assignments on time. Talent is an ability that an individual already has. If one's talent continues to be trained it will produce a success. In learning students also need motivation or encouragement from themselves and the surrounding environment (Riswanto & Aryani, 2017; Zaputri & Lufri, 2021; Yessa & Marna, 2022). The difficulty in studying is caused by a motivation of 65.64% with high criteria. Motivation from the surrounding environment, especially the family, is needed by students to learn, both material and non-material encouragement. more motivated and active in learning. The amount of motivation in each student is different. Some come from within (intrinsic), the will to learn is stronger and is not influenced by external factors. And there are those who come from outside themselves (extrinsic), the willingness to learn is influenced by conditions outside themselves. However, in reality it is extrinsic motivation that generally occurs, especially in individuals in learning (Suprihatin, 2015; Anggraini, 2017; Karim, 2017).

The difficulty in studying Biology is caused by a readiness of 65.52% with very high criteria. If students have read books or studied at home before the lesson begins, then students are considered ready to receive lessons. So students can answer when the teacher asks. That learning readiness can be seen from their willingness to do something on the basis of their own will and willingness without any coercion from others, learning readiness will make students easily adapt to any conditions. Fatigue factor, fatigue is a condition in which the body cannot carry out its functions as it should (Anggraini, 2017; Riswanto & Aryani, 2017; Solo *et al.*, 2019). The difficulty in studying Biology is caused by the fatigue factor of 70.69% with high criteria. This is influenced by the teacher giving a lot of assignments.

External factors on the family factor sub-indicator, the family is a very influential environment. The family environment is the main source of motivation for a student. It is in the family environment that students get their primary education. Difficulty in learning Biology caused by the way their parents educate them is 75.80% with high criteria. This is influenced by the attitude towards children at home, That if support from the family is not obtained, then students will become students who like themselves at school, students who are naughty, students who often play truant and do not want to follow the rules in school. Students are left alone in the learning process, so that in the learning process at will it will result in their learning achievement at school. Lack of support from the family can make children not have enthusiasm in learning so that in the learning process at will it will result in academic achievement (Muhaiba *et al.*, 2013; Anggraini, 2017; Setyosari, 2017).

Success in learning also requires good relationships between family members. Difficulty in learning Biology caused by relations between family members of 68.14% with high criteria. This is influenced by how the child's relationship with parents, as well as the child's relationship with other family members. The family has an important role in the child's growth process. Harmonious relationships between family members, parents, children, brothers or sisters will help students carry out learning activities well. The role of parents and family is needed in order to achieve the success of students in learning (Rahmah, 2018; Zaputri & Lufri, 2021; Yessa & Marna, 2022). Difficulty in learning Biology caused by the atmosphere of the house, based on data analysis, the result is 72.37% with high criteria. This is influenced by whether the home environment is quiet or noisy, because each student has his own way of learning. There are some students who can study in noisy conditions and some who have to study in quiet conditions. For this reason, it is necessary for the role of the members of the house to create calm conditions so that students can study with focus. That a home atmosphere with lots of commotion will form mentally unhealthy children. He will not feel at home and chooses to spend time going back and forth, so it is undeniable that his academic achievement can be low (Aunurrahman, 2016;

Karim, 2017; Suryani Erni *et al.*, 2021). So always create an atmosphere at home that is peaceful, harmonious, fun, peaceful, so that children feel at home.

The economic situation of each family is different, the economic situation also causes difficulties in studying Biology. Based on data analysis, the results obtained are 71.57% with high criteria. This is influenced by parents' income because if parents' income can meet children's learning needs, then when studying children will certainly not experience any more difficulties in terms of facilities and writing tools. The cost factor is very important in learning and its continuity. Families who are less well off will find it difficult to incur various costs, and cannot provide the means for learning to be carried out efficiently and effectively (Muhaiba *et al.*, 2013; Ghufron & Risnawita, 2015; Karim, 2017). Difficulty in learning Biology caused by cultural background of 63.70% with high criteria. This is influenced by other family members who understand the difficulties experienced by children, because these other family members have the profile or knowledge they need. That most cultural and ethnic groups place a high value on education. However, to some extent, different cultural groups seem to encourage different values regarding learning in schools (Ristiyani, 2016; Ayu, 2018; Astija *et al.*, 2022).

School factors, learning difficulties in Biology caused by teaching methods amounted to 65.59% with high criteria. This is influenced by the teacher's lack of clarity in conveying the material, the lack of attractiveness of the biology learning media that is displayed and the teacher presenting learning with learning models that do not vary. The teacher's method plays a very important role in achieving learning objectives (Ghufron & Risnawita, 2015; Aunurrahman, 2016; Ristiyani, 2016). Because of that the method of teaching chosen must be adapted to the conditions of the school, the conditions of the students, and the needs of the lesson. To carry out learning, schools use the curriculum as a reference. The current curriculum, namely the 2013 curriculum, also seems to have caused student learning difficulties. Difficulty in learning Biology caused by the curriculum of 70.96% with high criteria. This is influenced by some students not enthusiastic about studying biology because the material explained by the teacher is not in accordance with the times. Learning process activities in schools, the curriculum is a guide used by teachers as a frame of reference for improving learning, because the curriculum is composed of provisions for changes in community development. While progress and change are things that must happen, the curriculum must also undergo revision (Aunurrahman, 2016; Karim, 2017; Mahardika *et al.*, 2020).

Interaction between students and good teachers can have an impact on learning, because students will like teachers as well as their subjects. Difficulty in learning Biology caused by teacher-student relations of 68.54% with high criteria. In this interaction the teacher acts as a mover and guide, while students act as recipients or those who are guided. Therefore a good teaching method is a method that can foster student activity. If the learning method used in the learning process is not good, it will cause learning difficulties for students. Interaction of students with students is also needed in schools (Ayu, 2018; Mahardika *et al.*, 2020; Suryani Erni *et al.*, 2021). The difficulty of studying biology caused by student-student relations was 66.93% with high criteria. This is influenced by the interaction of students with students in the classroom and outside the classroom. Students can exchange ideas and help each other with other students, not only with classmates but with students in other classes. Indicators of friends hanging out everyday will have a big influence on student learning behavior. If his friends consist of children who like to learn, then their learning results will be good (Fajariesta, 2017; Helentina, 2017; Solo *et al.*, 2019; Wini *et al.*, 2022).

School discipline is the rules set by the school to be obeyed together within the school. Difficulty in learning Biology caused by school discipline of 70.16% with high criteria. This is influenced by the right study time, school regulations, school staff who also participate in carrying out school discipline, and others. The implementation of discipline is lacking such as wild students, often arriving late, assignments given are not carried out, obligations are neglected, schools run without control, especially if the teacher is less disciplined will experience many obstacles in the lesson. Learning tools used for the learning process must be adequate (Fajariesta, 2017; Riswanto & Aryani, 2017; Sugiarto *et al.*, 2019; Anggraheni & Saifuddin, 2021). Difficulty in learning Biology caused by learning tools by 75% with high criteria. This is influenced by facilities or infrastructure at school, such as books, laboratory equipment, library rooms, and others. If the facilities and infrastructure at school are sufficient and can be used by students,

then the learning process can be even better and the difficulties experienced by students can be reduced so that learning outcomes are good. That in addition to facilities, school equipment and facilities should not be ignored. The availability of books in the library also determines the quality of the school. The school library is defined as a science laboratory. When and where students have free time at school, visit the library to borrow or read books for learning success (Muhaiba *et al.*, 2013; Ghufroon & Risnawita, 2015; Karim, 2017).

The time of learning must be appropriate according to the needs of the lesson. Difficulty in learning Biology caused by school time of 66.93% with high criteria. This is influenced by the time the teaching and learning process is carried out. If the lesson is held in the morning, of course students are more able to accept the material explained by the teacher. However, if it is carried out during the day, students tend to be sleepy and bored because they have learned a lot from the morning. The time to enter school is not right, the discussion is difficult, biology lessons are studied in the last hour or afternoon, because it will affect student concentration. The condition of a school building also supports learning. If students are comfortable then the learning process will certainly run smoothly (Karim, 2017; Rahmah, 2018; Narca & Caballes, 2021). Difficulty in learning Biology caused by the condition of the building is 73.38% with high criteria. This is influenced by the narrow classrooms and walls filled with graffiti. School buildings have a major influence on student learning difficulties, including biology subjects. School buildings must meet the requirements for student learning, such as having adequate ventilation, clean walls, clean floors, not slippery, and away from crowded places so as not to disturb students' concentration. That is an important means of education (Fajariesta, 2017; Setyosari, 2017; Ayu, 2018). When the facility meets the students requirement well, it will help students to give good experiment like applied Biology (Pertiwi & Saputri, 2020; Saputri & Pertiwi, 2021).

Each student has their own learning method. The difficulty in studying Biology caused by this learning method is 75% with high criteria. This is influenced by the way students learn at home. Most students only study at school and do not repeat their lessons at home. Difficulty in learning Biology students caused by homework is 70.43% with high criteria. Giving homework for students, in this case the teacher should give enough assignments not too much, because students will be bored and lazy to do it. The use of students' free time will increase knowledge in various ways such as re-reading the material taught by the teacher so that it can improve good learning outcomes (Fajariesta, 2017; Narca & Caballes, 2021; Yessa & Marna, 2022).

Community factors, learning difficulties in Biology caused by mass media amounted to 65.72% with moderate criteria. This is influenced by the habit of watching television, the use of gadgets that tend not for lessons, such as playing games, reading comics, and so on. Students who are too busy with activities outside the classroom or organization will not have enough study time to explore material that has not been understood, so that students will fall behind in their understanding and experience difficulties study opinion (Karim, 2017; Mahardika *et al.*, 2020; Astija *et al.*, 2022; Ratnasari & Hendriyani, 2022). Difficulty in learning Biology caused by friends associating with 73.75% with high criteria.

CONCLUSION

Based on the results of the study, it can be concluded that the students' biology learning difficulties were 68.17% with high criteria, internal factors were 67.70% with high criteria, external factors were 68.63% with high criteria. So it can be concluded that the biggest internal factor causing learning difficulties in biology is the fatigue factor with a percentage of 70.69% this is influenced by the teacher giving a lot of assignments and the biggest external factor is the family factor with a percentage of 70.32%. This is influenced by whether the home environment is quiet or noisy, because each student has his own way of learning. There are some students who can study in noisy conditions and some who have to study in quiet conditions. For this reason, it is necessary for the role of the members of the house to create calm conditions so that students can study with focus.

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