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Analysis of Biology Learning Difficulties in Virus Material for Grade X Students at Muhammadiyah 3 Yogyakarta

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ARTICLE INFO	ABSTRACT
<p>Article history</p> <p>Submission April 24, 2023</p> <p>Revision May 09, 2023</p> <p>Accepted June 08, 2023</p> <p>Keyword:</p> <p>Analysis</p> <p>Biology</p> <p>Virus</p> <p>Difficulty</p>	<p>Learning is a basic process of human development. By learning, humans make changes so that their behavior develops. Learning is not just an experience, but learning is a process and not a result. In learning activities at school, educators are faced with a number of very diverse student characteristics. The learning difficulties found at SMA Muhammadiyah 3 Yogyakarta were found to be the average class score in biology subjects was still below the KKM. The purpose of this study was to determine the internal and external factors that cause students to experience learning difficulties and to determine the level of difficulty in learning biology in understanding virus material. This type of research is descriptive quantitative. The population used in this study was 152 with a sample of 79 students. This research was conducted on June 6-7, 2024. This study used a cluster sampling technique because the data sources used were very broad. Data collection techniques used questionnaires and interviews. Data collection instruments used questionnaires and interview guidelines. The data analysis technique for this study used descriptive quantitative analysis. The results of the study showed that the internal factors that caused students in class X (E2, E4 and E4) to have difficulty learning biology on the virus material were physiological factors in the moderate category, with a percentage of 48%, 49.11% and 50%. External factors that caused students in class X-E2 to have difficulty learning biology on the virus material were school factors with a percentage of 74% in the high category, for class X-E4 were school factors with a percentage of 75% in the high category and for class X-E5 were family factors with a percentage of 76.78% in the high category. The biology sub-materials that were considered difficult on viruses were types of viruses and the life cycle of viruses.</p> <div>  <p>This is an open-access article under the CC-BY-SA license</p>  </div>

Introduction

Learning difficulties are a certain condition characterized by obstacles in activities in achieving a goal, so that it

requires more effort to overcome them (Darimi, 2016; Darjiani, 2015; Utami & Cahyono, 2020). Symptoms that indicate learning difficulties in students, namely: Possible neurological dysfunction, difficulty in academic tasks, a gap between

achievement and potential, and environmental influences (Ula, 2013). Factors Causing Learning Difficulties, consist of internal factors, namely 1) physiological factors (body condition, condition of other physiological functions). 2) Psychological factors (talent, interest, intelligence, motivation). In addition to internal factors, there are external factors, namely 1) social factors (family environment, teacher environment, community environment), 2) Non-social factors (facilities and infrastructure, study time, home, and nature) (Amaliyah & Maftukh Fajar, 2024) In addition to the general factors above, there are still other factors that can also cause learning difficulties or special factors, namely psychological syndromes, including learning difficulty syndromes that can be divided into 3, namely 1) Dyslexia, which is the inability to learn to read. 2) Dysgraphia, which is the inability to learn to write. 3) Dyscalculia, which is the inability to learn mathematics (Kang GJ et al., 2018). This study aims to determine the internal and external factors that cause students to experience learning difficulties and to determine the level of difficulty in learning biology in understanding virus material.

Method

This study uses a type of research with a quantitative descriptive approach. (Hakiki et al., 2023) The population of this study was 152 students of class X SMA Muhammadiyah 3 Yogyakarta in the academic year 2023/2024 and the research sample was 25 students of class X-E2, 26 students of class X-E4 and 28 students of class X-E5. (a total of 79 students) Data collection techniques used questionnaires and interviews. Data collection instruments used questionnaires and interview guidelines. The data analysis technique for this study used descriptive quantitative analysis

Results and Discussion

Results of the Biology Learning Difficulties Questionnaire Internal and External Factors of Class X.

1. Internal factors

a. Physiological Factors

Learning difficulties in physiological factors are divided into 2 statements that can be seen in Table 1 below:

Table 1. Recapitulation of Biology Learning Difficulties in Physiological Factors of Virus Material on Class X (E2, E4 and E5)

No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X -E2				
1.	Body Condition	I feel tired when studying biology in class	51%	moderate
2.	Physiological Function State	I use glasses (minus/plus) to support biology learning	49%	moderate
Average			50%	
Category			moderate	
No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X -E4				
1.	Body Condition	I feel tired when studying biology in class	50%	moderate

2.	Physiological Function State	I use glasses (minus/plus) to support biology learning	45,19%	moderate
			Average 48%	
			Category moderate	
No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X -E5				
1.	Body Condition	I feel tired when studying biology in class	56,25%	moderate
2.	Physiological Function State	I use glasses (minus/plus) to support biology learning	41,96%	low
			Average 49,11%	
			Category moderate	

a. Psychological Factors

The difficulty of learning biology on the material of viruses in physiological factors is divided into 4 parts which can be seen in the table below.

Table 2. Recapitulation of Biology Learning Difficulties in Psychological Factors of Virus Material on Class X (E-2, E-4 and E-5)

No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X- E2				
3.	Talent	I am able to understand and re-explain biology material well and correctly in front of my classmates when instructed by the teacher.	66%	high
4.	Interest	I am interested in biology lessons on viruses	74%	high
5.	Intelligence	I am able to answer questions given by the teacher regarding virus material	69%	high
6.	Intelligence	I am able to remember and understand the concept of viruses during the biology learning process in class.	72%	high
7.	Motivation	I want to improve my understanding of virus material	82%	very High
			Average 73%	
			Category High	
No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X- E4				
3.	Talent	I am able to understand and re-explain biology material well and correctly in front of my classmates when instructed by the teacher.	69,23%	High
4.	Interest	I am interested in biology lessons on viruses	74,03%	High

5.	Intelligence	I am able to answer questions given by the teacher regarding virus material	69,23%	High
6.		I am able to remember and understand the concept of viruses during the biology learning process in class.	66,34%	High
7.	Motivation	I want to improve my understanding of virus material	80,76%	High
Average			71,92%	
Category			High	
No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X- E5				
3.	Talent	I am able to understand and re-explain biology material well and correctly in front of my classmates when instructed by the teacher.	61,60%	moderate
4.	Interest	I am interested in biology lessons on viruses	66,07%	High
5.		I am able to answer questions given by the teacher regarding virus material	70,53%	High
6.	Intelligence	I am able to remember and understand the concept of viruses during the biology learning process in class.	70,53%	High
7.	Motivation	I want to improve my understanding of virus material	75%	High
Average			68,75%	
Category			High	

2. External factors, including:

a. Family Factors

Learning difficulties in family factors are divided into 3 statements that can be seen in the following Table 3:

Tabel 3. Recapitulation of Biology Learning Difficulties in Family Factors of Virus Material Class X (E-2, E-4 and E-5)

No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X- E2				
8.	Parents	My parents always ask about my biology results	72%	High
9.	Family Economy	The study equipment at my house is adequate (books, study table, stationery and laptop)	82%	very High
10.	House Condition	The conditions in my house make it comfortable to study biology.	78%	High
Average			77%	
Category			High	

No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X- E4				
8.	Parents	My parents always ask about my biology results	76,92%	High
9.	Family Economy	The study equipment at my house is adequate (books, study table, stationery and laptop)	76,92%	High
10.	House Condition	The conditions in my house make it comfortable to study biology.	73,07%	High
Average			75,64%	
Category			High	
No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X- E5				
8.	Parents	My parents always ask about my biology results	74,10%	High
9.	Family Economy	The study equipment at my house is adequate (books, study table, stationery and laptop)	80,35%	High
10.	House Condition	The conditions in my house make it comfortable to study biology.	75,89%	High
Average			76,78%	
Category			High	

b. School Factors

Learning difficulties in virus material in school factors are divided into 8 questions, which can be seen in the following table 4:

Table 4. Recapitulation of Biology Learning Difficulties in School Factors of Virus Material Class X (E2, E4 and E5)

No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X- E2				
11.	School Atmosphere	The school atmosphere is very cool so I feel happy studying biology	70%	High
12.		I feel comfortable with the cleanliness of the school	71%	High
13.	Teachers	I like the way biology teacher teaches	82%	very High
14.		The virus material presented by the teacher is very clear and easy to understand.	76%	High
15.	Learning Methods Used	The method used by the teacher in delivering material about viruses made it easy for me to understand the biology material.	75%	High

16.	Study Time	I feel that the time needed to study biology at school is sufficient.	70%	High
17.	Facilities and infrastructure at school	My school has a special biology laboratory.	77%	High
18.		There are enough biology book references related to viruses in the library.	72%	High
Average			74%	
Category			High	
No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X- E4				
11.	School Atmosphere	The school atmosphere is very cool so I feel happy studying biology	71,15%	High
12.	Teachers	I feel comfortable with the cleanliness of the school	74,03%	High
13.		I like the way biology teacher teaches	85,87%	very High
14.		The virus material presented by the teacher is very clear and easy to understand.	77,88%	High
15.	Learning Methods Used	The method used by the teacher in delivering material about viruses made it easy for me to understand the biology material.	76,2%	High
16.	Study Time	I feel that the time needed to study biology at school is sufficient.	67,30%	High
17.	Facilities and infrastructure at school	My school has a special biology laboratory.	78,84%	High
18.		There are enough biology book references related to viruses in the library.	66,34%	High
Average			74,75%	
Category			High	
No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X- E5				
11.	School Atmosphere	The school atmosphere is very cool so I feel happy studying biology	67,85%	High

12.	Teachers	I feel comfortable with the cleanliness of the school	77,67%	High
13.		I like the way biology teacher teaches	82,14%	very High
14.		The virus material presented by the teacher is very clear and easy to understand.	77,67%	High
15.	Learning Methods Used	The method used by the teacher in delivering material about viruses made it easy for me to understand the biology material.	76,78%	High
16.	Study Time	I feel that the time needed to study biology at school is sufficient.	76,78%	High
17.	Facilities and infrastructure at school	My school has a special biology laboratory.	83,92%	very High
18.		There are enough biology book references related to viruses in the library.	74,10%	High
Average			77,11%	
Category			High	

c. Community Factors

Learning difficulties in community environmental factors are divided into 2 statements which can be seen in the table below

Table 5. Recapitulation of Biology Learning Difficulties in Community Factors of Virus Material Class X (E-2, E-4 and E-5)

No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X- E2				
19.	Community Environment	I have study friends both at home and at school.	74%	High
20.	Internet Mass Media	I can make good use of the internet at school to search for biology materials about viruses.	80%	High
Average			77%	
Category			High	
No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X- E4				
19.	Community Environment	I have study friends both at home and at school.	78,76%	High
20.	Internet Mass Media	I can make good use of the internet at school to search for biology materials about viruses.	80,76%	High
Average			79,76%	
Category			High	

No. Item	Sub Indicator	Questions	Percentage Per Item	Category
Class X- E5				
19.	Community Environment	I have study friends both at home and at school.	76,78%	High
20.	Internet Mass Media	I can make good use of the internet at school to search for biology materials about viruses.	80,35%	High
Average			78,57%	
Category			High	

In addition to the questionnaire data, data was also obtained from the results of interviews with student representatives from each class regarding sub-material that was considered difficult by students Class X (E2, E4 and E5) SMA Muhammadiyah 3 Yogyakarta, For details, please see Figure 1 below:

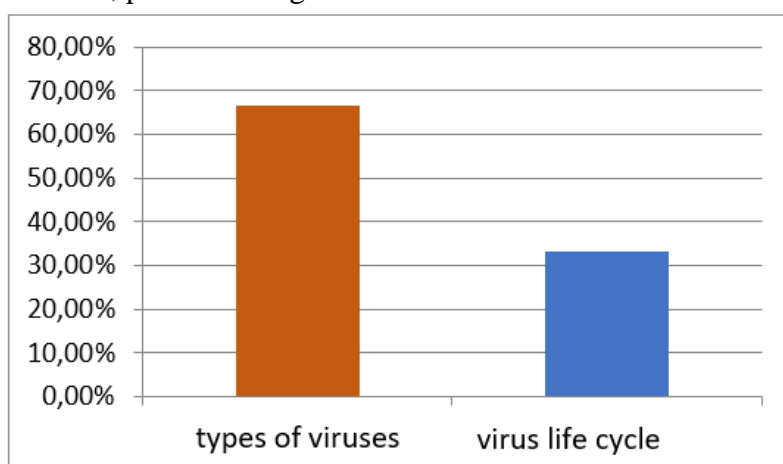


Figure 1. Sub-materials that students consider difficult Class X (E2, E4 and E5)

Discussion

Learning difficulties are a condition of students where the learning process is characterized by obstacles in achieving learning outcomes, so that students cannot learn properly (Utami & Cahyono, 2020). Learning difficulties that occur in students are generally caused by certain factors. According to (Utami & Cahyono, 2020), there are factors that cause students' learning difficulties, namely internal factors originating from the individual and external factors originating from outside the individual. These two factors are interrelated and cause students to experience learning difficulties. Based on the research data above, several factors can be described

that influence learning difficulties in biology in the material of viruses, including the following:

1. Internal Factors

Based on the research data in the table above, it can be described based on the factors causing learning difficulties, namely:

a. Physiological Factors

Physiological factors are related to the function of body organs such as the eyes to see, ears to hear, nose to smell and so on. Table 1 shows that learning difficulties in physiological factors for Class X-E2 included in the moderate category with an average percentage of 50% which means there are learning difficulties then for Class X-E4 included in the moderate category with an average

percentage 48%. Meanwhile, class X-E5 is included in the moderate category with an average percentage of 49.11%. This can happen because the questionnaire results show that in internal factors, students' learning difficulties are found to be related to physiological factors, namely sub-indicators of body condition and physiological function conditions.

From the results of observations that have been carried out by researchers, it shows that in class X (E2, E4 and E5) when biology learning on virus material takes place, the majority of students experience fatigue when learning on the material. In addition, the most dominant sub-indicator experiencing learning difficulties is the state of physiological function. Table 5 shows that in the 2nd statement for class X (E2, E4 and E5) it has a percentage of 49%, 45.19% and 41.96% which means that students have eye diseases such as nearsightedness (myopia) but do not have glasses so they experience difficulties when following biology learning on the virus material. This is in accordance with research conducted by Simarmata et al., (2023) that visual impairments such as nearsightedness (myopia) will have an impact on students' education, especially on the learning process of students who are related to learning difficulties. The solution that can be done to overcome the problem of learning difficulties in biology in the material of viruses for physiological factors in visual impairment can be done by teachers must be able to understand the visual impairment experienced by students, the lighting in the classroom must be in accordance with the needs of students both for those with eye disorders or not and it is necessary to provide eye vision testing services with the aim of finding out whether or not students are experiencing disorders.

b. Psychological Factors

Psychological factors are factors related to a person's mental/psychological condition. Table 2 shows that learning

difficulties in psychological factors are considered to be in the high category with an average percentage of 73% for class X-E2, 71.92% for class X-E4 and 68.75% for class X-E5 which means that learning difficulties are experienced by low students. This can happen because the results of the psychological factor questionnaire do not have much impact on students' learning difficulties. The psychological factors in this study are divided into four types, namely talent, interest, intelligence and motivation. The four types of psychological factors are interrelated with students' learning difficulties. The following is an explanation of the psychological factor section:

1) Talent

Talent is the ability or potential possessed by each individual to develop themselves in achieving success. Based on the results of the questionnaire in table 2, it shows that in the talent sub-indicator, learning difficulties experienced by class X students (E2, E4 and E5) are in the high category, meaning that the difficulties experienced are few with a percentage of 66%, 69.23% and 61.60%. This shows that talent does not affect students' learning difficulties, because the talents possessed by each student are different and the emergence of each student's talents is also different, some have appeared when they were in elementary school and some have only just emerged when they enter high school. This is in accordance with research conducted by Rahmadani et al., (2017) that talents developed by students can achieve good and high achievements in any field or certain subjects. Awal et al. (2018) in his research clarified about talent that students will find it easy to learn something if what they learn is in accordance with the talents possessed by the students. Talent itself cannot be separated from students' interests in

something. 1) Interest

Interest is one part of the psychological factors that greatly influences students' behavior and actions to achieve a desire that students think is best for them. Based on table 2, it shows that the interest sub-indicator in statement 4 for class X (E2, E4 and E5) is in the high category with an average percentage of 74%, 74.03% and 66.07%. Which means that there are no learning difficulties in the virus material.

Based on the results of interviews with class X students (E2, E4 and E5) about being interested in the virus material or not, 3 students stated that they were interested, while 3 students were less interested. According to research conducted by Husna et al. (2023), interest is a tendency to like something so that interest is related to personality where student development depends on the emotions possessed by the students themselves. Interest is closely related to motivation to do something.

2) Intelligence

Intelligence is part of the psychological factors that must be possessed by students with the level possessed by students. Intelligence is very much needed by students when they are going to study biology because biology is directly related to living things. Based on table 2, it shows that in the intelligence sub-indicator in class X (E2, E4 and E5) there were high learning difficulties with a percentage of 69.67%. This happens because students have difficulty learning in understanding the types of viruses. This is in accordance with research conducted by Farahani et al.(2023) that the characteristics of biology subjects are related to everyday life and scientific names. The intelligence possessed by students must be accompanied by talents that are in accordance with the students' abilities, interests in something and motivation to achieve goals. This is related to the

intelligence possessed by students that the higher the intelligence possessed by students, the higher the learning outcomes achieved, while if the students' intelligence is low, it will affect the students' low learning outcomes. This is in accordance with research conducted by Huwaida et al. (2020) that the higher a person's intelligence level, the higher the learning achievement achieved..

3) Motivation

Motivation is the drive to do something. Every student must have motivation when they are going to do something, especially when they are going to study biology. Based on table 2, it shows that students in class X (E2, E4 and E5) are motivated to study biology with a percentage of 78.34 in the high category. This can happen because students are motivated to study virus material so that the motivation indicator does not affect student learning. Each student has a different motivation. Some come from within the student and from outside the student. According to research conducted by Yuzulia, (2021), the motivation possessed by students comes from within themselves (intrinsic) and from outside themselves (extrinsic). The results of interviews with teachers show that students will be motivated if when biology learning takes place, the use of methods, media and learning models used by teachers is interesting and varied and in accordance with the conditions of the students. If the media and models used by the teacher are not varied, it can affect student motivation. This is in accordance with research conducted by Aneta & Muchtar Ahmad, (2024) that the use of methods, media and learning models that are less interesting can reduce students' motivation to learn. In addition to teacher interviews, interviews with students also showed that they were motivated by biology lessons because they liked biology

material since childhood, were interested in health, biology material was different from other science materials, and biology material was interesting for students.

The solution to learning difficulties in psychological factors can be done by motivating students to study seriously and accompanied by direct examples. This is in accordance with research conducted by Nupiah et al.,(2022) that the solution to learning difficulties can be done by always motivating students to study. In addition, students need to increase reading related to biology material that will be studied in class.

2. External Factors

External factors are factors that come from outside a person. External factors in this study are divided into three, namely family factors, school factors and community factors. The following is a discussion of external factors, namely:

a. Family Factors

Family factors are one of the factors in external factors that play an important role in the student learning process. Parents need to support all activities that children (students) do to achieve their goals. Based on table 3, it shows that family factors are in the high category with an average percentage of 77% for class X-E2, 75.64% for class X-E4 and 76.78% for class X-E5, which means that family factors do not affect students' learning difficulties. This is in accordance with research by (Husna et al., 2023) and (Gilavand & Jamshidnezhad, 2016) that a home atmosphere with a lot of noise will disturb students' mental health so that students experience learning difficulties which reduce their achievement.

b. School Factors

School factors are one part of the external factors that greatly influence student learning. Based on table 4, it shows that the average percentage of school factors is in the

high category, which means that it does not have much influence on students' learning difficulties for class X (E2, E4 and E5) with a percentage of 74%, 74.75% and 77.11%. School factors in class X-E2 show that students do not experience learning difficulties because all sub-indicators are in the high category, namely above 70%. This occurs in the sub-indicator of school atmosphere because the very comfortable and cool school atmosphere makes students feel happy in studying biology. Furthermore, for the teacher sub-indicator, the virus material presented by the teacher is very clear and easy to understand by students, so that students like the way biology teachers teach. For the sub-indicator of the learning method used by the teacher in delivering material about viruses, it makes students easy to understand the material being taught. Furthermore, for the sub-indicator of study time, students feel that the time needed to study biology at school is sufficient. And for the sub-indicator of facilities and infrastructure at the school, it is sufficient because it already has a laboratory and biology book references in the library are sufficient. In the 16th statement, the study time sub-indicator is in the high category, with a percentage of 67.30%. This value indicates that the study time used to study biology on virus material at school is considered sufficient. The sub-indicator of facilities and infrastructure at school in class X-E4 shows a percentage of 66.34% in the high category. This value indicates that the facilities and infrastructure for biology learning activities are considered inadequate, both for classroom learning and practical learning. Which makes students have difficulty learning. One of the learning difficulties of students that is often encountered in schools is the school's learning facilities and infrastructure (Amaliyah & Maftukh

Fajar, 2024) School factors in class X-E5 are in the high category in the school atmosphere sub-indicator with a percentage of 67.85%. This percentage shows that the learning difficulties experienced by students are in the form of an uncomfortable school atmosphere, this is in accordance with research conducted by (Pomarida & Nagoklan, 2022) conducive and efficient learning environment conditions can support the sustainability of the learning process which can make students focus on the learning process. Based on the results of observations on facilities and infrastructure in schools, it shows that the biology laboratory at SMA Muhammadiyah 3 Yogyakarta has been optimally used.

The solution to overcome learning difficulties in school factors is to maximize the quality of school facilities and infrastructure. Books that are reading materials for students need to be improved so that students do not have difficulty in learning. In addition, internet facilities need to be improved again to support learning activities, especially in biology subjects. In addition to school facilities and infrastructure, the quality of teachers in teaching needs to be improved again with the aim of preventing learning difficulties experienced by students. Improving the quality of teachers in the form of methods, media and models used should not be monotonous or must be varied so that students do not get bored easily with biology subject matter. This is in accordance with research conducted by Puspitarini et al., (2019) that reading book facilities must be available so as not to hinder the learning process and the methods used by teachers must be in accordance with the material to be delivered.

c. Community Factors

Community factors are one of the factors that influence students' learning difficulties both at school and at home.

Learning is not only done in the school environment or at home, but can also be done in other environments such as the community environment by joining an organization. Based on table 5, it shows that community factors do not have much influence on students' learning difficulties in class X (E2, E4 and E5) with a percentage of 74%, 78.76% and 76.78% in the high category. This is in accordance with research conducted by Firda, (2019) that community factors in the form of friends affect students' learning in studying biology material so that students who have bad friends will have difficulty receiving information related to social life. This is explained according to research by Arifa & Sudrajat, (2021) that the higher the experience, level of education, knowledge and information that the community has, the higher the insight that students have because with high insight from the community, students tend to avoid learning difficulties. Then in the internet mass media sub-indicator, the 20th statement for class X (E2, E4 and E5) is in the high category with a percentage of 80%, 80.76% and 80.35%. This value shows that students are quite able to utilize the internet well to study biology material even though there are obstacles to internet connectivity which is sometimes less stable. This is in accordance with the research of (Arisanti & Subhan, 2018) that internet media can be used optimally if students have a high interest in a subject. The solution to overcome learning difficulties in community factors is by choosing the friends they have. The goal is to prevent friends who have a bad influence on concentration in learning. If you choose the wrong friends, it will have an impact on low learning outcomes. This is explained in Firda's research (2019) that friends affect students' learning in studying biology material so that students who have bad friends will have

difficulty receiving information.

Virus Sub-Material that is considered Difficult

Every student must have material that is considered difficult because not all students are able to understand the material given by the teacher. Based on the results of the interview and Figure 2, it shows that the sub-material that is considered difficult by class X students (E2, E4 and E5) is found in students of virus material is difficult to memorize the names of viruses and the structures contained in the virus. This is in accordance with the research of (Hasibuan & Djulia, 2017) that virus material is material that contains many scientific words, especially the names of viruses, so that students are less interested in virus material because there are scientific names that must be memorized.

Based on the explanation above, it will raise impacts due to learning difficulties faced by students in biology subjects. Biology is basically a science that emphasizes understanding concepts that are directly related to living things (Khoirudin, 2019). Therefore, biology lessons require a high level of understanding to make it easier to learn biology. Learning difficulties experienced by students will usually have an impact in the form of low student learning outcomes, students have difficulty concentrating on learning biology, students become less motivated to learn and students tend to underestimate biology lessons. Low learning outcomes can be caused by students having difficulty memorizing biology material that contains many scientific names. This is in accordance with research according to Qadri, (2020) that one of the difficulties of biology material for students is the many scientific terms. Students become less motivated because of the use of monotonous methods used by teachers.

This is in accordance with research from Lutfia et al., (2022) that the use of uninteresting learning methods, media and models can reduce students' motivation to learn. Meanwhile, students tend to underestimate biology lessons because biology lessons can be learned easily just by memorizing them. This is in accordance with research by (Azizah & Alberida, 2021) that students underestimate biology lessons because students only need to memorize them.

Conclusion

Based on the results of the study conducted at SMA Muhammadiyah 3 Yogyakarta, it can be concluded that: Internal factors that cause students in class X-E2 to experience learning difficulties are physiological factors of 50% in the moderate category, for class X-E4 it is in the moderate category of 48% and for class X-E5 it is 49.11% in the moderate category. External factors that cause students in class X-E2 to experience learning difficulties in biology are school factors of 74% in the high category while for class X-E4 experiencing learning difficulties in school factors of 75% in the high category and for class X-E5 experiencing learning difficulties in family factors of 76.78%. Biology materials that are considered difficult in the virus sub-material for class X (E2, E4 and E5) are types of viruses and the life cycle of viruses.

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