Level of understanding towards biology terms on biology education students' of IAIN Kerinci

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Article information		ABSTRAK

Biologi merupakan salah satu bidang studi yang menuntut kemampuan berpikir yang tinggi dalam memahami materi-materi pelajaran yang terdapat di dalamnya, dalam hal ini membaca ilmiah dan kemampuan berpikir yang baik menjadi hal yang sangat penting. Hal ini dikarenakan pada pembelajaran Biologi banyak ditemukan tabel, diagram dan gambar, sehingga perlu kemampuan khusus untuk memahaminya. Oleh karena itu diperlukan suatu cara untuk meningkatkan kemampuan berpikir mahasiswa agar bisa tercapai hasil belajar yang optimal, sebab kemampuan berpikir akan menjadi modal dasar dalam meningkatkan kemampuan lainnya. Penelitian bertujuan untuk mengetahui tingkat pemahaman mahasiswa IAIN Kerinci terhadap istilah dalam Biologi dan untuk mengetahui faktor apa saja yang mempengaruhi pemahaman mahasiswa Tadris Biologi IAIN Kerinci dalam memahami istilah dalam Biologi. Populasi dalam penelitian ini adalah 975 mahasiswa jurusan Tadris Biologi IAIN Kerinci sedangkan sampel pada penelitian ini adalah 50 mahasiswa semester 1 (satu) jurusan Tadris Biologi IAIN Kerinci. Berdasarkan hasil penelitian yang penulis lakukan di semester 1 (satu) jurusan Tadris Biologi IAIN Kerinci didapatkan bahwa melalui tes menjodohkan tingkat pemahaman mahasiswa lebih dominan memperoleh nilai dibawah 54 dengan persentase 54 %. Sedangkan melalui tes soal essay tingkat pemahaman mahasiswa lebih dominan memperoleh pada ≤ 54 dengan persentase 90 %. Dan untuk faktor yang mempengaruhi pemahaman mahasiswa diperoleh persentase yaitu lebih dominan pada indikator kecerdasan emosional yaitu dengan persentase 76,8 %. Pada indikator kecerdasan intelektual diperoleh persentase sebesar 72,3 % sedangkan pada indikator cara belajar diperoleh nilai persentase sebesar 73,2 %, dan pada indikator perilaku belajar diperoleh nilai persentase paling rendah yaitu sebesar 62,8 %.

		ABSTRACT

Biology is one of the fields of study that demands a high ability to think in understanding the subject matter contained in it, in this case scientific reading and good thinking skills become very important. This is because in biology learning there are many tables, diagrams and drawings, so it needs a special ability to understand it. Therefore, it is

necessary to improve students' thinking skills in order to achieve optimal learning outcomes, because the ability to think will be the basic capital in improving other abilities. The research aims to determine the level of understanding of IAIN Kerinci students on terms in Biology and to know what factors influence the understanding of IAIN Kerinci Biology Tadris students in understanding terms in Biology. The population in this study was 975 students majoring in Tadris Biology IAIN Kerinci while the sample in this study was 50 students of semester 1 (one) majoring in Tadris Biology IAIN Kerinci. Based on the results of the study that the author conducted in semester 1 (one) majoring in Tadris Biology IAIN Kerinci obtained that through the test of matching the level of understanding of students more dominantly obtained a score below 54 with a percentage of 54%. Meanwhile, through the essay test, the level of understanding of students is more dominant in obtaining at ≤ 54 with a percentage of 90%. And for factors that affect the understanding of students obtained a percentage that is more dominant on the indicator of emotional intelligence that is with a percentage of 76.8 %. In the indicator of intellectual intelligence obtained a percentage of 72.3 % while in the indicator of learning obtained a percentage value of 73.2 %, and in the indicator of learning behavior obtained the lowest percentage value of 62.8 %.

INTRODUCTION

Higher education is a continuation of secondary education which is held to prepare students to become members of society who have academic or professional abilities who can apply, develop or create science, technology and arts. An education unit that organizes higher education which can be in the form of academics, polytechnics, high schools, institutes or universities (Kusuma & Bangun, 2011).

The State Islamic Institute (IAIN) Kerinci is one of the institutes that has a Biological Tadris Study Program. Biology is a field of study that demands high thinking skills in understanding the subject matter contained in it, in this case scientific reading and good thinking skills are very important. This is because in Biology learning, there are many tables, diagrams and pictures, so special skills are needed to understand them. Therefore we need a way to improve students' thinking skills so that optimal learning outcomes can be achieved, because thinking skills will be the basic capital in increasing other abilities (Gloria, 2012).

General biology is one of the courses that deals with how to systematically find out and understand the universe, so that biology is not only the mastery of a collection of knowledge in the form of facts, concepts, principles but also a process of discovery. Biology education is expected to be a forum or a vehicle for students to learn about themselves and the nature and environment around them, in which there are various subjects that have specific characters and concepts that must be understood (Amri & Jafar, 2016).

Biology also requires a deeper understanding from students because in Biology there are scientific terms that are difficult for students to understand, because these scientific terms use foreign languages, for example in the scientific names of animals and plants that use Latin (Aseptianova, Nizkon, 2012). Because Latin can make it easier for students to learn and get to know various kinds of living things, know the kinship relationships between living things, know the benefits of living things for the benefit of humans, know the dependence between living things, and equate people's perceptions around the world about a living being.

Based on the results of observations by researchers on November 4, 2019, students majoring in Biology Tadris IAIN Kerinci to 20 Biology Tadris students semester 1 (one), 3 (three), 5 (five) and 7 (seven) who were taken randomly in working on questions Matching and essay questions on common terms in Biology. Where when the researcher gave matching questions, the students 'average score was 48.25%, and when the researcher gave essay questions, the students' average score was 39%. From the results of the average value, it shows that students' understanding of general terms in Biology is quite concerning, because the questions given by researchers about general Biology terms should have become a habit and are in the memory of Biology Tadris students. This is also in line with research conducted by (Tsalatsatunnisa, Almaas, 2018). Biology Students' Knowledge of Binominal Nomenclature of Living Things at Tidar University. Based on this phenomenon, researchers conducted research on "Level of Understanding of Biology Tadris Students IAIN Kerinci Against Terms in Biology".

METHODS

This type of research in this research is quantitative research. While the approach used, namely the descriptive approach of this research, is the right research to determine the level of understanding and which affects the 1st semester of Biology Tadris students of IAIN Kerinci in the General Biology subject that has been studied before. The population in this study were 975 Biology Tadris students of the Islamic Institute of Religion. Negeri (IAIN) Kerinci. Sampling in this study used a positive sampling technique because the sample used by researchers in this study were 1st semester Biology students who were considered to know the most familiar terms in the general Biology course because they had just completed the General Biology course. To determine the number of samples to be taken in this study using the Slovin formula.

What the researchers set was an error rate of 10% (0.1) of the total population of 80 students, so the size of the sample in this study were:

$$n = \frac{N}{1 + Ne^2}$$
$$n = \frac{80}{1 + 80.(0,1)^2}$$
$$n = \frac{80}{1 + 80.0,01}$$
$$n = \frac{80}{1,8}$$

= 44.445 (±50 Students)

Information :

n   : Samples
N   : Total Population
E   : Estimated error rate "records are generally used as 1% (0.01), 5% (0.05), 10% (0.1)" records may be selected by the researcher.

To see how to calculate the test in the form of an essay, the essay scoring guidelines are used, namely in Table 1. Example test: explain what is meant by enzymes?

Table 1. Guidelines for essay test projections

Answer	Score
Enzymes are biokalisators that speed up the rate of chemical reactions in living cells, while enzymes themselves do not react	1
Enzymes are biokalisators that accelerate the rate of chemical reactions in living cells	1
Enzymes are biocalisators that speed up the rate of chemical reactions	1
Enzymes are biokalisator	1
Enzymes are	1
Maximum Score	5

Source : Suprananto (2012 : 140)

Data collection techniques are using tests in the form of matchmaking tests and essay tests to see the level of understanding of students, questionnaires to see the factors that affect the level of student understanding and also documentation is used to collect facts and data stored in text or documentation artifacts here, namely the source of documentation comes IAIN Kerinci archives. The data analysis technique in this study used descriptive statistics which were used to process data from the test results, both matchmaking and essay test results, namely by using the percentage formula (Sudjana, 2001: 129).

$$P = \frac{F}{N} \, x \, 100\%$$

Information :
- P : Percentage figures
- F : Total Answer Frequencies
- N : Number of Respondents
- 100% : Fixed Numbers

Table 2 present the range of levels of understanding of Biology Tadris students of IAIN Kerinci towards terms in Biology.

Table.2 Student Comprehension Level Range

Level of Understanding	Letter Value	Weight	Predicate
86 - 100	A	4	Very good
76 - 85	B	3	Good
60 - 75	C	2	Enough
55 - 59	D	1	Less
≤ 54	TL	0	Very Less

Source: Purwanto, (2013: 103)

The range of factors that affect students' understanding that in Table 3.

Table. 3 Range of factors affecting understanding College student

Parameter Mean	Description
4.21 - 5.00	Strongly Agree
3.41 - 4.20	Agree
2.61 - 3.40	Sufficiently Agree (Neutral)
1.81 - 2.60	Disagree
1.00 - 1.80	Strongly Disagree

Source: S.Eko, (2009: 238)

RESULTS AND DISCUSSION

1. **Level of Understanding of Semester 1 (one) IAIN Kerinci Biology Tadris Against Terms in Biology**

The level of understanding of students in understanding Biological terms is determined or tested through two forms of tests. The first test is in the form of matchmaking and the second is in the form of an essay. , the level of understanding of the dominant student got a score below 54 with a percentage of 54%.

The dominant value obtained is scaled in the form of a range of students' understanding levels included in the E category, while those who get an A score are only 4%. This shows that Student Understanding is categorized as Very Poor.
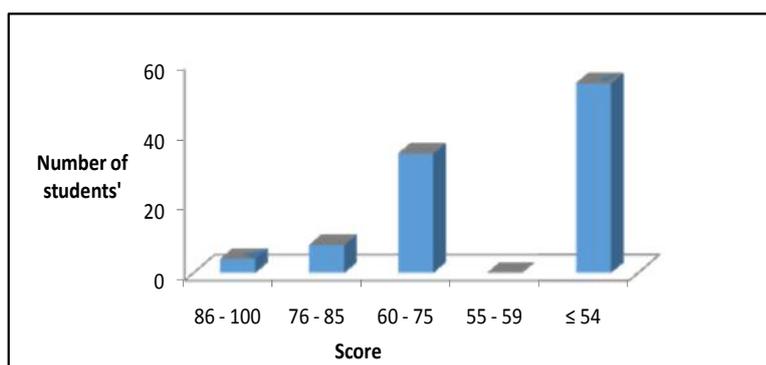
Figure 1. Data on the results of the matchmaking test

The same results were also found in the test results using the essay question form. Student dominance scores on a scale of E, namely ≤ 54, but when compared with the match question on essay form questions, those who get 54 more, which is around 90%, almost all students get below 54.10%. This shows that Student Understanding is categorized as Very Poor.
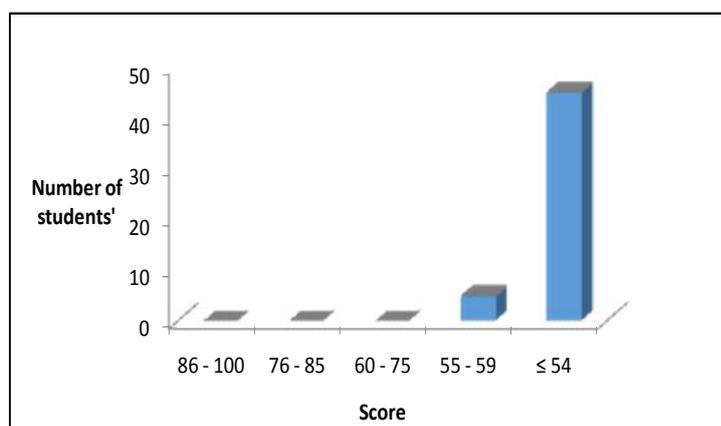

Figure 2. Data on essay test results

In the test results, the level of understanding of students using the test in the form of matchmaking and the test in the form of essays, it was found that the level of understanding of the students was very low, this was indicated by the test results both in the form of matchmaking and in the form of essays. When compared between the matchmaking test and the essay form test, the results of the matchmaking test were higher than the essay test. Because in the test questions matching answer choices are already available, and why the essay is lower, because the student's ability to convey an idea or an idea is low. However, even though the answer choices already exist, there are still many wrong answers. What's more, when students are presented with a test that has no answer at all, such as a test in the form of an essay. Students find it difficult to issue their ideas, students find it difficult to issue their knowledge and understanding of the questions presented. This has an impact on student learning outcomes that are not optimal.

This is also in line with research conducted by (Astriani et al., 2018). By using the description type test which refers to the analytical thinking skills which consist of differentiating (Differentianting), organizing (Organizing) and connecting (Attributing) each indicator of 3 questions. From this study, it was concluded that when students took the description type test which referred to analytical thinking skills which consisted of differentiating, organizing and connecting. Where the three indicators, two of which are categorized as good, namely indicators

of differentiating and organizing. Meanwhile, the linking indicator is categorized as poor, so the connecting indicator needs more attention.

2. Factors affecting the Understanding of Semester 1 (one) IAIN Kerinci Biology Tadris in Understanding Terms in Biology

There are many factors that affect a person's understanding of a learning material, namely: emotional intelligence, intellectual intelligence, learning methods and learning behavior (Gayatri & Wirawati, 2019). From the research that has been done, it is found that the most dominant factor affecting student understanding is emotional intelligence. The factors that influence student understanding are more dominant in the indicators of emotional intelligence, namely the percentage of 76.8%. In the learning method indicator, the percentage was 73.2%, while the intellectual intelligence indicator obtained a percentage value of 72.3%, and the learning behavior indicator obtained the lowest percentage value, which was 62.8%.
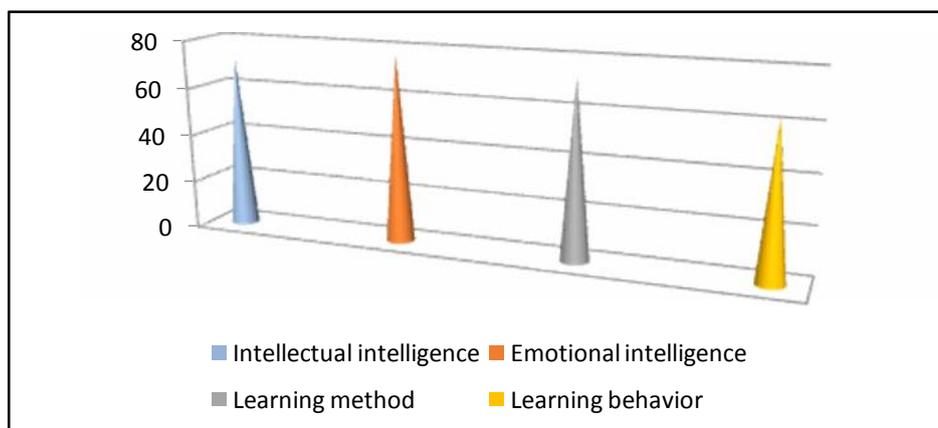

Figure 3. Factors that influence student understanding

In the results of the questionnaire, the factors that affect student understanding using a questionnaire with four indicators and as many as 15 statements are obtained that the number of statements greatly influences the student's understanding factor, this is indicated by the results of the questionnaire both from the results of indicators of Intellectual Intelligence, Emotional Intelligence, Learning Method and Learning Behavior. . When compared to the four indicators, the percentage results of the Emotional Intelligence indicator are more dominant. Because emotional intelligence is an intelligence that comes from within the student's own soul along with intellectual intelligence, a healthy soul balances clear-thinking logic on the basis of intellectual intelligence which is able to balance soul and mind in solving a problem at hand. So the main factor that affects the level of understanding of students, namely intelligence that comes from within the student's own soul, one example of motivation. Where motivation is an impulse that arises in a person consciously or unconsciously to take an action with a specific purpose.

This is also in line with the research (Mustikasari et al., 2018) This research shows that partially intellectual intelligence is obtained a significant value of 0.015 <0.05, emotional intelligence with a significant value of 0.013 <0.05, spiritual intelligence with a significant value of 0.025 <0.05 and learning behavior with a significant value of 0.002 <0.05. From this research, it can be concluded that the four indicators have a positive effect on accounting understanding. From the overall results of intellectual intelligence, emotional intelligence, spiritual intelligence and learning behavior greatly influence student understanding with a significant value of 0.000 <0.05.

In addition to emotional intelligence, learning methods are also a factor affecting the level of understanding of students where this learning method is an internal factor, namely factors that come from the students themselves (Anam & Ardillah, 2016). This way of learning emphasizes both physiology and psychology. Which means that this learning method factor also comes from the students themselves.

Not only emotional intelligence and learning methods are factors that come from students themselves, but intellectual intelligence is also the intelligence possessed by someone who comes from the genes of parents, intelligence that naturally comes from within a person and develops according to a good and good environment. understanding that continues to be developed (Anam & Ardillah, 2016).

Of the three factors above, the learning behavior factor is also a factor that influences the level of understanding of students, where learning behavior is an external factor, a factor that comes from around students that can affect the student learning process both from social and non-social environments (Gayatri & Wirawati, 2019).

So, the factors that affect the level of understanding of students are also from the willingness to learn / independent learning, motivation, namely the factors originating from themselves or from the student's own soul, both intelligence (intellectual and emotional intelligence) and the condition of internal factors, namely how to learn (physiological and psychological). students themselves and then proceed with external factors (learning behavior), namely factors from outside the students themselves both from the social and non-social environment. From that.

CONCLUSION

From the results of the research on the level of understanding towards biology terms of the students' on Biology Education Study Program IAIN Kerinci, it can be concluded that the level of understanding of students is still in the very poor category, the factors that influence this are intellectual intelligence, emotional intelligence, learning methods and student behavior. This is evident from the test results whether it is a matchmaking test or an essay test.

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