Indonesian Journal of Education Research (IJoER)
Vol. 4, No. 3, June 2023, pp. 70~74
ISSN: 2722-1326, DOI: 10.37251/ijoer.v4i3.607

Analysis of Students' Multiple Intelligences in Biology Learning Activities

Vera Lisnawaty Manik[1], Idha Nurhayati[2]
[1]Program Studi Pendidikan Biologi, Universitas Jambi, Jambi, Indonesia
[2]SMA Negeri 1 Kabupaten Sarolangun, Jambi, Indonesia

Article Info

Article history:

Received May 3, 2023
Revised May 25, 2023
Accepted Jun 12, 2023

Keywords:

Multiple Intelligences
Biology Learning
Analysis

ABSTRACT

Purpose of the study: The research objective was to determine the multiple intelligences of students in biology learning activities for class XII IPA at SMA Negeri 1 Sarolangun Regency.

Methodology: The design used in this research is a descriptive analytic research design. The number of samples in this study were 40 students. The types of data in this study are quantitative and qualitative. The method of collecting data in this study is by interviewing and documentation.

Main Findings: In the Linguistic intelligence indicator, the percentage reached 76.15% in the high category, Mathematical-Logical intelligence reached 75% in the medium category, Visual-Spatial intelligence reached 71% in the medium category, Kinesthetic intelligence reached 67.5% in the medium category, Musical intelligence reached 59% in the high category, Interpersonal intelligence reaches 67.5% in the medium category, Intrapersonal intelligence reaches 74.15% in the medium category, and Naturalist intelligence reaches 81.5% in the high category.

Novelty/Originality of this study: Provide reference material that can be used as material for consideration in developing learning strategies and tools in carrying out learning activities.

Corresponding Author:
Vera Lisnawaty Manik
Program Studi Pendidikan Biologi, Universitas Jambi, Jambi, Indonesia
Email: veralsnwtymanii87@gmail.com

1. INTRODUCTION

Education is very important for students and schools seek it by helping to explore and improve every potential that students have. One of the educational implementation strategies pursued is in the form of learning activities [1]. teaching is a form of teaching and learning activities in which interactions are established between teachers and students to develop student behavior in accordance with educational goals [2].

One of the goals of education contained in the contents of the opening of the 1945 Constitution is to educate the life of the nation. Likewise, one of the goals of secondary education is to increase intelligence [3]. Schools try to provide opportunities for students to experience self-development guided by teachers [4].

In learning activities, each student basically has a variety of intelligence and different levels of mastery. Students will encounter materials and information that they must receive, process and manage. The teacher's task in conditioning student learning activities well, first of all, will also face the performance of the students' brains that use their respective intelligence [5]. For this reason, teachers must be able to recognize, understand and fulfill these needs in the learning process so that students are helped, more confident and satisfied with the progress of their learning outcomes [6]. If not, then this will greatly affect their learning outcomes, can cause students to feel that learning is difficult, boring and learning is not optimal so that the material will just pass without any processing in the brain.

One of the subjects in high school that students study is biology. Biology subject contains a lot of theory (material, concept) and practice regarding living things, the surrounding environment, and natural phenomena, so it really requires high activity and focus on students. By knowing how the intelligence condition of each student in the class can be a guide for teachers in providing an overview of learning methods and patterns that suit the needs of students [7]. The teacher will be assisted in exploring and improving every intelligence possessed by students and no student feels that he still does not understand the material being studied.

But the fact is that students are often taught in almost the same method every time learning is carried out. In general, schools carry out learning with the assumption that every child is identical, as a result various problems arise that cause a lack of student enthusiasm and hinder the development of student learning abilities. This kind of pattern gave birth to a system that ultimately only requires students to obey, accept and obey. Even though in one class there are students who have better intelligence in one area, but are weaker in other areas [8]. This clearly requires a variety of strategies in learning activities for better results. The research objective was to determine the multiple intelligences of students in biology learning activities for class XII IPA at SMA Negeri 1 Sarolangun Regency

2. RESEARCH METHOD

The design used in this research is a descriptive analytic research design. As an analytical research, this research design aims to describe data systematically and factually so that it can describe the state of the subject at that time. The population in this study were all students of class XII IPA SMA Negeri 1 Sarolangun Regency in the 2017/2018 academic year, totaling 127 students. the number of samples in this study were as many as 40 students.

The type of data in this study was qualitative data obtained from interviews with biology teachers for class XII IPA and documentation of midterm exam scores for class XII IPA students at SMA Negeri 1 Sarolangun Regency. Data collection methods in this study were interviews and documentation. The instruments used to obtain the expected data in this study were interviews and documentation. The results of the data obtained from interviews with biology teachers for class XII IPA will be analyzed in the following stages: 1) Making interview questions about the multiple intelligences of students in learning activities for class XII IPA at SMA Negeri 1 Sarolangun Regency, 2) Before being analyzed, the resulting data interviews were changed in written form to make them clearer and easier to interpret., 3) Analyze the answers from the interviews. The results of teacher interviews become data to find out the teacher's opinion about the multiple intelligences of class XII IPA students. This data can be used as reference material for discussing research data. Documented data in the form of a list of midterm exam scores from biology students in class XII IPA in odd semesters

3. RESULTS AND DISCUSSION

The results of interviews with teachers show that teachers have shown effort in carrying out learning that supports exploration and improvement of students' Mathematical-Logical intelligence. The teacher involves students in solving certain cases and practicum so that students actively analyze. The teacher also gives questions, with simulations on certain materials that require reasoning and logical sequence. Moderate rubric results can be caused by environmental influences and student learning experiences. Logical-mathematical intelligence is the sensitivity and ability to distinguish logical or numerical patterns, and the ability to handle long series of reasoning, think and develop solutions in a logical order.

The results of teacher interviews said that students were also not allowed to move freely if it was outside the context of existing basic competency demands. For example, the body movements that students make while studying, such as tapping on the table with a pen or fingers, shaking their feet rhythmically according to the rhythm of a song that supports their concentration or relaxing their body by standing and walking briefly out of their chair. A good way of learning in kinesthetic intelligence is when students process information through physical sensations or learn while making movements [9]. Students with Kinesthetic intelligence will find it difficult to be silent for a long time, including when sitting in class. This intelligence is trained by cultivating the body to do certain things and do what it thinks. People with kinesthetic intelligence predominantly use the body as an expression of their thoughts.

The results of interviews with teachers revealed that students were not allowed to behave that had nothing to do with the basic competencies and teaching methods used. For example, the body movements that students make while studying, such as tapping on the table with a pen or fingers, shaking their feet rhythmically according to the rhythm of a song that supports their concentration or relaxing their body by standing and walking briefly out of their chair. This can be an environmental factor that cripples Musical intelligence. Musical intelligence is not too extreme that one's way of thinking and behaving in learning is through rhythms and melodies, unconsciously humming to oneself, and tapping on a table or stool while studying at a gentle level.

The results of interviews with the biology teacher revealed that the teacher had facilitated students' needs so that learning was also carried out by dividing students into certain groups that were made heterogeneous so that they were fair according to the ability level of each student. Interpersonal intelligence includes the ability to establish relationships with other people which includes the ability to understand and communicate with others, recognize the feelings, needs, motivations and behavior of others, be able to see things from other people's perspectives, work together in groups, build trust, find solutions problems from a conflict, as well as maintaining positive relationships with others [10]. It is also able to lead and influence others, and easily empathize with others.

From the results of interviews with biology teachers, it can be seen that teachers have provided opportunities for students to increase their self-concept values by giving praise and being encouraged in learning. Also the teacher pays attention to his students through a journal containing student background and biodata, the teacher notes the behavior of students who may experience difficulties, distractions or positive behavior. Students themselves are invited to make self-reflection notes every day to help them cope with themselves or report it to the teacher. If the teacher finds students who experience difficulties while studying or outside of study hours, the teacher tries to overcome them by guiding students in a special counseling room.

From the results of interviews with biology teachers it is known that teachers have provided learning opportunities for students who support Naturalist intelligence by carrying out several learning activities outside the classroom that are connected to nature. This is so that students better understand the material being studied, for example growth and development in plants, seeing the effect of hormones on plants, and photosynthesis materials on hydrilla plants. The teacher also facilitates practicum tools and materials according to the material and encourages students to actively search in terms of the need for tools and materials that are easily available. Students' love for nature is also assisted by school activities which often hold competitions to create creations to decorate the class and their environment and include taking care of the plants they care for.

Based on the results of the documentation of scores obtained from the biology teacher at SMA Negeri 1 Sarolangun Regency, it is known that the average midterm exam score for class XII IPA students, especially in biology subjects, has reached the KKM (Minimum Completeness Criteria), which is worth 75. Only class XII IPA 1 is the average value has not yet reached the KKM value.

Table 1. List of Mid-Semester Examination Scores for Biology Class XII IPA Students at SMA Negeri 1 Sarolangun Regency

No.	Student's name	Class XII IPA			
		1	2	3	4
1	A	90	75	84	98
2	B	70	82	70	58
3	C	100	82	45	75
4	D	70	81	86	100
5	E	60	75	84	76
6	F	85	82	98	87
7	G	90	83	90	76
8	H	80	84	50	75
9	I	40	86	70	83
10	J	85	88	85	75
11	K	55	78	20	32
12	L	90	86	83	75
13	M	55	76	72	75
14	N	60	87	40	75
15	O	45	87	73	87
16	P	80	77	88	90
17	Q	85	85	87	90
18	R	30	75	88	79
19	S	50	75	85	88
20	T	75	86	88	32
21	U	80	87	90	75
22	V	75	86	84	83
23	W	85	78	84	80
24	X	75	85	74	83
25	Y	90	87	92	83
26	Z	80	84	75	80
27	AA	50	86	84	88
28	AB	95	80	72	78

29	AC	85	82	70	95
30	AD	98	82	94	95
31	AE	98	80	92	90
32		50	85	80	60
Amount		2356	2632	2477	2358
Average		74	82,25	77,40	76,06

Midterm exam scores for class XII IPA students at SMA Negeri 1 Sarolangun Regency have different figures. Some are higher than the KKM score, some are standard, and some are below the KKM score or incomplete. This value is limited to the cognitive value of students. When associated with all intelligence indicators obtained by average students, it is in the high category, it can be said that it is quite suitable between the acquisition of the percentage of students' multiple intelligences and the level of achievement of learning outcomes in students' midterm exams.

If viewed from the average score of students in the midterm exams, each intelligence indicator can be said to be quite appropriate because the test scores in general have reached the KKM standard. However, when viewed from all the various indicators of multiple intelligences, the values above cannot be used as a full benchmark to compare the percentage of students' multiple intelligences because the value is only a cognitive value (knowledge). Meanwhile, to assess intelligence is not limited to cognitive numbers, it can be on students' attitudes and skills. The value data obtained from the teacher is only cognitive.

For the percentage of all intelligences that are on average in the high category, this can be influenced by the level of student ability and the carrying capacity of the family, school and social environment. The relationship between the level of attainment of test scores obtained by XII IPA students at SMA Negeri 1 Sarolangun Regency with high multiple student intelligence is definitely related, it's just that the method of assessment might be improved so that it better supports the acquisition of student learning outcomes.

4. CONCLUSION

The research that has been conducted regarding the analysis of multiple student intelligence in biology learning activities for class XII IPA at SMA Negeri Sarolangun Regency, it can be concluded that based on the overall results and discussion obtained, the percentage of Linguistic intelligence indicators reaches 76.15% with the high category, Mathematical intelligence -Logical reaches 75% in the medium category, Visual-Spatial intelligence reaches 71% in the medium category, Kinesthetic intelligence reaches 67.5% in the medium category, Musical intelligence reaches 59% in the high category, Interpersonal intelligence reaches 67.5% in the medium category , Intrapersonal intelligence reaches 74.15% in the medium category, and Naturalist intelligence reaches 81.5% in the high category.

ACKNOWLEDGEMENTS

The author would like to thank all parties involved, so that this research can run smoothly.

REFERENCES

[1] N. Rohmah, S. Hidayat, And L. Nulhakim, "Implementasi Pendidikan Karakter Disiplin Dalam Mendukung Layanan Kualitas Belajar Siswa," *J. Imiah Pendidik. Dan Pembelajaran*, Vol. 5, No. 1, P. 150, 2021, Doi: 10.23887/Jipp.V5i1.30308.

[2] H. Cikaa, "Peranan Kompetensi Guru Pendidikan Agama Islam (Pai) Dalam Meningkatkan Interaksi Pembelajaran Di Sekolah," *Guru Tua J. Pendidik. Dan Pembelajaran*, Vol. 3, No. 1, Pp. 43–52, 2020, Doi: 10.31970/Gurutua.V3i1.45.

[3] K. Nisa, "Hidden Curriculum: Upaya Peningkatan Kecerdasan Spiritual Siswa," *Lentera Pendidik. J. Ilmu Tarb. Dan Kegur.*, Vol. 12, No. 1, Pp. 72–86, 2009, Doi: 10.24252/Lp.2009v12n1a6.

[4] D. Indraswati, A. Widodo, A. N. Rahmatih, M. A. Maulyda, And M. Erfan, "Implementasi Sekolah Ramah Anak Dan Keluarga Di Sdn 2 Hegarsari, Sdn Kaligintung, Dan Sdn 1 Sangkawana," *Jkkp (Jurnal Kesejaht. Kel. Dan Pendidikan)*, Vol. 7, No. 01, Pp. 51–62, 2020, Doi: 10.21009/Jkkp.071.05.

[5] H. Arifin, "Konsep Multiple Intelligences System Pada Sekolah Menengah Pertama Al Washliyah 8 Medan Dalam Perspektif Islam," *J. Edutech Vol. 3 No. 1 Maret 2017*, Vol. 3, No. 1, Pp. 52–73, 2017.

[6] U. Cahyana, M. Paristiowati, M. F. Nurhadi, And S. N. Hasyrin, "Studi Tentang Motivasi Belajar Siswa Pada Penggunaan Media Mobile Game Base Learning Dalam Pembelajaran Laju Reaksi Kimia," *J. Teknol. Pendidik.*, Vol. 19, No. 2, Pp. 143–155, 2017.

[7] G. Istiningsih, E. M. L.A, And E. Prihalina, "Pengembangan Model Pembelajaran 'Promister' Untuk Meningkatkan Hasil Belajar Wayang Pandhawa Pada Siswa Sekolah Dasar," *J. Holistika*, Vol. Ii, No. 2, Pp. 94–103, 2018, [Online]. Available: Https://Jurnal.Umj.Ac.Id/Index.Php/Holistika/Article/Download/2637/2788.

[8] S. Nusroh And E. L. F. Ahsani, "Analisis Kesulitan Belajar Pendidikan Agama Islam (Pai) Serta Cara Mengatasinya," *Belajea J. Pendidik. Islam*, Vol. 4, No. 2, 2019, Doi: 10.29240/Belajea.V4i2.891.

[9] L. A. Purnama, Sutrisno, And Diana, "Pengaruh Permainan Snowball Drilling Terhadap Kecerdasan Kinestetik Anak Usia 4-5 Tahun Di Tamankanak-Kanaklaboratorium Model Universitas Muhammadiyah Pontianak," *J. Chem. Inf.*

Model., Vol. 53, No. 9, Pp. 1689–1699, 2016.
[10] F. Oviyanti, "Urgensi Kecerdasan Interpersonal Bagi Guru," *Tadrib J. Pendidik. Agama Islam*, Vol. 3, No. 1, P. 75, 2017, Doi: 10.19109/Tadrib.V3i1.1384.