PPSDP International Journal of Education
Volume 3 (2) 2024, 315-329
E-ISSN 2829-5196, P-ISSN 2830-3229

The Effect of the Application of Differentiated Learning as an Effort to Increase Student Learning Motivation in Biology Subjects

Weny Astri Krisnawati[1]
[1]SMA Negeri 1 Belitang III OKU Timur, South Sumatra, Indonesia

Corresponding author e-mail e-mail: sivagni8185@gmail.com

Article History: Received on 5 April 2024, Revised on 17 May 2024, Published on 5 July 2024

Abstract: The purpose of this study was to increase students' interest in the biology curriculum. Three components of differentiated learning, namely visual, auditory, and kinesthetic, were used in this study. This research was a two-cycle classroom action research project that began with a pre-cycle. Each cycle consists of planning, action, observation, assessment, and reflection. For the 2022-2023 academic year, the research focused on class XII, even semester students at SMAN 1 Belitang III OKU Timur. Based on the results of research involving 29 students, the number of students who completed pre-cycle activities was 8 (27 points, 58 percent), while students who did not complete were 21 (72 points, 42 percent), with an average score of 55 points, 17. In cycle I, there was an increase in the number of students who completed 15 (51 points, 72 percent), while the number of students who did not complete was 14 (48 points, 28 percent), with an average score of. This study proves that the use of differentiated learning can increase the motivation to learn biology in class XII, even for semester students of SMAN 1 Belitang III OKU Timur in the 2022-2023 academic year. There was a very high increase in cycle II compared to the previous cycle, with the number of students who reached the minimum brilliance criteria as many as 28 students (96,55%), while the number of students who did not complete was 1 person.

Keywords: Biology Subject, Differentiate Learning, Learning Outcomes

A. Introduction

Teachers who mobilize the learning ecosystem to create education that is centered on students are also thought to be leaders in independent learning. This is in line with the justification of the mobile teacher education implementation mechanism. Especially when studying biology, education that is centered on the student's life focuses more on the learning process itself and the effects of that process on the student's growth. Students must be involved in physical and mental activities as well as studying biology, which is based on real-world experiences. While students

are exploring and understanding scientific knowledge, natural science education is also taking place directly. Students always have such an impressive educational experience throughout the course that they almost always develop moral principles from studying biology. The author believes that he is interested in helping to create education that is centered on students and is in line with the vision and mission of activist teachers as well as prospective activist teachers who are pursuing activist teacher education. The implementation of student-centered school building blocks in classrooms has also been successful (Syaifuddin & Sutarto, 2013).

The previous efforts carried out by the author were to implement interesting social media through interesting media users, such as PowerPoint slide content in videos displayed via an LCD projector. However, student learning outcomes are still bad. Meanwhile, according to Sutarto & Syaifuddin (2013), learning outcomes are units of value that are used as a measure to assess the level of student achievement in learning outcomes, and these standards are usually based on existing standards or metrics. The learning outcomes for this situation can be divided into two categories, namely complete and incomplete. If a student's exam score meets the minimum completion criteria of 70 set at SMAN 1 Belitang III OKU Timur, it means they have successfully completed the exam. The role of the methods used in the learning process in the field of learning. Biology determines students' learning outcomes by considering various factors that influence students' learning outcomes in the criteria for learning outcomes. For this reason, teachers in school use the appropriate lessons for students when practicing learning at school, guided by the general principles of the learning program.

Learning motivation can be seen from two sides, where the student side and the teacher side are involved. According to Dimyanti (2009), learning motivation is an indication of the mental maturity of students who are more advanced than learning students. Cognitive, affective, and psychomotor domains are used to describe the level of mental development. Slameto (2010) stated that learning motivation is a process that involves learning to sell something new, modifying behavior through experience, and changing people's sales interactions with the environment. Learning motivation is defined as the desire to develop learning in biology education by means of mastering the knowledge, attitudes, and other skills that arise between one student and another. This motivation can be explained by changing behavior through formative teaching or using special methods of self-evaluation.

At the high school level, biology is a core subject, and students must study it for five hours each week. Teachers must find ways to motivate their students to learn with enthusiasm. At the high school level, students must study biology for five hours each week. Teachers must find ways to encourage their students to learn enthusiastically. At middle school, students have to study biology for five hours

each week. Teachers must find ways to encourage their students to learn enthusiastically. High school students must study biology for five hours each week, which is a core subject. Teachers must find ways to encourage teachers and their teachers to learn enthusiastically.

At middle school, students have to study biology for five hours each week. Teachers must find ways to encourage their students to learn enthusiastically. What is the best way to tell? Studying biology for five hours a week during middle school is mandatory. Teachers must find ways to encourage students with enthusiasm. Saprianti (2009) stated that biology subjects will produce students who have both of the above behavioral traits and have a competent and responsible mentality. Biology is a scientific discipline that studies all aspects of life, including plants, animals, humans, microorganisms, and interactions between living things. Biology learning as part of science education has three main components, namely products, processes, and attitudes (Brahim, 2007). Then, according to Paidi (2012), biology learning should not only focus on aspects of understanding but also reach a level of complexity, namely being able to do, being able to carry out, being able to practice, and carrying out or implementing. The application of scientific principles to real-life scenarios is key to understanding biology, which focuses on the organization of living organisms and their interactions with nature.

In accordance with the description above, it can be concluded that biology subjects prioritize direct learning and physical practice for students to increase the potential for scientific exploration of plant life, animals, humans, and microorganisms. To improve students' understanding of nature, they rely on direct learning experiences and a scientific attitude to develop processing skills and problem-solving skills in biology. Understanding biology requires a comprehensive understanding of the subject matter, which includes institutions, mechanisms, the following bodies of knowledge, and the main factors responsible for maintaining and developing production, as well as the main factors that influence society's beliefs and attitudes towards the cosmos and other people. When studying biology, students can improve and perfect their cognition (Ermin, 2022). And the description above shows that the field of biology has significant strategic value in developing superior, intelligent, and environmentally conscious human resources. In this way, students need a learning experience that is interesting and successful. It has been proven that the learning process varies from student to student, and there are students who learn quickly and can complete learning activities faster than expected, as well as those who are always behind and spend too much time studying.

Learning is an adjustment to students' interests, learning preferences, and readiness in order to achieve improved learning outcomes. Developmental learning is not individualized learning. However, more tend to choose learning that accommodates

student's learning strengths and needs with individual learning strategies. Apart from being expected to improve learning outcomes, this learning process is also expected to increase students' morning learning motivation (Khasanah & Alfiandra, 2023). Then, from the explanation above, what becomes the problem formulation in this research is How can the implementation of differentiated learning improve the academic achievements of students in class XII Biology at SMAN 1 Belitang III OKU Timur for the 2022/2023 academic year?

B. Methods

The final action research project is carried out in two stages: pre-cycle, cycle I, and cycle II, each of which lasts for three months. The first pre-cycle, which occurred on July 25, 2023, was followed by the second cycle on July 25, 2023. In the 2022/2023 academic year, the biology subject class study project was carried out at SMAN 1 Belitang III OKU Timur in the middle school semester. There were 29 students in class. The 2022–2023 school year was attended by 12 female students and 17 male students.

Implementation measures
During the preparation for Class Action Research, there are four stages: planning, action (implementation), observation, and reflection. All four class action research steps are shown in the image below.

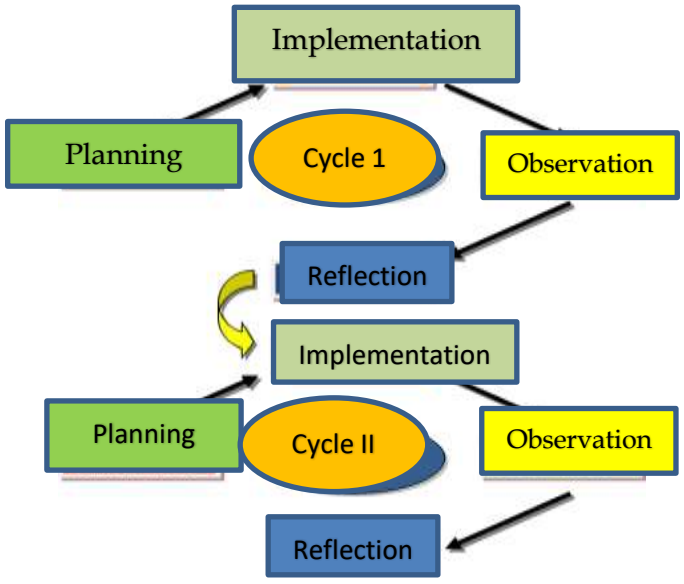

Figure 1. Flow of implementation of Class Action Research Model Kemmis and Taggart (Trianto, 2011)**.**

Each cycle will use a learning engineering design, which includes:

a. Planning
   Planning is the main task that must be completed. Classroom research planning involves three basic tasks: problem formulation, problem identification, and problem solving. To reach the optimal planning stage, sub-activities must be included in the sale of each activity.
b. Implementation
   Implementation refers to the process of putting one's stage plan into action, such as acting in class.
c. Observation
   A tool used to measure the distance between the target and the action target. The sales research specialist must determine the data categories, methods, and instruments used to collect information.
d. Reflection
   His experience is reflected in his research in this area, allowing him to identify strengths and weaknesses.

Arikunto (2009) stated that discussing the implementation of action plans with learning, recording observations and learning results, evaluating observations, and analyzing learning results to strengthen the success of cycle I in cycle II is already appropriate at this stage. Reflection results in reflection regarding plans that have been implemented to improve teacher performance in cycle II and its current progress.

Data collection technique

a. Observation
   Moser & Korstjens (2018) shows that data collection techniques show several characteristics that are not found in interview techniques. The systematic observation and recording of phenomena in research objects is known as observation. This research utilizes direct observation of student activities throughout the learning process to collect quantitative data by completing observation sheets.
b. Learning motivation tests
   Learning motivation tests are designed to assess a person's achievements in various fields through deliberate means such as knowledge, understanding, skills, attitudes, and values. The learning motivation test is given to class XII biology students who meet the minimum completion requirements for biology subjects. This shows their interest in learning. The post-test format is used to convey this.
c. Documentation
   Documentation involves gathering information from written materials such as books, magazines, rules, minutes, diaries, and other forms of written communication. It is clear from this perspective that documentation is related to the method of collecting data used in research by documenting teacher activities.

Data analysis
This research data analysis involves the use of qualitative and quantitative data. Quantitative data was collected through learning motivation, while qualitative data was collected through observation. The data presented is then analyzed using a data reduction process before being presented and final conclusions drawn.

C. Results and Discussion

Learning is a learning and teaching process in which students learn learning materials based on their abilities, what they like, and their individual needs so that they do not get frustrated and feel like they have failed during the learning process (Wahyuningsari et al., 2022). With the title "Developing Students' Learning Motivation through Differentiated Learning Strategies: A Study of Learning in Pedagogical-Philosophical Learning Strategies" shows that students' learning needs are not only met through special educational learning strategies, but students also need to don't feel overwhelmed because the learning strategies that are applied are in accordance with their needs, which they really need. According to research, teachers play an important role in the learning process, one of which is motivating students to participate in learning so as to encourage them to achieve the expected learning goals (Pebriyanti, 2023).

The essence of teaching and learning focuses on meeting students' learning needs and how teachers address them. Teachers must identify learning needs more thoroughly to improve their ability to respond to students' learning needs. Based on research Andini (2022), there are at least three factors in sales learning that are proactive and based on sales outcomes, as follows:

a. Readiness
   The capacity to learn new information is called readiness to learn. Students will be given assignments tailored to their level of readiness, but with the right learning environment and support, they will still be able to learn new subjects. Understanding and learning will be better if the level of difficulty provided is slightly higher than the previous level of knowledge, understanding, and skills. This will help in connecting new knowledge with new levels of knowledge. Student readiness will be closely related to the level of learning development and student achievement in class.
b. Interest
   We are aware that students have an interest in selling themselves, just like us students. Most students have prerequisites for drama, cooking, mathematics, and science subjects. Student interest is the main factor in "active engagement" throughout the learning process. A wise teacher will connect the content learned with the interests of his students. This will maintain the level of student attention to learning. The student's interests are related to all the things he likes or

dislikes, and he pursues his hobbies.

c. Learning profile
   A student's learning profile is determined by various factors, including language, culture, health, family, and other details. How to sell: people who learn will also sell. Research on students' learning needs based on their learning profile is carried out so that students can learn in an effective and natural way. As teachers, we may not always choose a learning style that suits our own interests. We also acknowledge that each child has his or her own learning characteristics. It is very important for teachers to understand this so they can modify their teaching methods. In addition, the majority of individuals prefer the combination. Teachers must be observant in understanding the learning styles of each student. As for the child's learning profile, it will also be connected with social and emotional factors, namely learning about language, culture, appearance, reality in the family, and other specialties. Apart from that, a learning profile is also related to a person's learning style.

According to Grelgory and Chapman, the things that support the view or philosophy of implementing personalized learning are as follows: a. All students basically have strengths in certain areas; b. All students have areas that need to be strengthened; c. Each student's brain is as unique as a fingerprint; d. It's never too late to learn. When starting a new topic, students use the basis of their previous knowledge and experience in learning; f. Emotions, feelings, and attitudes influence learning; g. All students can study; and h. Students learn in different ways at different times (Andini, 2022). Before carrying out educational learning, a thorough plan is needed. This educational learning plan is necessarily based on the implementation of students' learning needs, which have been analyzed by the teacher. According to Wahyuningsari et al., (2022) there are four aspects of differentiated learning that can be chosen by teachers in learning activities, namely aspects of content, process, product, and learning environment (Khasanah & Alfiandra, 2023).

1. Pre-cycle Learning Motivation

A total of 29 students took part in pre-cycle formative learning, and it was found that there were still many who had not yet met the minimum level of completeness criteria. As a result, the results were far from what was expected. The minimum level of completion required by students is 70. Data on the results of formative tests carried out before the cycle are presented in Table 1.

Table 1. Pre-cycle Student Learning Motivation Data

No	Aspects	Description
1	The number of students who follow the test.	29 Person
2	The number of students who graduated.	8 Person (27,58%)
3	The number of students who have not yet gone to college.	21 Person (72,42%)
4	Full Value.	1600
5	Highest rating.	80
6	Lowest value.	20
7	Levels	55,17

Table 1 shows that the high- and low-level scores obtained by students were 80, while the low-level score was 20. The average was 55,17. Pre-cycle student motivation data is presented graphically here.

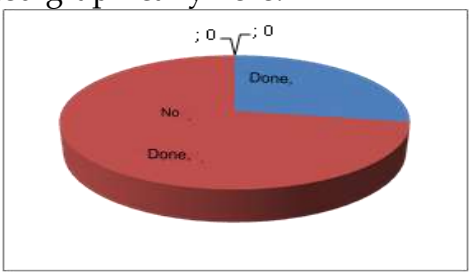

Diagram 1. Pre-Cycle Student Completeness Learning Motivation is illustrated in a diagram

The diagram above shows that 8 students completed their studies with a level of 27,58, while 21 students did not complete their studies with a level of 72,42. Students who lack motivation to learn pay less attention to the lessons being taught. Educational learning programs are needed to increase student enthusiasm and facilitate understanding of land and environmental sustainability. Class action research is carried out in two stages to improve learning.

2. The first step in the inspiration process.

The impetus for learning biology in the first learning cycle is through learning lessons that follow the learning lessons in the first learning cycle.

Table 2. The First Stage of the Student Learning Motivation Cycle

No	Aspects	Description
1	The number of students who follow the testt.	29 Person
2	The number of students who graduated.	15 Person (51,72%)
3	The number of students who have not yet gone to college.	14 Person (48, 28%)
4	Full Value.	1930
5	Highest rating.	90
6	Lowest value.	50
7	Levels	66,55

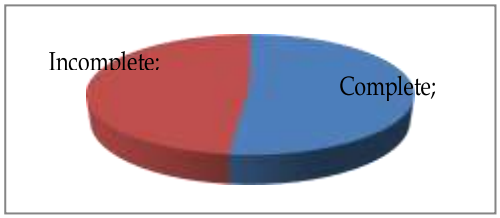

Diagram 2. Completeness Diagram of Cycle I Students' Learning Motivation

In the diagram above, there are 29 students, of whom 15 have completed their assignments with a progress rate of 51,72% and 14 have completed at least 48.28%.

Table 3. Details about how students are motivated to study in Cycle II

No	Aspects	Description
1	The number of students who follow the testt.	29 Person
2	The number of students who graduated.	28 Person (96,55%)
3	The number of students who have not yet gone to college.	1 Person (3,45%)
4	Full Value.	2320
5	Highest rating.	100
6	Lowest value.	50
7	Levels	80

The table above shows that the maximum and minimum scores for students are 100 and 50, respectively. The average score achieved by students is 80. The diagram below displays student motivation data during cycle II.

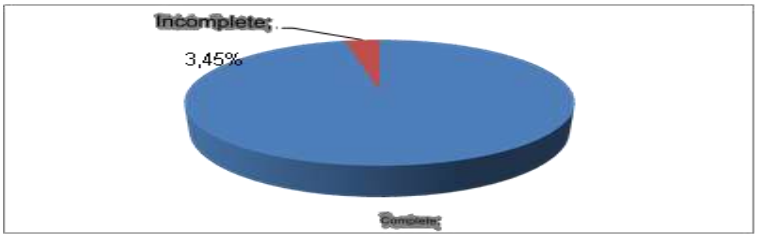

Diagram 3. Illustrates the Second Stage Completion Diagram: Student Motivation

In the diagram above, there are 28 students who passed with a mark of 96,55 %, and only one student did not pass with a score of 34,5 %

Based on the research described above, the following stages of cyclic molecule activity can be identified.

1. Planning

Bell Writing aims to develop a problem-solving strategy that allows all students in the classroom community to understand land sustainability and life by offering a variety of methods for understanding new information, including communication,

reasoning, marketing, construction, and development marketing products. Developing instruction allows teachers to adapt instruction to the needs, preferences, and interests of each student.

The author suggests that by implementing the lessons learned about land and survival, students who are struggling to understand this information can be encouraged to participate in the expected learning curriculum, keeping in mind the factors described above. From preparation, study materials, and study plans.

2. Implementation
The learning plan outlines the implementation process, which requires simply watching a slideshow for students to view as part of pre-cycle learning. As an illustration, in cycle I, students are only allowed to watch slideshows and videos projected on the LCD screen while explaining how plants can prevent soil erosion (difellation processes). As a result, students are still passive in carrying out teaching activities, and the students who want to take part in teaching activities just sit quietly.

On the other hand, the majority of students carried out demonstration activities that focused on the role of plants in preventing soil erosion in cycle II and also watched slideshows and videos that discussed the importance of soil for life. As a result, the classroom environment appears to be busy and noisy. The differentiation between content and sales processes occurs convergently.

3. Observation
It was concluded that data collection was used to gather information about learning motivation. The following table illustrates the use of bellridification learning to mellrellcapitulate students' learning motivation in the learning cycle.

Table 4. Aptitude for Student Learning Motivation

Description	**Complate Student**		**Incomplete Students**		**Average**
	Frequency	%	**Frequency**	%	
Precycle	8	27,58	21	72,42	55,17
Cycle I	15	51,72	14	48,28	66,55
Cycle II	28	96,55	1	3,45	80

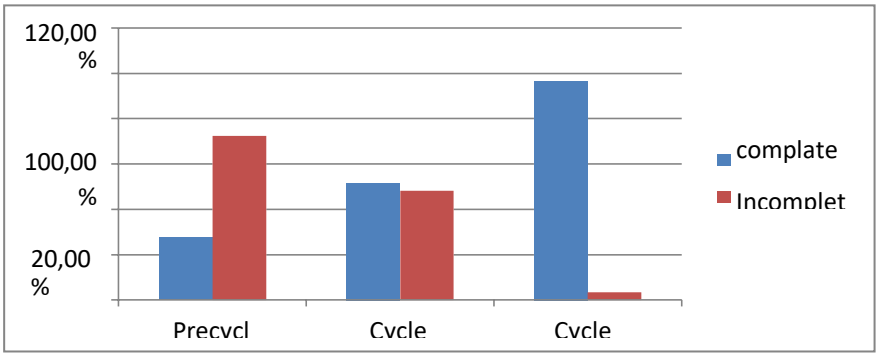

Diagram 4. In Cycles I and II, the pre-cycle is completed

Students in cycle I completed more than 15 assignments with a percentage of 51,72%, while students in cycle II completed less and had fewer problems; 8 outers completed their tasks at 48,28%. (See comparison above). There are 21 students who have not yet finished, and the pre-cycle percentage is 72,42% and 67,98% (27,58 students).

According to research and discussion, learning lessons can increase students' enthusiasm for studying biology. The results of the learning evaluation show that the learning achievement of students who achieved learning completion in the pre-learning cycle was 27,58%, in the first cycle the learning was 51,72%, and in the second cycle the learning was 96,55%. The educational teaching implemented by SMAN 1 Belitang III OKU Timur had an impact on how well the 12th grade students experienced the learning.

External and internal factors both play a role in this variable. Intelligence, interests, motivation, and self-discovery, both internal and external. Even though they didn't finish their grades, all the students who weren't smart and stupid felt it was difficult. Students also pay less attention to their assignments in class. In contrast, external factors come from outside sources. The school environment is the main external element of this research. Increasing the educational aspects of the school environment can increase student motivation, according to research. The way of delivering material using differentiated learning is this component.

Educational learning and learning implementation in the teaching of subjects can produce better student learning outcomes. The increase in average yield per cycle is a demonstration of this. The average value in cycle I was 66,55, while the standard deviation in the pre-cycle was 55,17. The average score for cycle II was 80 at the end of the period. The implementation of educational learning in biology, as seen from research and observation from cycle I to cycle II, resulted in a significant increase in student learning achievement.

1. Reflection
During the pre-cycle period, students were not actively involved and only watched the teacher's slideshows and videos on the LCD and projector during cycle I. Even though no products are currently being produced, the students demonstrated how plants can prevent soil erosion. During this period, In the second cycle, students want to carry out demonstration activities to prevent soil erosion through plants rather than watching slideshows and videos. Even though there are already products produced, their products are a summary of their learning results. responses to learning activities, sales, and learning activities that take the form of observation tables. Writing begins the process of learning by teaching by showing slideshows and videos and telling stories about the benefits of each cycle.

In implementing differentiated learning, teachers still encounter obstacles. This is a challenge that must be faced and resolved in order to achieve the expected results. The following are some of the obstacle teachers face in implementing differentiated learning:

a. Incompetent in applying technology, according to Mustafa et al., in the current global era, apart from managerial capabilities in learning, teachers also cannot escape the demands of using technology to strengthen teachers' professionalism.
b. Lack of supporting learning media, based on research by Dalelna et al., stated that teachers' tasks can be carried out clearly when learning media is one of the learning components that has an important role in learning activities. Of course, in carrying out this, supporting media are needed that support the learning process (Muliani, 2023).
c. Teachers have difficulties implementing differentiated learning. Faiz et al. (2022) said that, as a central role in implementing national education, a teacher must realize that each student has his own uniqueness, including dreams, intelligence, talents, and diverse abilities.
d. Lack of understanding about merdeka learning is caused by a lack of understanding about merdeka learning, which makes it difficult for teachers to implement and apply the taught learning. There are still many teachers who have not yet understood the concepts of the Merdeka curriculum (Ardianti & Amalia, 2022).

In addition to the obstacles explained above, there are other obstacles to implementing differentiated learning (Hehakaya & Pollatu, 2022), namely: (1) lack of relevance to a differentiated learning model. Lack of adequate resources can hamper the ability to design and implement an efficient differentiated learning model. (2) limited facilities and infrastructure in the school. Lack of facilities and infrastructure for distributed learning can have several negative impacts. The following are some of the impacts that may occur:

a. Inability to identify individual differences: Without adequate facilities and infrastructure, educators may have difficulty identifying individual differences among their students. This can hinder their ability to design learning strategies that suit the needs of each student.
b. absence of customization of learning: developed learning involves adapting materials, models, and assessments according to student needs. A lack of appropriate facilities and infrastructure can hinder the ability of educators to carry out these adjustments effectively.
c. Inability to provide additional resources in schools: Independent learning often requires additional resources, different reading materials, visual aids, or special software. If the necessary facilities and infrastructure are not available, educators may not be able to provide these resources to students. This can limit students' access to learning materials that suit their learning styles and needs.
d. Lack of support for educators: The lack of facilities and infrastructure for distributed learning can also have an impact on the educators themselves. Without adequate support, educators may find it difficult to implement educational strategies, manage classes with students who have diverse needs, and achieve optimal learning outcomes.

D. Conclusions

The results of the study and discussion revealed that the study program can increase student motivation for class 12 students at SMAN 1 Belitang III OKU Timur for the 2022/2023 school year. This increase in motivation is demonstrated by an increase in learning motivation both in the pre-cycle and cycle I as well as in cycle II, with the number of students being 29 and the institution having minimum school completion criteria. The average value of pre-cycle activities was 55,17, with 27,58% and 72,42% of students incomplete or incomplete. In the first cycle, there were 15 students who completed the exam with 51 and 72 exams, while those who did not complete the exam were 14 students with exams of 48 and 28%, respectively. The number of students who reached the minimum completion criteria in cycle II was 28 (96 points, 55%), while only one didnot complete (3 points, 45 points) with an average of 80 points. In the biology subject and its minimum completion criteria objectives, learning lessons can increase students' learning motivation through learning methods that are very good. Class-level research is believed to be successful.

E. Acknowledgement

Thank you to principal and stakeholders of SMAN 1 Belitang III OKU Timur, teachers, and team of PPSDP International Journal of Education.

References

Andini, D. (2022). Differentiated Instruction: Learning Solutions in Student Diversity in Inclusive Classes. *Jurnal Pendidikan Ke-SD-An*, *2*(3), 340–349. https: //doi.org/10.30738/trihayu.v2i3.725

Ardianti, Y., & Amalia, N. (2022). Merdeka Curriculum: Implementing Independence in Learning Planning in Elementary Schools. *Jurnal Penelitian dan Pengembangan Pendidikan*, *6*(3), 399–407. https://doi.org/10.23887/jppp.v6i3. 55749.Trihayu

Arikunto. (2009). *Action Research in Class.* Jakarta. Bumi Aksara.

Brahim, T. K. (2007). Improving the Science Learning Outcomes of Sixth Grade Elementary School Students Through Enhancing the Use Of Biological Natural Resources in the Surrounding Environment. *Jurnal Pelndidikan Penabur*, *9*(3), 37–49.

Dimyanti. (2009). *Keep Leraning*. E. Rineka.

Ermin, C. (2022). Analysis of Metacognitive Skills Related to Student Subjects. Jurusan Biologi IPA SMP Kota Ternate. *Jurnal Pendidikan dan Pembelajaran Indonesia (JPPI)*, *1*(1), 56–60. https://doi.org/10.53299/jppi.v1i1.25

Faiz, A., Pratama, A., & Kurniawaty, I. (2022). Developmental Learning in the Leading Teacher Program in Module 2.1. *Jurnal Basicedu*, *6*(2), 2846–2853. https://doi.org/10.31004/basiceldu.v6i2.2504

Hehakaya, E., & Pollatu, D. (2022). Teacher Problems in Implementing the Independent Curriculum. *Jurnal Pendidikan DIDAXEI*, *3*(8). https://e-journal. iaknambon.ac.id/index.php/DX/article/view/617

Khasanah, I., & Alfiandra. (2023). Implementation of Educational Learning in Efforts to Increase Learning Motivation for Class IX at SMPN 33 Palembang. *Jurnal Pendidikan dan Konselling*, *5*(1), 5324–5327. https://doi.org/10.31004/jpdk.v5i1. 11857

Moser, A., & Korstjens, I. (2018). Series: Practical Guidance to Qualitative Research. Part 3: Sampling, Data Collection and Analysis. *European Journal of General Practice*, *24*(1), 9–18. https://doi.org/10.1080/13814788.2017.1375091

Muliani, R. (2023). Overcoming Barriers to Educational Learning. *Tips dan Trik untuk Guru*, 1–14.

Paidi, H. (2012). Biology, Science, Environment and Their Learning in Efforts to Improve Students' Abilities and Character. *Seminar Nasional IX Pelndidikan Biologi FKIP UNS,* 14–18.

Pebriyanti, D. (2023). T*he Influence of the Implementation of Educational Learning on Meeting the Learning Needs of Primary School Level Students*. *5*(1), 89–96.

Saprianti. (2009). *Studying Science at Elementary School*. Universitas Terbuka.

Slameto. (2010). *Factors that Influence Learning*. Amelia Cipta Rineka.

Sutarto, & Syaifuddin. (2013). *The Indonesian National Qualifications Framework is used*

in the Design of Higher Education Curriculum. Samudra Biru.

Syaifuddin, & Sutarto. (2013). *Learning Design for Mathematics.*

Trianto. (2011). *Concept, Strategy, and Implementation of Integrated Learning Models in the Educational Unit Level*. Bumi Aksara.

Wahyuningsari, D., Mujiwati, Y., & Hilmiyah, L. (2022). Educational Learning in the Context of Realizing Merdeka Learning. *Jurnal Jendela Pendidikan*, *2*(4), 529–535. https://doi.org/10.57008/jjp.v2i04.301