

Increasing Student Creativity in Science Learning Through Project Based Learning Models and Animated Videos

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Accepted : 21 Sep 2025
Published: 29 Sep 2025

Abstrak:

Pembelajaran IPA di madrasah cenderung berfokus pada aspek pengetahuan, sementara pengembangan kreativitas siswa sering terabaikan. Penelitian ini bertujuan menganalisis aktivitas guru, aktivitas siswa, hasil belajar, dan kreativitas siswa melalui penerapan *Project Based Learning* (PBL) berbantuan video animasi pada siswa kelas IV MIN 29 Aceh Besar. Penelitian menggunakan metode Penelitian Tindakan Kelas (PTK) dengan instrumen observasi guru, observasi siswa, tes hasil belajar, dan lembar kreativitas. Hasil penelitian menunjukkan peningkatan pada setiap aspek: aktivitas guru dari 84% menjadi 95%, aktivitas siswa dari 79% menjadi 93%, hasil belajar dari 52,17% menjadi 88,46%, serta kreativitas siswa dari 56,52% menjadi 88,46%. Dengan demikian, model PBL berbantuan video animasi terbukti dapat meningkatkan kreativitas dan hasil belajar siswa.

Kata kunci: Model *Project Based Learning*; Video Animasi; Kreativitas; Hasil Belajar.

Abstract :

Science learning in madrasahs tends to focus on the cognitive aspect, while the development of students' creativity is often overlooked. This study aims to analyze teacher activities, student activities, learning outcomes, and student creativity through the implementation of Project-Based Learning (PBL) assisted by animated videos in grade IV students of Elementary Islamic School (MIN) 29 Aceh Besar. The research employed a Classroom Action Research (CAR) method with instruments including teacher observation, student observation, learning achievement tests, and creativity sheets. The results indicated improvements in all aspects: teacher activity increased from 84% to 95%, student activity from 79% to 93%, learning outcomes from 52.17% to 88.46%, and student creativity from 56.52% to 88.46%. Therefore, the PBL model assisted by animated videos proved effective in enhancing students' creativity and learning outcomes.

Keywords: Project Based Learning Model; Animation Video; Creativity; Learning Outcomes.

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1. Introduction

The project-based learning (PjBL) model is a learning model that provides opportunities for educators to manage learning in the classroom by involving project work [1]. In addition, the project-based learning (PjBL) model

is also a student-centered model. The PjBL model is able to provide great opportunities for students to explore their creativity [2]. Where students are invited to develop their own abilities through the creation of learning projects (activities), so that they can develop their creativity skills and can also improve student learning outcomes [3]. In Project-Based Learning (PjBL), the learning process takes place over a relatively long duration and is integrated with experiments or real-world issues. Through this method, students not only acquire theoretical knowledge but also develop skills that can be applied in real-life situations, making learning more meaningful and enjoyable [4]. Project-based learning is also a model that focuses on the main principles and concepts of a discipline, involves students in solving problems and meaningful tasks, encourages students to work independently, and ultimately produces real products or works [5]. The Project-Based Learning (PjBL) learning model is an innovative method that connects subject matter with real-world situations. This model involves students in planning, organizing, and implementing projects collaboratively to produce a product [6]. Therefore, it can be concluded that the project based learning (PjBL) model is a learning model that requires students to be active and involved in a project or activity to produce a final work or product. The use of the PjBL model is integrated with learning in elementary schools, one of which is in science subjects.

Natural Science Learning (*IPA*) is learning that emphasizes hands-on experience and to develop students' abilities to be able to understand the environment scientifically [7]. In the context of science subjects, this PjBL model provides opportunities for students to learn independently, collaborate with their peers, and produce works that are not only an assessment, but also a manifestation of their creativity. The steps of the project-based learning model in this learning are (1) Determining the topic (basic questions), (2) Designing the project plan, (3) Compiling a project implementation schedule, (4) Monitoring the progress of the project, (5) Assessment (testing the results), (6) Evaluating the project process and results [8]. This increase in creativity mainly occurs when students have to develop ideas to create a work or final product as a result of the student learning process [9]. Children's creativity is divided into three

types. First, motor creativity related to fine and rough motor reflex movements. Second, imaginative creativity that involves imagination and imagination [10]. Therefore, it can be understood that the science learning process not only requires students to memorize the material, but also must understand concepts that can then be applied in real life.

Based on the results of observations in grade IV of MIN 29 Aceh Besar in the 2023/2024 school year odd semester, the problems found, especially in science lessons, students should not only take notes and listen to explanations from teachers, but students must also actively participate creatively. By participating creatively, students can have a deeper understanding of the material and can also develop students' creativity skills. However, when students are learning sound source material, some of them have difficulty thinking about how to make a work or product from the material they are learning. Students only take notes and listen to explanations from the teacher. This causes learning to become monotonous and less engaging for students, as well as a lack of desire for students to develop their cognitive skills and abilities to the fullest. Basically, they seem to have quite high inventiveness and creativity. As observed by the researcher, there are some students who have creative potential, where some students are able to make a work from the material they are studying. However, some other students find it very difficult to pour out ideas to produce products from the material being taught by the teacher. In addition, students' enthusiasm for learning is still low. This has an impact on learning outcomes.

Learning outcomes are related to the achievement of a predetermined level of completeness both individually and classically, which is 75 [11]. Of the 28 students, only 11 students (39%) managed to achieve the level of completeness or get a score of 75 and above. Therefore, there needs to be an encouragement and motivation or challenge so that they are able to unleash their creativity, namely by applying the project based learning (PjBL) model. This project-based learning (PjBL) model can be combined with animated video media.

Video Animasi is a form of media that combines various elements, including tabulation, writing, sound and the existence of Movement activities [12]. Animated videos are a tool to help the learning process in the form of images that can move and look like life. With the help of animated videos, students can more easily understand the material and be more helpful in making a desired product [13]. Therefore, by applying the project-based learning model assisted by animated videos, students will be able to learn actively and creatively and can gain a deeper understanding of the subject matter being studied.

Based on previous research related to this research, namely the research conducted by Tri Utami et al, it is said to be successful, this is proven to be an improvement in each cycle [14]. The difference between this study and the research that the author wants to research lies in the variables and subject matter. Then the research that has been carried out by Rauna Taula Sari and Siska Angreni is more focused on increasing student creativity in producing processed handicraft products from organic and inorganic waste [15]. Meanwhile, the research conducted by the researcher focuses more on increasing the creativity of grade IV students at MIN 29 Aceh Besar in designing a project about the life cycle of living things. Creativity is not only limited to modifying existing ideas or works, but also includes the ability to combine, change, or apply those ideas in different situations [16]. Furthermore, research conducted by Putu Jerry Radita Ponza et al succeeded in improving student learning outcomes after using learning videos [17]. The difference between this study and the research that the author wants to research lies in the research method. From some of the studies above, it shows that the research carried out is different both in terms of the purpose and place of the research.

The purpose of this study is to describe teacher activities through the application of a project-based learning model assisted by animated videos in the science learning process of grade IV at MIN 29 Aceh Besar, To describe student activities through the application of a project-based learning model assisted by animated videos in the science learning process of grade IV at MIN 29 Aceh Besar, To describe the improvement of learning outcomes of grade IV

students through the application of a project-based learning model assisted by animated videos at MIN 29 Aceh Besar and to describe the improvement of the creativity of grade IV students through the application of a project-based learning model assisted by animated videos at MIN 29 Aceh Besar.

2. Research Method

The type of research used in this study is Classroom Action Research (PTK). The classroom action research conducted by the researcher aims to improve students' creativity and learning outcomes in natural science (IPA) grade IV learning using a project-based learning model. The design in this study follows four stages of implementation consisting of several cycles as formulated by Kurt Lewin, namely planning, implementation, observation and reflection [18].

The subjects in this study are all grade IV students of MIN 29 Aceh Besar with a total of 28 students. It consists of 11 men and 17 women. The researcher chose class IV as the subject of the study because the researcher found problems in this class, namely the lack of creativity and student learning outcomes during learning. To obtain data in this study, the author uses data collection techniques in the form of Teacher Activity Observation, Student Activity Observation, Learning Outcome Test and Student Creativity Observation. Before carrying out research in the field, the researcher first prepares research instruments, namely: Observation Sheet of Teacher Activities, Observation Sheet of Student Activities, Test Question Sheet and Observation Sheet of Student Creativity

The data that has been collected will be analyzed based on the formulation of the research problem, while what will be analyzed is Teacher Activity Data Analysis, Student Activity Data Analysis, Student Learning Outcome Analysis, Student Creativity Data Analysis and Research Success Indicators.

3. Results and Discussion

This research is a Class Action Research (PTK) which was carried out from February 7-13, 2024 in class IV.I MIN 29 Aceh Besar. This research consists of two cycles, the first cycle of research was conducted on February 7, 2024 and the second cycle was carried out on February 12-13, 2024. This research was conducted to observe teachers' teaching activities, observe student learning activities, observe student learning outcomes and observe student creativity with the application of learning models *project based learning*. In the matter of the life cycle of living beings, the metamorphosis is complete and imperfect. The things analyzed in this study are as follows.

a. Analyze Teacher Activity

Based on the results of the research obtained from the observation of teacher activities to improve student creativity and student learning outcomes by applying a *project-based learning model* assisted by animated videos on theme 6 subtheme 1 observed by Mrs. Laiyanah, S.Pd with a percentage obtained as much as 84% of the good category. Based on the results of the activities carried out in the first cycle, it shows that there are several aspects that still need to be improved in the learning process where in the preliminary activities the teacher has not been able to condition all students to be ready to learn and the teacher's voice is not large when providing motivation, conveying learning objectives, learning steps, and assessment systems.

At the core activity stage, the teacher has not been able to guide students when sitting in a group so that it causes students to be noisy and disorderly, and also the questions given by the teacher to students are inadequate, instructions from the teacher are not clearly heard when asking students to read reading materials, teachers are still in a hurry to explain the material, teachers are not able to control students in completing *projects*, invite students to pay attention and ask questions, as well as provide reinforcement from the results of student discussions.

At the closing activity, the teacher forgot to provide reinforcement regarding the conclusions drawn by the students. This was evident from the score given by the observer, Ms. Laiyanah, S.Pd. Therefore, a reflection stage

was needed to address the shortcomings identified in Cycle I. After conducting the reflection, the activity continued with the implementation of Cycle II on February 12–13, 2024.

Cycle II, there was an improvement, with a percentage achievement of 95% in the "Excellent" category. The data shows that the teacher's ability to manage learning by applying *the project-based learning* model of the life cycle material of living things in the initial activity, namely the teacher has been able to master the classroom and the teacher's voice has also been heard clearly in the learning process. At the core activity stage, the teacher has been able to guide students when they sit in groups, make *projects* and teachers have also been able to distract students so that students are willing to pay attention and ask if there is something they don't understand. In the closing activity, the teacher has also strengthened the conclusions conveyed by the students. The percentage achievement can be seen in the following figure:

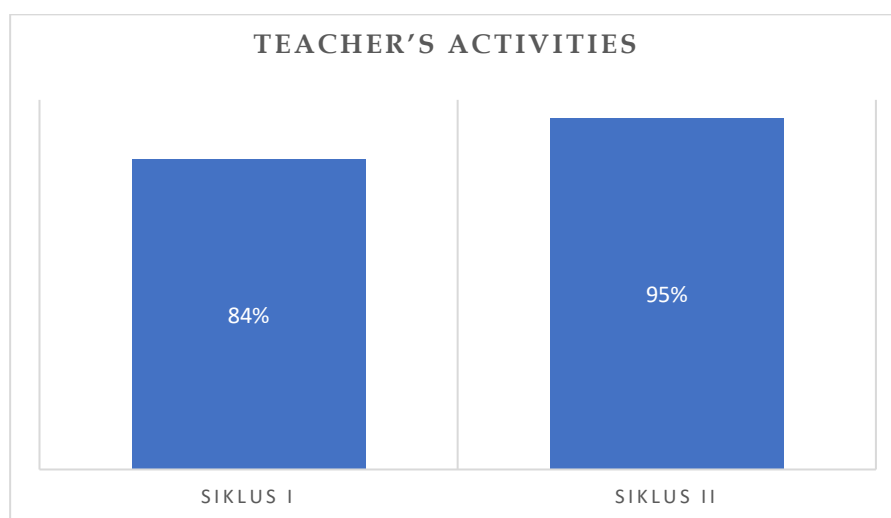


Figure 1. Teacher Activity Percentage Chart

Based on Figure 1 above, it can be concluded that the implementation of the project-based learning model assisted by animated videos was able to enhance teacher activities. This improvement was achieved through several adjustments made during the reflection stage after the learning process was completed. This can be seen from the scores obtained by teachers in the first cycle with an average of 84% in the good category, while for the second cycle

teachers obtained an average of 95% in the very good category. The data shows that the teacher's ability to manage learning by applying *the project-based learning model of the Life Cycle* of living things material in the initial, core and closing activities has been carried out in accordance with the plan that has been prepared in learning plan (RPP) I and RPP II.

The increase that occurs in each cycle is inseparable from the role of teachers in implementing *the project-based learning model*, this is in line with Wahyuni's opinion that the PjBL model is a learning model that provides opportunities for educators to manage learning in the classroom by involving project work [19]. Teachers have the responsibility to create an active and interesting learning atmosphere and be able to convey the material to be studied well. In addition, teachers must also be able to determine the right atmosphere to be used in carrying out the learning activities themselves [20]. In this case, teachers' activities in planning, directing, and evaluating projects are vital to ensure the achievement of learning objectives and provide meaningful learning experiences for students.

b. Student Activity Analysis

Based on the results of the research obtained from the observation of student activities to improve student creativity and student learning outcomes by applying *a project-based learning model* assisted by animated videos on theme 6 subtheme 1 observed by Wahyuni, Anisafahira, Maghfirah, and Kasimah with a percentage obtained as much as 79% in the good category. Based on the results of the activities carried out in the first cycle, it shows that there are several aspects that still need to be improved in the learning process where in the preliminary activities students are not fully involved in perception, and students do not listen to the motivation, learning objectives, and activities delivered by the teacher.

At the core activity stage, some students did not listen to the direction from the teacher when forming a group, some students still lacked confidence in answering questions from the teacher, students did not pay attention and listen to the explanation of the material delivered by the teacher, besides that

some students did not participate in group discussions so that students became less able to respond to the results of their friends' presentations.

In the closing activity, students lacked confidence in concluding the material and filling out evaluation questions, some students did not listen to the moral messages and follow-up that had been conveyed by the teacher. This can be seen from the scores given by the observer, Mrs. Laiyanah, S.Pd. Therefore, a reflection stage is needed to improve the shortcomings in Cycle I.

In the second cycle, suldah experienced an increase in *pelrselntasel* which was *pelrolelh* 93% in the Very Good category. The data shows that students' ability in the learning process by applying *the project-based learning* model of living life cycle material in the initial activity, namely students are actively involved during the learning process, and students also listen to the motivation and learning goals given by the teacher. In the core and closing activities, students are confident in answering questions from the teacher and listening to explanations and complying with the rules from the teacher during learning. The obtained percentages can be seen in the following figure:

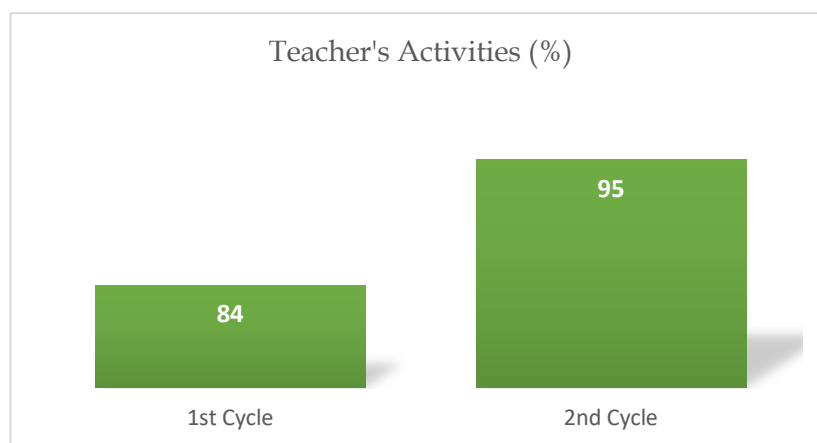


Figure 2. Percentage of Student Activity Chart

Based on Figure 2 above, it can be concluded that student activities in Cycle II showed an improvement compared to Cycle I. This improvement was achieved due to several shortcomings being properly addressed, such as the teacher's firmness in managing the learning process. Every student's activity in following the teaching process in the initial activities, the core and the training

of the students are carried out well. This can be seen from the results of the analysis of the level of student activity for the first cycle with an average of 79% in the good category. In cycle II with an average score of 93% in the very good category.

Based on the explanation above, it can be said that the application of *the project-based learning* model assisted by animated videos can make students optimally involved in learning both in groups and individually. There is an increase in student activities from cycle I to cycle II, it can be said that students' understanding is increasing and has succeeded in learning well and is also in accordance with expectations. Each student has different basic abilities.

The increase in student activity in each cycle has increased, this occurs because in learning using *a student-centered project-based learning* model. Where students are invited to develop their own abilities through the creation of projects [21]. Students need to be given motivations so that they are encouraged and want to study hard and earnestly, so that it will have an impact on achieving good academic achievements [22]. The activeness of students in carrying out the learning process in the classroom also greatly affects creativity and learning outcomes by applying *a project-based learning model* assisted by animated videos that are able to increase student activities from cycle I to cycle II.

c. Completeness of Student Learning Outcomes

To see the overall learning outcomes of the life cycle material of living things, the researcher conducted a test at the end of the learning. After the test results are collected, the data is processed by looking at the minimum completeness criteria that apply in MIN 29 Aceh Besar. It is said that the learning is complete if the score obtained by the student has met the minimum criteria that have been set at the school is 75 for individual completeness as set at the school. The percentage of student learning completion in the first cycle was 12 students or 52.17% while 11 students or 47.82% had not achieved learning completeness. The completeness of student learning in cycle II was 23 students or 88.46% declared complete while 3 students or 11.53% were

incomplete. For student learning outcomes in the learning process in cycle I and cycle II, you can see the diagram below:

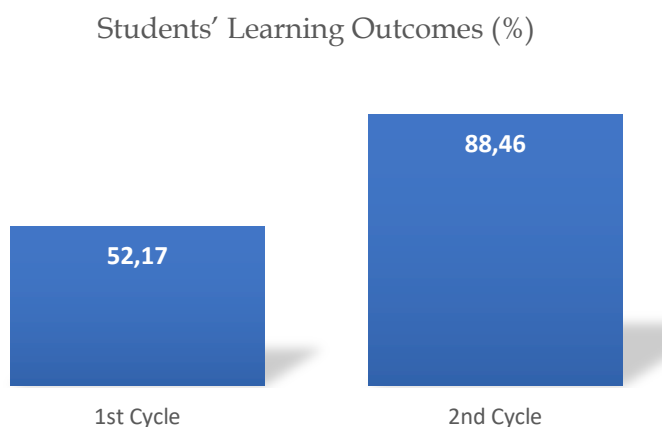


Figure 3. Percentage of Learning Outcome Chart

Based on figure 3 above, it can be concluded that the application of *the project-based learning* model assisted by animated videos is able to improve student learning outcomes, this can be seen from the percentage obtained in each cycle has increased. Overall of the number of students have been able to solve the questions and have completed them. Based on the results of the study, it was shown that the application of *the project-based learning* model assisted by animated videos could improve the learning outcomes of science students in grade IV at MIN 29 Aceh Besar.

The increase in student learning outcomes by using the PjBL learning model is because this learning model involves students in problem-solving activities and provides opportunities for students to work together in groups to produce a product. This is in accordance with what Made stated that the application of the PjBL model provides opportunities for students to solve problems and engage in other meaningful tasks. In addition, this model allows students to work independently in building their own knowledge, which ultimately results in real products [23]. Thus, the PjBL model not only improves learning outcomes but also develops students' social skills and critical thinking abilities.

There are several factors that affect student learning, namely internal factors, external factors and learning approach factors. According to Syah, the factors that affect student learning can be divided into three, namely: a) internal factors (factors from within students), namely the physical and spiritual condition of students. b) external factors (factors from outside the student), namely the environmental conditions around the student. c) The learning approach factor is the type of student learning effort which includes the strategies and methods used by students to carry out learning activities of subject materials [24].

d. Student Creativity in Learning

The level of student creativity can be seen when students produce a work or final product. Students are able to develop an idea or work, such as making a scheme of the life cycle of animals metamorphosed perfectly and metamorphosis imperfectly using plasticine.

Based on the results of observations made on student creativity in cycle I and cycle II during the learning process with the application of *the project-based learning* model assisted by animated videos, it shows that there is an increase in students' creativity abilities analyzed per the indicators set in this study can be seen in the following diagram:

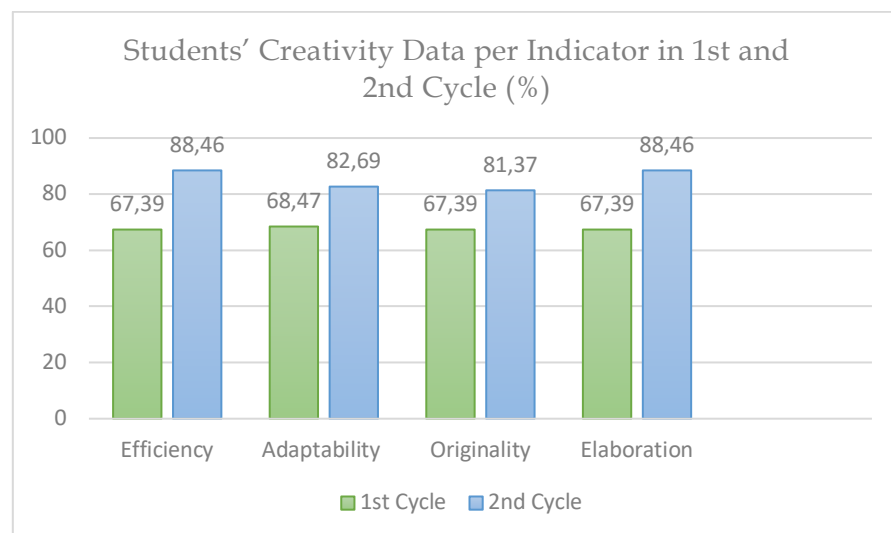


Figure 4. Percentage Diagram of Student Creativity per Indicator of Cycle I and Cycle II

Based on the results of the observation of the creativity of students in cycle I and cycle II in the figure above, it is known that the number of scores obtained for each indicator varies. The first indicator, namely smoothness (the ability to produce varied ideas), was obtained in the first cycle with a score of 67.39% and increased in the second cycle by 88.46%, the second indicator, namely flexibility (the ability to adjust, change, or develop products) obtained a score of 68.47% and increased in the second cycle by 82.69%, the third indicator, namely originality (the ability to produce creative and unique ideas in making a product without imitating the results of others) was obtained with a score of 67.39% increased in the second cycle, which was 81.73% and the fourth indicator, namely decomposition (the ability to combine the color and shape of a product), obtained a score of 67.39%, an increase in the second cycle of 88.46%.

After the student score per indicator is obtained, the researcher sums up the scores obtained by the students classically, which can be seen in the following figure:

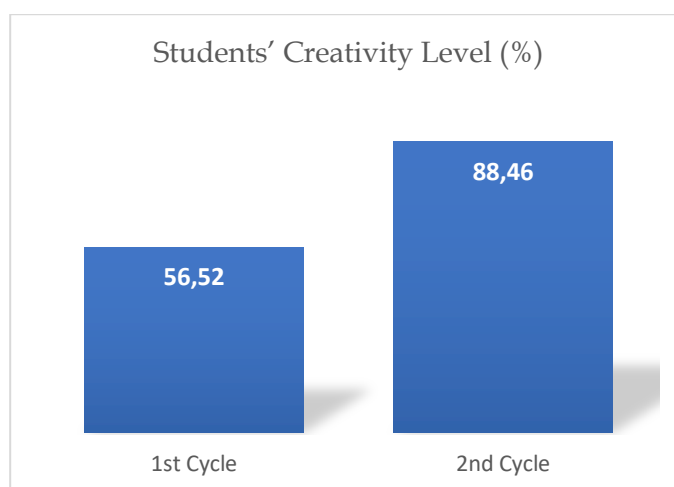


Figure 5. Percentage Diagram of Student Creativity

The diagram above is the result of students' creativity during the learning process in two cycles, in the two-cycle learning process has indicated an increase in students' creativity ability. This can be seen from the results of the analysis of the level of student creativity for the first cycle with a classical creativity score of 56.52% in the less creative category. In cycle II with a student

creativity score of 88.46% in the creative category. It can be concluded that students' creativity through the application of *the project-based learning* model to the material makes the life cycle scheme of living things metamorphosed perfectly and imperfectly.

Developing students' creativity includes cognitive, affective, and psychomotor aspects. Cognitive development is carried out, among others, by stimulating fluency, flexibility, and originality in thinking. Affective development is carried out by fostering attitudes and interests to be busy creatively. Psychomotor development is carried out by providing educational facilities and infrastructure that allow students to develop their skills in making productive and innovative works [25]. Every child has creative talents, when viewed from the perspective of education, these creative talents can be developed through play and game activities that contain systematic educational values and are adjusted to the child's age group [26]. Therefore, it is very important for educators and parents to create a supportive environment so that children's creative potential can develop optimally.

4. Conclusion

The application of the Project-Based Learning (PBL) model supported by animated videos in science lessons effectively enhanced teacher performance, student engagement, learning outcomes, and creativity. The findings confirm that integrating PBL with animated media provides a meaningful learning experience and significantly improves both cognitive achievement and creative skills among elementary school students.

5. Reference

- [1] Istarani, *Innovative Learning Models*, (Medan: Media Persada, 2012), p.45.
- [2] Azzahra, Utami., Arsih, Fitri & Alberida, Heffi., (2023). "The Influence of Project-Based Learning Model on Students' Creative Thinking Skills in Biology Learning: Literature Review," *BIOCHEPHY: Journal of Science Education*. Vol.03, No.1:49-60
- [3] G Billy, dkk., "Model Project Based Learning Berlandaskan Tri Hita Karana Berpengaruh Terhadap Kompetensi Pengetahuan IPS", *Jurnal Adat Dan Budaya*, Vol.1, No.2, 2019, h.86.
- [4] Sakinah,N & Malichatin,H., "Pengembangan E-Modul Berbasis PjBL melalui Pembuatan Terarium Pada Materi Ekologi dan Keanekaragaman Hayati untuk Siswa SMP/MTs"., *NCoINS: National Conference of Islamic Natural Science* (2024).
- [5] Kokom Komalasari, *Contextual Learning*, (Bandung: Refika Aditama, 2011), p. 70
- [6] Nuning Setyowati and Mawardi, "Synergy of Project-Based Learning and Meaningful Learning to Improve Mathematics Learning Outcomes". *Scholaria: Journal of Education and Culture*, Vol. 8, No. 3, 2018, p.253-263
- [7] Abdi Rizka Nugraha, Firosali Kristin, dan Indri Anugraheni, "Penerapan Model Pembelajaran Project Based Learning (PjBL) Untuk Meningkatkan Kreativitas Dan Hasil Belajar IPA Pada Siswa Kelas 5 SD". *Kalam Cendekia PGSD Kebumen*, Vol. 6, No.4.1, 2018, h. 9-10.
- [8] Rustiyarso, Tri Wijaya, *Classroom Action Research Guide and Application*, (Yogyakarta: Noktah, 2020), p. 129-130.
- [9] Asni Widiastuti, dkk, "Meningkatkan Kreativitas Siswa Melalui Project Based Learning Pada Siswa Kelas V SDIT LHI", *Prosiding Pendidikan Profesi Guru Fakultas Keguruan Dan Ilmu Pendidikan*, 2018, h. 1431-1432.
- [10] Aisyah Durrotun Nafisah, *Flower Potpourri Theory and Play Practice for Early Childhood* (Surabaya: Cipta Media Nusantara, 2022
- [11] Ervitasari Setya Mistrika dan Ika Krisdiana, "Penerapan Model Pembelajaran Project Based Learning (PjBL) Untuk Meningkatkan Keaktifan dan Hasil Belajar Siswa Kelas IV SD Negeri 3 Kepanjen". *Pendas: Jurnal Ilmiah Pendidikan Dasar*, Vol. 08, No. 02, 2023, h. 5-6.
- [12] Salsha Listya Rosanaya and Dhiah Fitrayati, "Development of Animation Video-Based Learning Media in the Journal of Service Company Adjustment Materials". *Educational: Journal of Educational Sciences*, No. 5 Vol. 3, 2021.
- [13] J. Julia, dkk. *Pengembangan Media Pembelajaran, Musik Berbasis Digital untuk Sekolah Dasar*, (Jawa Barat:: CV. Caraka Khatulistiwa, 2021), h.76.
- [14] Tri Utami, "Penerapan Model Pembelajaran Project Based Learning (PjBL) Untuk Meningkatkan Kreativitas Dan Hasil Belajar IPA Siswa Kelas 3 SD Negeri Manggihan". *Jurnal Mitra Pendidikan*, Vol. 2, No. 6, 2018, h. 541.
- [15] Rona Taula Sari dan Siska Angreni, "Penerapan Model Pembelajaran Project Based Learning (PjBL) Upaya Peningkatan Kreativitas Mahasiswa'. *Jurnal Varidika*, Vol. 30, No. 1, 2018, H. 79.

- [16] Ahmad Susanto, *Theory of Learning and Learning in Elementary Schools*, (Jakarta: Prenada Media Group, 2013), p. 99
- [17] Putu Jerry Radita Ponza, dkk, "Pengembangan Media Video Animasi Pada Pembelajaran Siswa Kelas IV Di Sekolah Dasar." *Jurnal Edutech Undiksha*, Vol. 6, No. 1, 2018, h. 9.
- [18] Kunandar, *Classroom Action Research*. (Jakarta: PT RajaGrafindo Persada, 2011), p. 129).
- [19] G Billy, dkk., "Model Project Based Learning Berlandaskan Tri Hita Karana Berpengaruh Terhadap Kompetensi Pengetahuan IPS", *Jurnal Adat Dan Budaya*, Vol.1, No.2, 2019, h.86.
- [20] Wati Oviana, dkk, "Meningkatkan Hasil Belajar Siswa Sekolah Dasar Menggunakan Model Mind Mapping Dan Media Flash Card". Mitra PGMI: *Jurnal Kependidikan MI*, Vol. 9, No. 2, 2023, h. 160.
- [21] Putri Dewi Anggraini, "Analisis Penggunaan Model Pembelajaran Project Based Learning Dalam Peningkatan Keaktifan Siswa", *Jurnal Pendidikan Administrasi Perkantoran (JPAP)*, Vol. 9, No. 2, 2021, h. 295.
- [22] Hijriati dan Putri Rahmi, "Proses Belajar Anak Usia 0 Sampai 12 Tahun Berdasarkan Karakteristik Perkembangannya". Bunayya: *Jurnal Pendidikan Anak*, Vol. 7, No. 1, 2021, h.150.
- [23] Yulia Wulandari dan Misbahul Jannah, "Penerapan Model Project Based Learning Untuk Meningkatkan Hasil Belajar Siswa di Kelas V MIN 38 Aceh Besar", *Prosiding Seminar Nasional Biotik*, 2018, h. 796.
- [24] Muhibbin Syah, *Psikologi Belajar*, (Jakarta: Raja Grafindo Persada, 2004), h.144.
- [25] Conny R. Semiawan, *Kreativitas dan Keberkatan*, (Surakarta: PG PAUD FKIP UMS, 2010), h. 50.
- [26] Putri Rahmi et al., "Penerapan Alat Permainan Edukatif Tangram Untuk Meningkatkan Kreativitas Anak Dalam Mengenal Bentuk Geometri Di TKN Pembina Lawe Alas," *Jurnal Raudhah* 8, no. 1 (2020): 81–91.