PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

IMPLEMENTATION OF THE QUANTUM LEARNING MODEL TO IMPROVE NATURAL SCIENCE LEARNING OUTCOMES FOR FOURTH-GRADE STUDENTS OF SDN CIPINANG MUARA 07 PG

Isna Putri Azizah[1], Nadifha Nisrina Putri Ridwan[2], Yurniwati[3], Yofita Sari[4]

[1,2,3,4]Universitas Negeri Jakarta, Jakarta, Indonesia
[1]*isnaputriazizah_1107620268@mhs.unj.ac.id* , [2]*nadifhanisrinaputriridwan_1107620279@mhs.unj.ac.id* ,
[3]*yurniwati@unj.ac.id* , [4]*yofita.sari@unj.ac.id*

PENERAPAN MODEL PEMBELAJARAN *QUANTUM* UNTUK MENINGKATKAN HASIL BELAJAR IPA SISWA KELAS IV SDN CIPINANG MUARA 07 PG

ARTICLE HISTORY

Submitted:
28 April 2023
28th April 2023

Accepted:
18 Juni 2023
18th June 2023

Published:
28 Juni 2023
28th June 2023

ABSTRACT

Abstract: *Quality learning influences students' learning outcomes. In accordance with the demands of 21st-century education, teachers need to apply innovative learning models. This paper discusses students' learning outcomes in natural science learning subjects by applying the Quantum Learning model for fourth-grade students at SDN Cipinang Muara 07 PG. The research design is classroom action research using the Kemmis and Taggart model, which consists of 3 cycles that have stages for each cycle, namely planning, implementation, observation, and reflection. The research data consists of process and students' learning outcome data. Process data were obtained through observation sheets of teacher and students' activity and learning outcome data that was obtained through tests. The research results indicate an increase in the completeness of students' learning outcomes in each cycle. Students who completed Cycle I were only 46% and students who did not complete were 54%. In cycle II, it increased to 64% for students who completed and 36% for students who did not complete. Meanwhile, in cycle III, most of the students achieved 86% and only 14% have not achieved the result. In conclusion, there was an increase in learning outcomes in each cycle so it can be argued that the implementation of the Quantum Learning model in natural science learning subjects on plant parts learning material succeed in improving students' learning outcomes.*

Keywords: students' learning outcomes, quantum learning model, elementary students

Abstrak: Pembelajaran yang berkualitas berpengaruh kepada hasil belajar siswa. Sesuai dengan tuntutan pendidikan abad 21, guru perlu menerapkan model pembelajaran yang inovatif. Artikel ini membahas hasil belajar siswa pada mata pelajaran IPA dengan menerapkan model pembelajaran *Quantum* pada siswa kelas IV pada SDN Cipinang Muara 07 PG. Jenis penelitian adalah penelitian tindakan kelas menggunakan model *Kemmis* dan *Taggart*, yang terdiri dari tiga siklus yang pada tiap siklusnya memiliki tahapan yaitu perencanaan, pelaksanaan, pengamatan, dan refleksi. Data penelitian terdiri dari data proses dan data hasil belajar siswa. Data proses diperoleh melalui lembar pengamatan aktivitas guru dan aktivitas siswa serta data hasil belajar diperoleh melalui tes. Hasil penelitian menunjukkan adanya peningkatan ketuntasan hasil belajar siswa pada tiap siklus. Pada siklus I siswa yang tuntas hanya sebesar 46% sedangkan tidak tuntas sebesar 54%. Pada siklus II meningkat menjadi sebesar 64% untuk siswa yang tuntas dan tidak tuntas sebesar 36%. Sedangkan pada siklus III sudah sebagian besar siswa tuntas sebesar 86% dan tidak tuntas hanya sebesar 14%. Kesimpulannya adalah terjadi peningkatan hasil belajar pada setiap siklus sehingga dapat dikemukakan bahwa penerapan model pembelajaran *Quantum* pada mata pelajaran IPA materi bagian-bagian tumbuhan berhasil meningkatkan hasil belajar siswa.

Kata Kunci: hasil belajar siswa model pembelajaran quantum, siswa sekolah dasar

PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

CITATION
Azizah, I, P., Ridwan, N, N, P., Yurniwati, Y., & Sari, Y. (2023). Implementation of the Quantum Learning Model to Improve Natural Science Learning Outcomes for Fourth-Grade Students of SDN Cipinang Muara 07 PG. *Primary: Jurnal Pendidikan Guru Sekolah Dasar, 12* (3), 829-841. DOI: http://dx.doi.org/10.33578/jpfkip.v12i3.9833.

INTRODUCTION

Elementary school education is a means or place where learning activities carried out by teachers and students occur so that students gain knowledge, skills, and foster noble ethical attitudes needed in community life. Sinaga (2021) argues that education is an effort made by a person to increase his potential. In learning activities, four important components are needed that will affect the success of student learning, namely teaching materials, learning atmosphere, teaching media, learning resources, and teachers as learning subjects. This component requires a teacher to be creative and innovative in creating fun learning situations, especially science at the elementary school level (Mujiono, 1994).

Natural Science (Science) is a field of study that contains material about nature and problem solving using the surrounding environment. In science learning, it is divided into several components, including science as a product and science as a process. Science as a product is defined as a collection of the results of empirical activities and analytic activities of scientists since centuries in the form of facts, principles, and theories. Science as a process is defined as a strategy or way carried out by scientists in finding new discoveries or things about natural events or events (Sulasmi, 2018). In science learning in elementary schools, the components of science as a process and science as a product are interconnected. These components need to be applied in learning so that students experience the learning process thoroughly and intact and understand natural phenomena through scientific methods.

Science as a process in the form of exploring and how to understand knowledge about nature with basic process skills. Basic process skills include observing, classifying, measuring, predicting, inferring, and communicating (Sayetik, et al., 2019). Examples of the implementation of science as a process in plant matter can be described as follows: (1) students observe plants through plant planting activities; (2) students group plants based on their characteristics; (3) students measure soil depth using appropriate measuring instruments; (4) students predict the success of thriving plants; (5) students make conclusions about the activities that have been carried out; (6) students convey the knowledge gained from the activities carried out (Sayetik, et al., 2019)

Problems in science that act as a process are characterized by teachers who are less varied in applying learning models or methods and learning media are not yet available according to the needs of teaching materials. The science learning process takes place conventionally which is teacher-centered and goes one way without involving students directly, resulting in passive learning (Nahdi, et al., 2018). The learning process can run optimally by means of teachers using innovative learning methods, models and media (Safira, et al., 2020).

Science as a product in the form of material found and studied contains facts, concepts, principles and theories. Examples of the implementation of science as a product on plant material can be described as follows: 1) facts, containing questions or statements about objects or events, such as green plants can cook their own food; 2) concepts, containing definitions of objects or events, such as photosynthesis and chlorophyll; 3) principle, contains an explanation of the relationship of

PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

scientific concepts such as chlorophyll plants can perform photosynthesis. (Sayetik, et al., 2019).

Some of the problems that occur in the science component as a product are encountered directly in the field, namely the lack of student effort in obtaining knowledge due to low interest and motivation to learn, students lack concentration and focus during the learning process, low student understanding of the material, do not actively participate directly in learning, and hesitate to ask and answer a problem given by the teacher.

Based on observations made by researchers in grade IV SDN Cipinang Muara 07 PG, data on student learning outcomes were still low. The percentage of completed students is only 39% and incomplete is 61% of 28 students so that all students need to be remedial. The low results of student science learning are caused by still applying conventional methods or models and not using technology that can support learning to make it more interesting and easier for students to understand. In addition, teachers dominate more and students become passive during learning. Therefore, teachers must use interesting and innovative learning methods or models so that learning activities can run optimally.

Quantum Learning is a learning model that can be used to strengthen understanding and memory and give students an understanding that learning is a fun and rewarding process (DePorter &; Hernacki, 2016). There are principles of the Quantum Learning learning model, namely all speaking, all aiming, providing experience before naming, acknowledging every action (DePorter &; Hernacki, 2016) of these five principles can be used as an illustration of how the Quantum Learning learning model works in giving a positive influence to students during learning.

The Quantum Learning model is applied through 5 stages abbreviated as TANDUR, namely 1) Grow, foster student interest and motivation at the beginning of learning activities; 2) Natural, students directly observe or experience things related to the material; 3) Name, try to pour the information or knowledge that has been obtained according to the learning objectives; 4) Demonstrations, groups are welcome to present the results of work or discussion; 5) Repeat, provide feedback to evaluate or provide reinforcement to the material that has been learned; 6) Celebrate, closing the learning with a celebration / appreciation to students to cause feelings of pleasure and pride (DePorter, Reardon, and Nurin, 2000).

Several previous studies have proven that the application of the Quantum Learning model in science subjects in elementary schools affects student learning outcomes, including the application of the *Quantum Learning* model being able to increase the completeness of student science learning outcomes (Vivi and Risda 2021). Then, the application of the *Quantum Learning* model is able to provide an increase in the completeness of students' science learning outcomes so that they get the "Good" category (Once, 2022). Furthermore, the application of *Quantum Learning* is able to increase student scores above KKM so that there is an increase in the completeness of student science learning outcomes (Nurhidayat, 2022).

Several previous studies have proven that the application of the Quantum Learning model in science subjects in elementary schools affects student learning outcomes, including the application of the Quantum Learning model is able to increase the completeness of student science learning outcomes (Vivi &; Risda, 2021). The results of the study have not reached the completeness of learning outcomes in the first cycle caused by teachers not creating a less pleasant learning atmosphere. Then, the application of the Quantum Learning model is able to provide an

PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

increase in the completeness of students' science learning outcomes so that they get the "Good" category (Once, 2022). The actions carried out in the first cycle of this study still do not show results that achieve learning completeness because students have not been actively involved in observing material objects directly in the surrounding environment. Furthermore, the application of Quantum Learning is able to increase student scores above KKM so that there is an increase in the completeness of student science learning outcomes (Nurhidayat, 2022). In the first cycle, students still have not achieved the completeness of learning outcomes with similar causes, namely students are less actively involved directly in learning so they do not get a more meaningful learning experience.

Thus, a change in action was made that was different from the previous study. Changes in actions carried out aim to have a positive impact and improve student learning outcomes, namely using herbarium media as a support for learning activities and doing "Right or Wrong" games. Theuse of herbarium media by attaching body parts from dried plants that have been preserved in paper and then put together to form an album. This learning media helps students easily understand the subject matter of plant body parts because it includes concrete media found in the surrounding environment. Meanwhile, the game "True or False" is carried out so that learning becomes more fun and not boring so that students' interest and motivation increase and students become more active in participating in learning. The provision of these game activities can build knowledge and change students' thinking about boring science lessons into something interesting and fun.

The Quantum Learning model can increase student interest and motivation triggered by student involvement in finding, building, and demonstrating knowledge from various sources independently and confidently. The *Quantum Learning* model can create a pleasant learning atmosphere, democracy, planting concepts obtained from the results of analysis, conclusions and increasing student motivation in learning, increasing interest and participation and increasing material understanding (Djenawa, 2020). Based on the description above, this article describes the application of the Quantum Learning model to improve science learning outcomes of plant parts and their functions in elementary school students. This study aims to describe positive changes in improving student learning evaluation in each cycle. In addition, in this study can be observed an increase in student and teacher learning activities through the Quantum Learning learning model in grade IV SDN Cipinang Muara 07 PG.

LITERATURE REVIEW

Quantum Learning

Quantum Learning is a set of approaches or learning philosophies that are proven to be effectively suitable for use by all ages in learning (Ma'ruf Zahran, 2019). *Quantum Learning* was first used at Supercamp, which combines self-confidence, learning skills, and communication skills in a fun environment (DePorter &; Hernacki, 2001). *Quantum Learning* as learning that connects interactions around the learning environment by removing barriers through effective learning that can involve students to actively participate (Eko Sudarmanto et al., 2021).

DePorter and Mike Hernacki (2013) in the application of the *Quantum Learning* model will prioritize the principle of "What Benefits to Me" so that students can feel the motivation of the benefits and consequences of consciously chosen decisions. *Quantum Learning* can be used to strengthen students' understanding and memory so as to make students feel the learning process into a fun

PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

and useful activity (DePorter &; Hernacki, 2001). Some of the benefits of *Quantum Learning* according to DePorter & Hernacki (2006) include: (a) being positive; (b) increase motivation; (c) lifelong skills; (d) confidence; and (e) improved learning outcomes.

According to Shoimin (2016) *Quantum Learning* has advantages and disadvantages, as for the advantages, among others, namely: (a) guiding students towards the same thinking; (b) involve students to actively participate in learning; (c) does not require much explanation because there are demonstrations; (d) the learning process becomes more enjoyable because of teacher creativity that can increase students' interest in learning; (e) The subject matter delivered by the teacher can be easily understood by students.

Shoimin added that the disadvantages of *Quantum Learning* include (a) requiring careful preparation and planning so that it takes a long time; (b) insufficient availability of good facilities for use; (c) celebrations given to appreciate student work such as clapping hands may disrupt other classes; (e) requires creativity and teacher skills and thoroughness in applying this learning model.

Science Learning Outcomes

Science is a compulsory subject in elementary schools that plays an important role as a shaper of children's personality and mindset (Djenawa, 2020). Kumala and Farida (2016) suggest that science is one of the subjects in elementary school that discusses concepts related to everyday life. Ningsih & Hayati (2020) argue that learning outcomes are the level of student understanding of the material taught. Wulandari (2021) argues that learning outcomes are abilities obtained by students after going through the learning process so as to produce cognitive abilities. This opinion is in accordance with Tanjung (2020) suggesting that learning outcomes are student achievements in the form of cognitive abilities (knowledge) as evidenced by tests given at the end of the learning process.

Bloom (1956) revealed three domains of individual behavior along with sub-regions of each area, one of which is cognitive. The congitive area includes learning objectives related to regenerating knowledge and developing intellectual abilities and skills consisting of *knowledge*, *comprehension*, *application*, *analysis*, *synthesis*), and *evaluation*). Anderson and Krathwohl (2001) made a fundamental revision of the classification of cognitive levels developed by Bloom known as *Revised Bloom's Taxonomy*. These cognitive levels include remembering (C1), understanding (C2), applying (C3), analyzing (C4), *evaluating* (C5), and *creating* (C6).

Science learning outcomes are the results obtained and achieved by students after going through science learning process activities. The learning process is not just relying on memory, but more than that it is supported by using recording media to support better learning outcomes so as to achieve indicators of remembering, understanding, applying, analyzing (Suparman, et al., 2020). Science learning outcomes are the level of student achievement after carrying out the learning process including facts, concepts or principles of science so that students get learning experience because of the learning process through remembering (C1), understanding (C2), using (3), analyzing (C4), which is characterized by positive changes in students and is relatively sedentary (Hapsari, 2019).

Learning outcomes by students are influenced by 2 factors, namely internal factors and external factors. Internal factors are factors that originate from within the individual himself in achieving learning goals. Internal factors include physiological (physical) factors and psychological (psychological) factors.

PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

Internal factors include 1) talent, innate abilities in the formof potential that need to be developed; 2) interest, a sense of interest in a thing or activity without anyone telling you to; 3) motivation, an important thing and must be owned by every student so that a student is enthusiastic about learning; 4) How to learn, the effort made by students to acquire knowledge. Meanwhile, external factors are factors that come from outside the student. These external factors include the school environment, family environment and communityenvironment (Marlina &; Sholehun, 2021).

RESEARCH METHODS

This type of research uses the Classroom Action Research (PTK) method. According to Sugiyono (2015) Classroom Action Research (PTK) is a systematic and cyclical scientific method used to examine social situations, understand the problems, and then find knowledge in the form of actions to improve the social situation. This research uses the Kemmis and Taggart research modelwhich consists of 4 stages, namely planning, implementation, observation, and reflection. These components are interconnected to form a cycle (Arikunto, 2010).

This research was conducted at SDN Cipinang Muara 07 PG for the 2022/2023 academic year with the research subjects of class IVA students as many as 28 students consisting of 12 boysand 16 girls. The time of the research took place in March-April was carried out as many as 2 meetings in 1 week. Data collection techniques in this study are in the form of tests and non-tests. Test data is obtained from the evaluation results in the form of description questions to determine student learning success after learning. Meanwhile, data in the form of non-tests are obtained from direct observation using instruments or observation questionnaires to obtain data on teacher and student activities during learning activities.

Classroom action research is carried out starting from the pre-cycle and continuing the process for three cycles. Pre-cycle data is obtained from observing student learning in class directly and interviews with IVA teachers so that problems are known. Before proceeding to cycle II, improvements will be made to the shortcomings that occurred in cycle I. Improvements are made by looking at learning outcomes through teacher & student evaluation and observation instruments for students who obtain learning outcomes that have not reached the limit of completeness.

The data analysis used in this study is qualitative descriptive and quantitative descriptive analysis. Qualitative analysis data were obtained from teacher and student activity observation sheets and teacher interview sheets. The category of completeness of student learning activities according to Arikunto (1996) if it reaches the range of 40% - 60% is included in the good category. Meanwhile, quantitative analysis data is obtained from the results of learning evaluations of students who have used the *Quantum Learning* model in each cycle. The category of completeness of student learning activities according to Arikunto and West Java (2014) if it reaches the range of 61% - 80% is included in the good category. Both data are used to see an increase or positive change in learning activities and the completeness of student learning outcomes.

RESULTS AND DISCUSSION

Pre Cycle

Pre-cycle activities in this study began with learning observations on science subjects, plant parts and their functions in class IVA SDN Cipinang Muara 07 PG for the 2022/2023 academic year. Observations are made to find out problems during the learning process and how student learning outcomes. Based on observations, teachers still use conventional

PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

learning models and the learning media used are not in accordance with student needs. Student learning resources only come from student books and independent curriculum teacher books. This causes the learning process to be monotonous and less actively involving students. Students become bored and lack focus in following learning. From interviews conducted with IVA teachers, it is known that most of the students' scores have not met the Minimum Completeness Criteria (KKM) of 75. Results of pre- cycle learning completeness of class IVA students (Table 1).

Table 1. Student Learning Outcomes in the Pre-Cycle

Information	Student	Percentage
Number of Students Complete	11	39%
Incomplete Number of Students	17	61%
Total Number of Students	28	100%

Based on the pre-cycle learning results in Table 1, it is known that the scores obtained by class IVA before the Action was carried out were 39% of students had complete grades and 69% of students had incomplete grades. The data shows that the good category has not been achieved, which means that most class IVA students have not met the Minimum Completeness Criteria (KKM) that have been set. Therefore, it is necessary to improve the learning process in the classroom by applying the Quantum Learning learning model assisted by herbarium media to improve science learning outcomes on plant parts and their functions in class IVA SDN Cipinang Muara 07 PG.

Cycle I

Cycle I will be held on March 20 - 21, 2023 with learning materials to recognize plant parts focused on roots and stems. Teachers prepare learning tools including lesson plans, LKPD, learning media, material tools and student evaluation questions. Learning activities begin with the teacher preparing students to be ready to learn, the teacher provides perceptions, the teacher informs what activities will be carried out, and the teacher conveys the objectives and benefits of learning carried out.

In the core activity, the teacher provides initial knowledge of the material with animated video media. The teacher allows students to ask or answer other students' questions. The teacher provides reinforcement for students' answers. Students are formed groups of 6 - 7 students. Each group was given herbarium dried plants to observe and discuss and then record the results of observations so that they could work on LKPD. Each group presented the results of their group observations.

In the closing activity, the teacher and students reflect and make conclusions about the material that has been learned. The teacher gives evaluation questions in the form of description questions to students. The lesson is closed by the teacher by praying together. Based on activities during the learning process, data were obtained on the activities carried out by teachers and students (Table 2).

Tabel 2. Results of Observation of Teacher and Student Activities in Cycle I

PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

Information	Percentage	Category
Teachers	64%	Good
Students	55%	Enough

Based on the results of observations of teacher and student activities obtained from giving actions in cycle I on learning activities in class, student learning results are obtained as a positive influence of these observations to determine the level of student understanding of learning material (Table 3).

Tabel 3. Result of Student Learning Evaluation in Cycle I

Information	Student	Percentage
Number of Students Complete	13	46%
Number of Incomplete Students	15	54%
Total Number of Students	28	100%

The learning process in the first cycle is still not carried out properly so that it has not provided significant changes to student learning outcomes. This is evidenced by the results of the learning evaluation obtained by students, namely only 13 students completed from 28 students in total with a KKM of 75. The implementation of cycle I learning happened several good things, namely students listened and recorded the material carefully and followed learning activities well.

In cycle I there are also things that need to be improved, namely (a) students have not been able to relate learning material; (b) students are still embarrassed to ask or answer teacher questions; (c) students' independent attitude and cooperation; (d) students' presentation skills; (e) listen to the results of the discussion; (f) make material conclusions.

Efforts that can be made to improve it are teachers providing concrete examples to make it easier for students to relate learning, teachers protecting students to be actively involved in asking and answering questions, teachers guiding students to be more independent and further improve group cooperation, and teachers providing examples in presenting good and correct learning outcomes. Thus, the next cycle must be carried out in order to get significant changes that are good for student learning outcomes.

Cycle II

Based on the reflections on cycle I, the research must be continued and improved in cycle II which was held on March 27 and 29 2023 discussing plant material parts of leaves, flowers and seeds and their functions. Before starting cycle II, the teacher prepared learning tools that had been improved. The teacher carries out early learning activities by preparing an atmosphere for students ready to learn. The teacher gives apperception regarding the previous material and the material to be studied. The teacher informs students what activities will be carried out today's lesson and the teacher conveys the objectives and benefits of learning carried out.

In the core activities, the teacher provides further material explanations through interactive PPT. Students listen to the material presented and the teacher stimulates students to ask questions or answer questions. The teacher provides reinforcement for student answers. Students are formed into groups consisting of 4 - 5 students. Each group is given herbarium dry plants to observe and discuss with the group. The results of observations and discussions are recorded so

PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

that they can work on the LKPD. After that, each group presented the results of group observations. The teacher also provides reinforcement from the group presentations that have been presented.

In closing activities, teachers and students reflect and make conclusions about the material that has been studied. The teacher gives evaluation questions in the form of description questions to students. After that, the teacher closes the lesson by praying together. Based on the activities during the learning process, data were obtained regarding teacher and student activities (Table 4).

Table 4. Observation Results of Teacher and Student Activities in Cycle II

Information	Percentage	Category
Teacher	75%	Good
Student	72%	Enough

Based on the results of observations of teacher and student activities obtained from giving action in cycle II on learning activities in class, student learning outcomes were obtained as a positive influence from these observations to determine the level of student understanding of learning material (Table 5).

Table 5. Results of Student Learning Evaluation in Cycle II

Information	Student	Percentage
Number of Completed Students	18	62%
Number of Incomplete Students	10	36%
Total Number of Students	28	100%

The learning process in cycle II had changed for the better as evidenced by the increase in the results of the evaluation of student learning who had completed the KKM by 18 of the 28 students in class IVA. In the implementation of learning in cycle II there were several good things, namely the group was more independent and conducive when discussing, the teacher and student interaction when guiding the discussion was more orderly, most students were active in learning with the courage to ask or answer questions and most of the presentation groups had mastered the material.

In Cycle II there are still things that need to be improved, namely (a) some of the other students still don't understand the material; (b) students still cannot make good conclusions independently; (c) several other groups only read the material during presentations.

Efforts that can be made to improve it are that the teacher revises learning activities so that students more easily understand the material presented, the teacher guides students in making the correct conclusions, the teacher focuses presentation activities on groups of students who have not been able to make presentations properly. Therefore, improvements are still needed in cycle III so that teacher and student activities and student learning outcomes increasingly show in the good category.

Cycle III

Reflections on cycle II still indicate that this research must be continued and improved so that cycle III is carried out on April 5 - 6 2023. Learning activities in this cycle discuss plant parts and their functions as a whole. The teacher carries out early learning activities by preparing an atmosphere for

PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

students ready to learn. The teacher gives apperception related to the previous material and the material to be studied. The teacher informs students what activities will be carried out today's lesson and the teacher conveys the objectives and benefits of learning carried out.

In the main activity, the teacher reviews material about plant parts and their functions. Students listen to the reviews explained and ask or answer teacher questions. The teacher provides reinforcement for student answers. Students are formed into groups consisting of 4 - 5 students according to the previous group. Each group is given herbarium dry plants to observe and discuss with the group. The results of observations and discussions are recorded so that they can work on the LKPD. After that, each group presented the results of group observations. The teacher also provides reinforcement from the group presentations that have been presented. Then, the teacher and students play the game "True or False" regarding the material that has been studied to determine the level of student understanding in a fun way.

In closing activities, teachers and students reflect and make conclusions about the material that has been studied. The teacher gives student evaluation questions. After that, the teacher closes the lesson by praying together. Based on the activities during the learning process, data were obtained regarding teacher and student activities (Table 6).

Table 6. Observation Results of Teacher and Student Activities in Cycle III

Information	Percentage	Category
Teacher	89%	Very well
Student	86%	Very well

Based on the results of observations of teacher and student activities obtained from giving action in cycle III on learning activities in class, student learning outcomes were obtained as a positive influence from these observations to determine the level of students' understanding of learning material (Table 7).

Table 7. Results of Student Learning Evaluation in Cycle III

Information	Student	Percentage
Number of Completed Students	24	86%
Number of Incomplete Students	4	14%
Total Number of Students	28	100%

The learning process in cycle III has experienced a better change than the previous cycle. The teacher carries out the steps in the learning activities properly and students can follow these steps well too so that learning can run in a conducive and enjoyable manner. Students who form groups are independent when discussing and interactions between teachers and students when guiding discussions are orderly and group presentations are smooth with students able to master the material. In addition, students are already active in learning by daring to ask or answer questions so they can understand the material well. This is evidenced by the increase in the results of the evaluation of student learning who completed the KKM as many as 24 students out of 28 students in class IVA.

Changes that occur in student learning outcomes in each cycle are obtained from teacher and student activities during the learning process (Figure 1).

PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

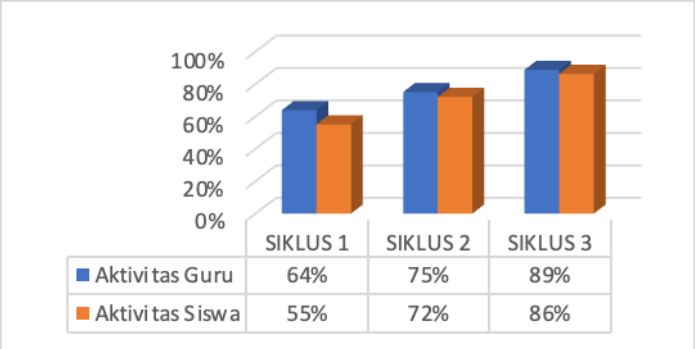

Figure 1. Teacher and Student Activities

In Figure 1 it is known that there was an increase in teacher activity in each cycle from cycle I to cycle II by 11% and then from cycle II to cycle III by 14%. Then, student activity also increased in each cycle from cycle I to cycle II by 17% and then from cycle II to cycle III by 14%.

This increase occurred because of the actions given by the teacher to students so as to provide positive changes in each cycle. Based on the acquisition of data on student learning outcomes in cycle I, most of which were still incomplete, then in cycle II the teacher made changes to his actions, namely reducing the number of group members. At first the number of members in each group was 6 - 7 students and then changed to 4 - 5 students. This is done so that each group member is more focused and actively involved in the discussion. Therefore, discussion activities can run smoothly and each group member can understand the material so that the results of the learning evaluation reach the KKM. This is in accordance with Nugroho's research (2021) which states that small discussion groups are better than large discussion groups.

Changes in the actions carried out in cycle III from the acquisition of data obtained in cycle II, namely playing the game "True or False". This is done so that learning becomes more fun and not boring so that students' interest and motivation in learning increases and students become more active in participating in learning. Therefore, students will more easily understand learning material and have a positive impact on the results of learning evaluations that reach KKM. There is a positive change from the actions taken by the teacher. Uliyah & Isnawati (2019) revealed that games can be used to add variety, enthusiasm, and interest in the learning process in class.

Based on the activities of teachers and students during the learning process, it has a positive impact on science learning outcomes (Figure 2).

PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

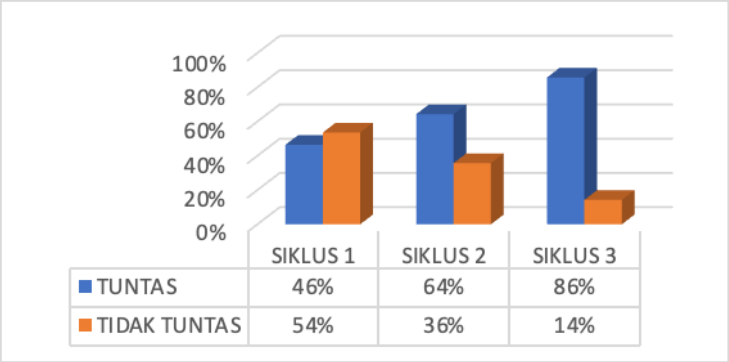

Figure 2. Student Learning Outcomes

Figure 2 shows that student learning outcomes in each cycle have increased. The increase in the value of student learning outcomes that were completed in cycle I to cycle II was 18% and cycle II to cycle III was 22%. This increase can occur after the learning process in science subjects applies the Quantum Learning model. This is because teachers and students can carry out learning steps with the Quantum Learning model correctly according to the stages. Teachers also prepare many things such as teaching materials, Student Worksheets (LKPD), and other tools & materials to support the implementation of learning activities properly. In addition, the use of herbarium media in cycle I, cycle II, and cycle III plays a role in making it easier for teachers to convey material according to real or concrete conditions so that students easily understand the material and are actively involved in the learning process directly. This is supported by the research of Salsabila, et al. (2022) proved that herbariums can support student learning processes so that students have a better understanding of learning material and play an active role in participating in learning activities.

CONCLUSION

Based on research conducted in class IV SDN Cipinang Muara 07 PG, the following conclusions can be drawn: (1) The application of the Quantum Learning model can improve student learning outcomes in science subjects in class IV. This can be seen from the percentage of student learning completeness which has increased in each cycle, namely cycle I and cycle II by 18%. Then cycle II and cycle III by 22%; (2) The application of the Quantum Learning model in science subjects increased student learning activity in cycle I by 55% in the fairly active category. In cycle II and cycle III it increased to 72% and 86% which were in the active category; (3) The application of the Quantum Learning model in science subjects by the teacher increases teaching activities,

REFERENCES

Anggara, A., & Rakimahwati, R. (2021). Pengaruh Model *Quantum Learning* terhadap Aktivitas dan Hasil Belajar Peserta Didik dalam Pembelajaran Tematik di Sekolah Dasar. *Jurnal Basicedu*, *5*(5), 3020-3026.

De Porter, B., & Hernacki, M. (1992). *Quantum Learning*. PT Mizan Publika.

DePorter, B., Reardon, M., & Singer-Nourie, S. (2010). *Quantum Teaching: Mempraktikkan Quantum Learning di Ruang-Ruang Kelas*. Kaifa.

Dewi, et al., (2021). *Teori Dan Aplikasi Pembelajaran IPA SD/MI*. Yayasan Penerbit Muhammad Zaini.

Djenawa, A. (2020). Penerapan Model Pembelajaran *Quantum Learning*

PRIMARY: JURNAL PENDIDIKAN GURU SEKOLAH DASAR
VOLUME 12 NOMOR 3 JUNI 2023
ISSN : 2303-1514 | E-ISSN : 2598-5949
DOI : http://dx.doi.org/10.33578/jpfkip.v12i3.9833
https://primary.ejournal.unri.ac.id/index.php/JPFKIPFKIP

untuk Meningkatkan Hasil Belajar IPA Peserta Didik Kelas V Sekolah Dasar. *Jurnal Pendidikan Dasar Flobamorata*, *1*(1), 22-30.

Lestari, N. C., Hidayah, Y., & Zannah, F. (2023). Penerapan Metode Pembelajaran Permainan Edukatif Terhadap Hasil Belajar IPA di SDN Sungai Miai 7 Banjarmasin. *Journal on Education*, *5*(3), 7095-7103.

Mairina, V., & Amini, R. (2021). Peningkatan Hasil Belajar IPA Melalui Model Pembelajaran Kuantum di Sekolah Dasar. *Jurnal Basicedu*, *5*(2), 784-788.

Mufarrid, H. & Miaz, Y. (2020). Peningkatan Hasil Belajar IPA Siswa Sekolah Dasar Menggunakan *Quantum Teaching*. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, *9*(2), 187-188.

Nuriyah, N. (2016). Evaluasi Pembelajaran: Sebuah Kajian Teori. *Edueksos: Jurnal Pendidikan Sosial dan Ekonomi*, *3*(1), 80-83.

Purba, F. B., Tanjung, D. S., & Gaol, R. L. (2021). The Effect Of Paikem Approach On Students' Learning Outcomes on The Theme of Lingkungan Sahabat Kita At Grade V SD Harapan Baru Medan Academic Year 2019/2020. *Jurnal PAJAR (Pendidikan Dan Pengajaran)*, *5*(2), 278-286.

Putri, I. P. S., Dantes, N., & Suranata, K. (2020). Model Pembelajaran *Quantum Teaching* Tipe TANDUR Berbantuan Permainan Tradisional Terhadap Hasil Belajar IPA. *Jurnal Ilmiah Sekolah Dasar*, *4*(2), 186-196.

Rahayu, F., & Mahendra, J. P. (2022). Penerapan Metode *Quantum Learning* Untuk Meningkatkan Hasil Belajar Mata Pelajaran IPA Bagi Siswa Kelas V SD Negeri 3 Pemenang Timur Kabupaten Lombok Utara Tahun Pelajaran 2020/2021. *JUPE: Jurnal Pendidikan Mandala*, *7*(1), 276-277.

Safira, C. A., Setyawan, A., & Citrawati, T. (2020). *Identifikasi Permasalahan Pembelajaran IPA Pada Siswa Kelas III SDN Buluh 3 Socah*. Prosiding Nasional Pendidikan: LPPM IKIP PGRI Bojonegoro, *1*(1).

Salsabila, E. S., Amatda, F., Kholifatussolekhah, U. N., Rachmawati, F. F., Izzati, D., & Fauzi, I. (2022). Pengembangan Media Pembelajaran Herbarium IPA di MI/SD. *Jurnal Pendidikan dan Pembelajaran Khatulistiwa (JPPK)*, *11*(11), 2695-2703.

Sekali, P. B. K. (2022). Meningkatkan Hasil Belajar Siswa Menggunakan Model Pembelajaran *Quantum Learning* Mata Pelajaran IPA Subtema 1 Bagian-Bagian Tumbuhan di Kelas IV SD Negeri 040463 Kabanjahe T. A 2021/2022. *In Prosiding Seminar Nasional Pssh (Pendidikan, Saintek, Sosial Dan Hukum)*, *1*(1), pp. 9-1.

Subakti Putri, I. P., Dantes, N., & Suranata, K. (2020). Model Pembelajaran *Quantum Teaching* Tipe Tandur Berbantuan Permainan Tradisional Terhadap Hasil Belajar IPA. *Jurnal Ilmiah Sekolah Dasar*, *4*(2), 186-188.

Syafaruddin., Supiono., & Burhanuddin. (2019). *Guru, Mari Kita Menulis Penelitian Tindakan Kelas (PTK)*. Yogyakarta: CV Budi Utama.