IMPLEMENTATION OF DIFFERENTIATED LEARNING TO IMPROVE EDUCATIONAL SCIENCE AND CHARACTER LEARNING OUTCOMES OF ELEMENTARY SCHOOL STUDENTS

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ABSTRACT

This research is qualitative research involving 21 fourth-grade students of SD Negeri 6 Pempatan. Based on the results of interviews with the homeroom teacher for class IV, the minimum competency assessment (AKM) for students' literacy and numeracy requires special interference, so student learning outcomes are very low, especially in science subjects. This study aims to improve student learning outcomes in science subject matter of plant body parts. This study uses differentiated learning involving three learning styles, namely visual, auditory, and kinesthetic. Methods of data collection using observation and interviews. Data analysis method with qualitative descriptive analysis. The results of this study show that the learning outcomes of fourth-grade students at SD Negeri 6 Pempatan have increased. This is evidenced by the increase in learning outcomes between learning 1 and learning 2. In addition, the findings in this study state that student-focused learning activities can improve aspects of the process of how students learn which will have meaningful learning experiences so that at this stage students can develop values from science learning and Pancasila student profiles as a form of strengthening character education.

Keywords: differentiation activities, learning outcomes, strengthening character education, natural sciences, student learning styles

PENERAPAN PEMBELAJARAN BERDIFERENSIASI UNTUK MENINGKATKAN HASIL BELAJAR IPA DAN KARAKTER SISWA SEKOLAH DASAR

ABSTRAK

Penelitian ini adalah penelitian kualitatif yang melibatkan 21 siswa kelas IV SD Negeri 6 Pempatan. Berdasarkan hasil wawancara dengan wali kelas IV bahwa assesmen kompetensi minimum (AKM) literasi dan numerasi siswa memerlukan interferensi khusus sehingga hasil belajar siswa sangat rendah khususnya pada mata pelajaran IPA. Penelitian ini bertujuan untuk meningkatkan hasil belajar siswa pada mata pelajaran IPA pokok bahasan bagian tubuh tumbuhan. Penelitian ini menggunakan pembelajaran berdiferensiasi dengan melibatkan tiga gaya belajar yaitu visual, auditori, dan kinestetik. Metode pengumpulan data menggunakan observasi dan wawancara. Metode analisis data dengan analisis deskriptif kualitatif. Hasil penelitian ini menunjukan hasil belajar siswa kelas IV di SD Negeri 6 Pempatan dinyatakan meningkat. Hal ini dibuktikan dari peningkatan hasil belajar antara pembelajaran 1 dan pembelajaran 2. Selain itu, hasil temuan dalam penelitian ini menyatakan bahwa kegiatan pembelajaran yang berfokus pada siswa dapat meningkatkan aspek proses bagaimana siswa belajar yang akan mempunyai pengalaman belajar bermakna sehingga pada tahap ini siswa mampu mengembangkan nilai-nilai dari pembelajaran IPA dan profil pelajar Pancasila sebagai bentuk penguatan Pendidikan karakter.

Kata Kunci: kegiatan diferensiasi, hasil belajar, penguatan pendidikan karakter, ilmu pengetahuan alam, gaya belajar siswa

INTRODUCTION

One of the factors that cause learning outcomes and student character can improve is the teacher. Teacher learning design using the right method will always improve learning outcomes and student character. Teachers are learning leaders in mobilizing the entire learning ecosystem to realize student-centered education

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per the independent curriculum launched recently (Suwartiningsih 2021).

Wahyuni (2022) stated that student-centered education emphasizes aspects of the process of how students learn and efforts to strengthen character education and the effects of the learning process on the development of students themselves, especially in science learning. Science learning involves student activity, both physical activity and mental activity, and focuses on students, which is based on daily experiences. Natural Science Education (IPA) emphasizes direct experience to find out and do so as to be able to explore and understand nature in the surrounding environment scientifically.

According to Suwartiningsih (2021), during the learning process, students will have meaningful learning experiences so at this stage students are able to develop the values of science learning and can strengthen their character education through this learning. Fitra (2022) also stated that student-centered learning is very effective in the student learning environment to improve science learning outcomes and strengthen student character education so that learning objectives can be achieved more effectively.

Through observations and interviews that have been conducted previously at SD Negeri 6 Pempatan, researchers found that teachers in teaching have applied fun learning using interesting media, such as PowerPoint slides and videos displayed through LCD projectors. However, student learning outcomes are still low. Trias (2022) states that learning outcomes are units of value that are a measure to determine the level of student success with learning outcomes and this criterion is usually based on existing standards or measures. In this case, learning outcomes are grouped into two criteria, namely complete and not. Complete if the results achieved by students in the test are in accordance with KKM.

Not only that, in addition to low science learning outcomes, researchers also found that the character of students during the implementation of learning was not good, such as there were still many students who played during the implementation of learning and did not pay attention to their teachers. Paying attention to various factors that affect student learning outcomes and learning outcome criteria as well as strengthening student character education, the role of the methods used in the learning process in the subjects of Natural Sciences (Science) is very decisive. Therefore, teachers as implementers of learning guided by the outlines of learning programs in schools can use appropriate methods or methods that are acceptable to students.

The above problems in detail are described again that (1) teachers have not applied methods that allow students to process, and develop products according to the style or interests of each student, (2) low physical activity during the learning process, (3) students still play during learning, and (4) teacher learning methods are still conventional. Based on some of these problem descriptions, it can be assumed that science subjects have a very strategic and important value in preparing superior human resources, intelligent and loving nature, and the surrounding environment and are able to improve student character in learning. For this reason, effective and meaningful learning activities are needed for students.

Efforts that teachers can make in responding to these problems are to use differentiated learning models to improve science learning outcomes and strengthen student character in learning. According to Herwina (2021), differentiated learning is an effort to adjust the learning process in the classroom to meet the learning needs of each individual. The adjustment in question is related to interests, learning profiles, and student readiness in order to achieve improved learning outcomes.

The findings presented by Suwartiningsih (2021) stated that the application of differentiated learning can improve science learning outcomes, soil material, and life continuity in even semester IXb class students at SMPN 4 Monta for the 2020/2021 academic year, as evidenced by a research study Classroom actions that contain results In the first cycle, students experienced an increase in the number of students who completed 15 students (51.72%), while incomplete students amounted to 14 students (48.28%) with grades average 66.55. Then in the second cycle, there

was a very high increase compared to the previous cycle, namely students who had reached KKM amounted to 28 students (96.55%), while students who had not completed amounted to 1 student (3.45%) with an average score of 80. Not only that, but Wahyuni (2022) also stated that (1) a differentiated approach can be integrated with several learning models such as problem-based learning, Blended Learning's Station Rotation, project-based learning, and paying attention to student learning styles; (2) the application of a differentiated approach is able to improve student learning outcomes; (3) a differentiated approach can be applied in science learning because it is able to accommodate student learning needs by paying attention to student interests, profiles, learning styles, and learning readiness.

Considering the description of previous relevant studies, it can be concluded that differentiation activities can improve science learning outcomes and are able to strengthen student character education so that learning objectives can be achieved more optimally. Furthermore, the implementation of the independent curriculum at SDN 6 Pempatan started in the 2022/2023 school year. From initial observations, this school also implements differentiated learning as one of the implementations of the independent curriculum. For this reason, this study aims to photograph the application of differentiated learning in science learning to improve learning outcomes and student character.

REASERCH METHOD

The method used in this study is the qualitative method. The type of research used is field research, namely research to find the reality of what happens about certain problems (Pantiwati, 2015). Qualitative research is a study that aims to understand the phenomenon of what is experienced by research subjects such as behavior, perception, motivation, action, etc. holistically and by way of description in the form of words and language, in a special natural context and by utilizing various scientific methods (Law et al. 2013).

The place or location of research in this study is SD Negeri 6 Pempatan. The subjects of this study were teachers and grade IV students of SD Negeri 6 Pempatan totaling 21 people. This research was carried out at the beginning of the 2022/2023 school year at SD Negeri 6 Pempatan, namely from January 2023 to March 2023.

The data collection techniques used in this study are (1) observation guideline instruments, observation is one of the most common data collection techniques in qualitative research methods. These observation guidelines are used to observe activities and improve student learning outcomes during learning. (2) interview guidelines, the interview is a process of communication or interaction to collect information by means of questions and answers between researchers and informants or research subjects, namely teachers. Interview guidelines are used to determine the design of methods used by teachers in differentiated learning to improve learning outcomes and student character.

The procedure for conducting research conducted in this study is first, collecting and sorting data sourced from differentiated learning at SD Negeri 6 Pempatan in Learning 1 and Learning 2. Second, the data is analyzed. Third, provide conclusions from the results of research that has been carried out at the planning, implementation, and assessment stages in learning 1 and learning 2.

Data analysis techniques in this study use technical analysis delivered by Miles and Huberman (2014). There are three data analysis techniques in qualitative methods, namely (1) data reduction, data reduction is defined as a selection process, focusing on simplifying, abstracting, and transforming rough data that arise from written records in the field. Data reduction takes place continuously throughout the qualitative research-oriented project. (2) presentation of data, limiting a presentation as a set of organized information that provides the possibility of drawing conclusions and taking action. (3) drawing conclusions/verification, a review of field notes, or being so thorough and labor-intensive with the review. The meanings that arise from other data must be tested for correctness, robustness, and compatibility, which is validity.

RESULTS AND DISCUSSION

Based on the results of observations and interviews with resource persons and by applying differentiated learning activities in science subjects with plant body part material, it is stated that science learning outcomes and student character are improving. This is evidenced by the preparation, implementation, and assessment stages of learning 1 and learning 2 in the learning process is increasing and the attitudes and behaviors of students are improving.
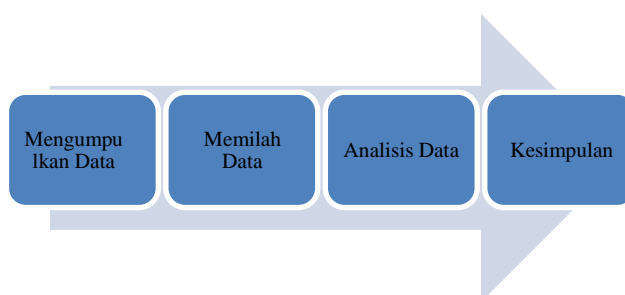

Figure 1. Stages of Research

In the planning stage, the application of differentiated learning to the subject of plant body parts was chosen as a problem-solving strategy that researchers tried to present by providing various ways to understand new information for all students in their diverse classroom community, including ways to obtain content, process, build, or reason ideas, and develop learning products and assessment measures so that all students in a classroom that Having diverse ability backgrounds can learn effectively.

The process of differentiating lessons is carried out to answer the needs, styles, or learning interests of each student. Based on the above considerations, the author believes that with the application of differentiated learning devoted to the subject of plant body parts in students who have difficulty understanding the learning can be more motivated to be actively involved in the learning process according to the level of student readiness (readiness), student interests and the learning profile of the students themselves.

In the implementation stage, in accordance with the implementation process in the teaching module that has been prepared, during the learning process takes place in learning I, student activities are only limited to observing slides. In learning 1, student activities are still limited to observing slides and videos displayed through LCD Projectors (content differentiation), and for demonstration activities of plant body parts (Process differentiation), the result is that students are still passive to carry out these activities, only a few students want to participate in the demonstration activities, most of them just sit quietly and chat with their friends (not paying attention to the teacher), As for the differentiation of the product, it has not yet been seen.

In lesson 2, after observing slides and videos about plant body parts, during the demonstration of plant body parts, almost all students took part in this activity, even students worked together in carrying out learning activities (strengthening character education). For content differentiation, the process and products have been fulfilled as evidenced by the assessments that have been carried out ranging from diagnostic assessments shown to determine student learning styles, to formative assessments to provide feedback during the learning process.

In Learning 2, students are very active in learning according to their respective interests and learning styles. The results of student findings in filling out student worksheets (LKPD) according to learning styles show that 60% of students choose auditory and visual learning styles, while

40% choose kinesthetic learning styles. These activities can be seen in Figure 2.

Figure 2. Learning differentiated with auditory and visual learning styles (right) and kinesthetic (left) in the material of plant body parts.

In the assessment stage of the observations that have been made by researchers, based on the results of data collection analysis, conclusions of learning outcomes data are obtained. A recapitulation of student learning outcomes per learning through the application of differentiated learning revealed that (1) learning 1, the frequency of completed students was 11 students with 51.72% while incomplete students reached 10 people with 48.28% so the average obtained in learning 1 was 66.55%. (2) In Learning 2, the frequency of completed students is 20 students at 96.55% while the incomplete students are only 1 person at 3.45% so the average obtained in Learning 2 is 80%. Based on the description of these results, it can be concluded that differentiated learning activities can improve science learning outcomes and student character as evidenced by increasing the results in learning 2 which is very significant.

Discussion

The success of improving the learning outcomes of science students on plant body parts through the application of differentiated learning activities in grade IV students of SD Negeri 6 Pempatan is determined by several factors. These factors are internal factors and external factors. Internal factors, namely factors that come from within, include intelligence, interest, and self-built motivation. The difficulty of one student whose grades have not been completed due to the intelligence factor is not good, because the student

has special needs (idiot). In addition, these students lack focus in the following learning.

While external factors are factors that come from outside. The dominant external factor in this study was the school environment. It is proven that there is an increase in student learning outcomes after one component of the school environment is improved. This component is the way of presenting material with the application of differentiated learning. The way of presenting material with the application of differentiated learning can improve student learning outcomes. This is evidenced by the increase in average yield each cycle.

Student learning outcomes that have passed the success indicators in this study are due to the application of differentiation activities that have several benefits. The benefits are (1) students can be better able to maximize the potential that exists in each student, especially in students with special needs who have a learning character that is slightly different from other students, (2) trigger students to be more active because the teacher does not provide limits on basic learning materials, processes to products that will be produced by each student, and (3) make students more active in learning because they experience and are directly involved in the learning process they are learning (Fitra 2022; January 2022; Marlina 2019). All these advantages become a benchmark that by implementing differentiation activities, student learning outcomes at SD Negeri 6 Pempatan can increase.

Improving student learning outcomes in Learning 2 shows that there is more appropriate and interesting learning to be carried out. Students can learn appropriately according to their respective learning styles and convey opinions and increase student interaction (Elsa Efrina, Grahita Kusumastuti 2019). The description of the situation shows the importance of an effort to find alternatives to improve student learning outcomes so that the results achieved in learning can increase. Efforts to find alternative solutions to improve student learning outcomes at SD Negeri 6 Pempatan are to implement differentiation activities periodically or continuously so that the learning process in the classroom can be updated and controlled so that student learning outcomes continue to improve and are in line with the increasing development of good student character.

In the implementation phase, teachers find obstacles in strategies to apply differentiation activities to students. According to Aisyah (2019) and Aprima (2022), the right strategy in implementing differentiated activities is (1) thinking of exciting and creative activities in accordance with the material to be taught, (2) implementing these activities which begins with analyzing student readiness, interests, and profiles, and (3) evaluating differentiation activities.

Applying progressive differentiation learning strategies, of course, students will know the relationship between the elements of the material learned and also have an idea of which parts of the problem are faced in a particular case and which solutions should be used to solve the problem, so that students will have a conceptual understanding of the material learned. The statement is in line with the application of learning activities that the process of transferring knowledge by educators to students can run well and optimally if using the right model and application or strategy through a differentiated activity model.

Based on the results of observations that have been made during the implementation of learning the majority of students prefer exciting learning by applying combinative learning media, namely concrete and semi-contraction, this differentiation activity is one of the learning development solutions that participants like so student's interest and learning outcomes will continue to increase in line with their achievements which causes the quality of learning to also increase (Herwina 2021; Iskandar 2021; Pane, Lumbantoruan, and Simanjuntak 2022; Siagian et al. 2022).

Based on findings of Trias (2022) states that differentiated learning is very collaborative between teachers, students, and schools which is able to improve student learning outcomes seen from collaborative differentiated learning is very fun (95%) and can train independently not to depend on others (95%). The lowest well-being attitude toward understanding students' strengths and weaknesses (74%) corresponds to the emergence of students' well-being indicators after learning. The presence of parents is very motivating for the enthusiasm of learning students (78%) which can be concluded that differentiation activities are very effectively applied.

Differentiated learning emphasizes efforts to focus learning for students (Rosyidi Karim, Mansur, and Yusuf 2018). Learning that does not lead to the development of children's abilities certainly cannot be said to be differentiated learning. Looking at the results of research, especially in differentiation that cannot be fully carried out is on process differentiation and product differentiation produced by students. Differentiated learning must be able to place teachers in developing students' talents and abilities (Martanti et al. 2021).

Not only improving learning outcomes, but differentiation activities can also strengthen student character. According to Martanti (2021), the importance of realizing student character is the fundamental reason that the purpose of learning must be able to shape students into individuals with character. The learning process not only aims to make students have good academic competence and various skills needed in their lives, but the main goal is to make students have character.

The educational process carried out in school institutions is directed to instill and develop the values and character of the nation. The character instilled for students must also be relevant and adjust to the character of the

Indonesian nation. Instilled character education needs to be integrated into the learning process, one of which is in differentiation activities, in this case, it can be adjusted to the integration of learning in schools (Pane, Lumbantoruan, and Simanjuntak 2022).

Character education is a direction of strengthening that is always expected to be realized in every curriculum implementation, both from the KTSP curriculum, the 2013 curriculum, and the independent curriculum. Realizing student character can be done in various ways that are done. One of these characteristics can be built through differentiated learning. This is because differentiation learning in addition to being able to provide an understanding of the material taught will also shape and attach character better (Martanti et al. 2021).

CONCLUSIONS AND RECOMMENDATION

Based on the results of research and discussion, it can be concluded that the application of differentiated learning can improve science learning outcomes of plant body parts and strengthen character in grade IV students of SD Negeri 6 Pempatan. Teachers play an important role in implementing innovative learning with differentiated learning methods so that learning outcomes and student character can improve.

This increase in learning outcomes is shown by the increase in learning outcomes in learning 1 and learning 2, the number of grade IV students of SD Negeri 6 Pempatan is 21 students with school determination KKM which is 70. In learning 2, there was a very high increase compared to the previous learning, namely students who had reached KKM amounted to 20 students (96.55%), while students who had not completed amounted to 1 student (3.45%) with an average score of 80. In the application of differentiated learning, it can improve student learning outcomes and form characters in accordance with the Pancasila student profile.

The recommendations from the results of this study are (1) with the success of this research, it is expected that teachers/educators at SD Negeri 6 Pempatan consider the application of differentiation activities in learning in other classes. (2) It is hoped that differentiation activities in the implementation of learning in the classroom can provide an alternative that can be used to carry out teaching and learning activities. So you can apply open classes to design creative and innovative learning. (3) It is expected that readers will conduct further research on the application of differentiation activities to improve student learning outcomes and strengthen student character in accordance with the Pancasila student profile.

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