

Implementation of Differentiated Learning Through Cognitive Diagnostic Assessment in Grade IV of SDN 1 Kelayu Jorong

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Abstract: This study aims to describe the process of implementing differentiated learning through cognitive diagnostic assessment and factors that can support and hinder teachers. This study used a qualitative research approach with a descriptive research method. The source of this study was fourth grade teacher at SD Negeri 1 Kelayu Jorong. Data collection techniques used interviews, observation, and documentation. Data analysis techniques used data reduction, data presentation, drawing conclusions, and verification. The results of the study showed that the implementation of differentiated learning consists of: 1) Planning stage, mapping students' abilities through cognitive diagnostic assessment results into three learning groups such as: advanced, moderate, and developing groups, and teachers choose and compile teaching materials, methods, and strategies that were in accordance with students' abilities, 2) Implementation stage, used process differentiation, content differentiation, and product differentiation, 3) Evaluation stage, teachers applied two types of evaluation, namely formative evaluation, and summative evaluation. Supporting factors for the implementation of differentiated learning with teacher collaboration, and the ease of finding sources through PMM. Meanwhile, the inhibiting factors for teachers in implementing differentiated learning were time and lack of encouragement to participate in improving teacher competency through various workshops and seminars.

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Introduction

Education as an effort to improve quality and highly dedicated human resources requires a supporter, namely the quality of education. Many parties describe that the low quality of education today is closely related to the difficulties experienced by students in learning. In fact, education in Indonesia is always changing or being renewed. Like the curriculum, the curriculum is the life or energy of the educational process to keep it alive and burning. Curriculum changes certainly cannot be avoided and skipped, but must always be lived and adjusted to the needs of students (Insani et al., 2023:4451) .

Minister of Education Nadiem Makarim developed a prototype curriculum framework to be more flexible, more towards the development of character and competency of students known as the independent curriculum. In the independent curriculum, every student has the right to receive education or learning that is in accordance with their desires and learning needs regardless of their background between individuals because they grow and develop in different environments and cultures according to their geographical conditions and place of residence (Purwowidodo, & Zaini, 2023: 65).

Each student has different learning needs. Education should be able to meet and provide the needs of each of these diversities. In fact, education in Indonesia still equates the diversity of students and is less able to pay attention to the needs of each individual child. The handling needed is not just a patchwork but must restructure the philosophical foundation of education that can be a foundation for developing education and learning that is more pro-student, more meaningful and develops important competencies for the 21st Century. So that teachers act as agents of change who are actively involved in designing and implementing a curriculum that is responsive to student needs (Roos, et al, 2022:983) .

The Independent Curriculum is expected to provide freedom and flexibility to educational units in developing a curriculum that is in accordance with local needs, student characteristics, and global challenges faced (Simon Paulus, 2023) . The implementation of the independent curriculum in elementary schools aims to develop students' creativity, independence, social intelligence, and skills, as well as increase the values of patriotism and nationality. In implementing the Independent Curriculum, the government has adopted various strategies and implementation mechanisms. So that the main objective of the Independent Curriculum is to produce graduates who have global competitiveness, noble character, and are able to face the challenges of the times (Hermawan: 2020).

Based on the results of initial observations that have been carried out on August 18 to November 18 in class IV in the subject of Pancasila education at SD Negeri 1 Kelayu Jorong, the time and learning process were carried out for two meetings a week. The results of the observation showed that: 1) teachers have not shown a differentiated learning process, still using classical learning methods, models, strategies in the learning process in the classroom, 2) lack of follow-up to the diagnostic assessment that has been applied at the beginning of learning, and 3) teacher ability and readiness of Pancasila education teachers. In another study, it was stated that teachers still have difficulty in grouping students according to their learning styles, skills, knowledge, talents and interests, and knowing the strengths and weaknesses of students (Kamaliah, et al, 2023: 1040-1052.).

Lack of student involvement in the classroom can be influenced by several factors, including internal and external factors. Internal factors are the condition of students that cause a lack of activity in the learning process, for example: lack of perseverance, tenacity; health conditions of students that are disturbed during the learning process; students' enjoyment and interest in learning habits have not been seen; and the teacher's enthusiasm in providing learning motivation to students that has not been significantly felt by students. Therefore, the implementation of initial diagnostic assessments and the application of differentiated learning are very important to be implemented in the learning process, which aims to map and provide teaching that is appropriate to the level of student ability. Diagnostic assessment is a process

used to collect data on student abilities or performance in a particular area (Wulandari et al., 2023:436) .

Assessments are designed fairly, proportionally, validly, and reliably to provide information related to learning development , provide decisions about actions and a basis for making further learning designs (Azis & Lubis, 2023:23) . In the context of the Merdeka curriculum, diagnostic assessments are used to identify individual student learning needs. In this case, teachers can use various assessment methods such as tests, observations, or interviews to collect information about student abilities and performance. So that the results of these measurements, teachers can find out and map the level of knowledge, needs, and learning styles of students, and the next stage is to provide teaching according to student needs.

Differentiated learning is a very important way of thinking about the teaching and learning process in the 21st century. Differentiated learning is not something new in the world of education. Differentiated learning is also known as *differential learning* (Naibaho, 2023: 81-91). The implementation of differentiated learning cannot be separated from how teachers apply models, methods, and learning strategies in the classroom. Students are diverse and have different learning needs, therefore differentiated learning is present as a solution to meet the learning needs of students. Differentiated learning must be formed through the teacher's way of thinking that assumes that each child can grow and develop optimally according to their respective capacities (Amalia, et al, 2023: 185-193). Differentiated learning has basic principles to help teachers implement differentiated learning, namely the learning environment, quality curriculum, ongoing assessment, responsive teaching, and classroom teacher leadership during the teaching process. As for supporting or assisting teachers in implementing and analyzing student abilities, an initial assessment or what is known as a diagnostic assessment is implemented.

Based on the description of the background of the problem, the objectives to be achieved in this study are to determine the implementation of differentiated learning through cognitive diagnostic assessment in the subject of Pancasila education for grade IV at SD Negeri 1 Kelayu Jorong, and to determine what are the supporting and inhibiting factors. So that this study is expected to foster and provide experience about the importance of implementing differentiated learning through diagnostic assessment and increase teacher creativity in applying methods, models, and strategies in the learning process so that learning objectives are achieved.

Research Method

This study used a qualitative research approach, with a descriptive research method. Qualitative research was research that is intended to understand a particular phenomenon. This phenomenon can be something experienced by the research subject such as behavior, perception, motivation, actions and so on which are holistically described in the form of words that describe the conditions as they are. The descriptive research method was one type of qualitative research approach that describes or illustrates a problem. The descriptive research method aims to describe a population, situation or phenomenon accurately and systematically (Fiantika et al, 2022:5). Descriptive research, also often referred to as taxonomic research, is said so because this research is intended to explore or clarify a symptom, phenomenon or existing social reality, descriptive research tries to describe a number of variables related to the

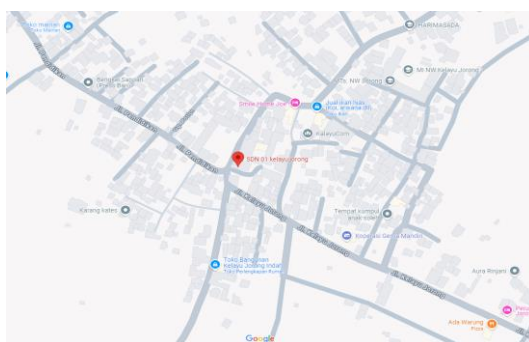
problem and the unit being studied, descriptive research does not question the relationship between existing variables (Syahrizal, and Jailani, 2023:56).

The location or place of the research will be carried out at SD Negeri 1 Kelayu Jorong in class IV, which located in Tanggak Hamlet, Kelayu Jorong Village, Selong District, East Lombok Regency. This place was chosen by the researcher to conduct the research because this school was a school that has implemented the independent curriculum. The time of the research implementation was designed and will be carried out from June to July 2024. The primary data sources in this study were 15 fourth grade students and 1 teacher. Sampling technique using purposive sampling to determine representative data sources from the population and based on research objectives. While secondary data sourced include: curriculum documents, textbooks for teachers and students, diagnostic assessment documents, documents on the results of the implementation of diagnostic assessments or mapping of student abilities, differentiated learning teaching modules.

This study used qualitative research and used descriptive research methodology. Data collection techniques used by researchers in this study include interview techniques, observation techniques, and documentation techniques. The research data were then analyzed using the interactive analysis model data analysis technique from Miles and Huberman (2014). Data validity obtained by conducting credibility tests and confirmability tests used triangulation stages. The triangulation used by researchers in this study sourced and technique triangulation. Source triangulation used to test data credibility by checking data that has been obtained through several sources. While technique triangulation was to test data credibility by checking data to the same source by conducting interviews, observations, and documentation.

Result and Discussion

SD Negeri 1 Kelayu Jorong was one of the state elementary school educational institutions located in Tanggak Hamlet, Kelayu Jorong Village, Selong District, East Lombok Regency. Geographically, SD Negeri 1 Kelayu Jorong located at latitude -8.6702 and longitude is at 116.5426. SD Negeri 1 Kelayu Jorong located on Jalan Fatahillah Kelayu Jorong. SD Negeri 1 Kelayu Jorong used the independent curriculum for grades I and IV, while for grades II, III, V, and VI it still used the 2013 curriculum since 2023. SD Negeri 1 Kelayu Jorong as an elementary education institution had a vision of being educated, intelligent, skilled, achieving, cultured based on faith and piety.



Picture 1 School location map

Implementation of Differentiated Learning

Implementation of differentiated learning through cognitive diagnostic assessment in Pancasila education subjects for grade IV at SD Negeri 1 Kelayu Jorong. The implementation of differentiated learning had three stages based on the results of the research conducted by the researcher, the stages in the implementation of differentiated learning. The planning stage in differentiated learning was a very important step in the implementation of differentiated learning, where a teacher will make a plan before implementing differentiated learning in the learning process. At this stage the teacher must know the abilities and learning needs of his students. Therefore, teachers need to apply diagnostic assessments to students at the beginning of learning, so that teachers can map the abilities and learning needs of students. Not only that, teachers must also compile and prepare teaching materials, and determine the appropriate teaching methods to use according to the abilities and needs of students. As stated by the resource person SH that “in the planning process, I conducted a cognitive diagnostic test at the beginning of learning on the material to be studied by students, the purpose of which was to determine the abilities and learning needs of students. So that students can be mapped or grouped based on their ability to understand the subject matter. And the next process is to compile teaching materials and determine appropriate teaching methods based on the learning needs of students” (W/SH/5/28/2024).

The planning stage in the process of implementing differentiated learning can also be called the preparation stage where a teacher will design learning based on students' understanding of the material to be studied. At this stage, the class teacher will map or group students according to their abilities, characteristics, learning styles, and learning needs through the implementation of cognitive and non-cognitive diagnostic assessments. Students are grouped into three learning groups, advanced learning groups, moderate learning groups, and developing learning groups. This is in accordance with the opinion of the Research conducted by Dewi et al. (2023) showed that after being given a diagnostic assessment, it can be seen if grade IV students have learning readiness at different initial abilities.

Mapping carried out after the teacher has carried out or implemented a diagnostic assessment, then from the results of the assessment the teacher groups students based on their abilities, learning styles, and learning needs. Students are grouped based on their abilities, into three learning groups including advanced learning groups, moderate learning groups, and developing learning groups. Fitrotul et al. (2023) stated that in differentiated learning, students are grouped into developing and advanced groups. So that differentiated content learning can be applied to provide learning materials based on ability levels so that students' learning needs are met. The implementation stage of differentiated learning in Pancasila education subjects in grade IV of SD Negeri 1 Kelayu Jorong. Based on the presentation from the resource person SH that “in the implementation process, I use three stages in differentiated learning such as process differentiation, content/material differentiation, and product differentiation” (W/5/28/2024).

The implementation stage of differentiated learning had three components that need to be considered by teachers, namely content/material differentiation, process differentiation, and product differentiation. In the process differentiation component, the resource person SH divides students into three learning groups based on students' initial understanding of the

material to be discussed in the Pancasila education subject, then divides the students' learning process, so that students will learn and understand what will be learned according to their abilities and desires. The second component is content or material differentiation, in this component the teacher presents/provides learning materials to students according to the level of understanding and needs of students, so that students do not feel forced to learn. The last component is product differentiation, in this component the resource person directs students to make a product based on the group, and the students' abilities, and the results of the products that students make will be presented in front of the class.

Implementation of differentiated learning or student-centered learning by adjusting the learning process according to the abilities, learning styles, and well-being of students. Therefore, the implementation of differentiated learning is very important to be carried out so that the learning needs and learning objectives of students can be achieved. The implementation of differentiated learning cannot be separated from how teachers apply models, methods, and learning strategies in the classroom. To realize all of this, the implementation of differentiated learning is divided into three forms of activities, namely: content differentiation, process differentiation, and product differentiation (Sutrisno, et al. (2023).

The evaluation stage is an important part of the differentiated learning process which aims to measure the level of teacher success in implementing differentiated learning as seen from the achievement of student abilities, the implementation of differentiated learning can be said to be effective and ineffective can be seen from the improvement of students. Resource person SH explained that "usually I implement evaluation in the closing activity after the core activity is completed, and the evaluation I use is summative evaluation, the purpose of which is to measure and see the impact of the implementation process of differentiated learning in PKN subjects, which can be seen from the increase in the abilities of my students regarding the material that has been studied" (W/5/28/2024).

The evaluation process in the implementation of differentiated learning is carried out with the aim of measuring the level of success in the learning process. The implementation of evaluation in differentiated learning can be applied in two types of evaluation, namely formative evaluation and summative evaluation. Formative evaluation in differentiated learning is carried out to measure and ensure whether the activities in the differentiated learning process are appropriate and feasible for students. Summative evaluation is carried out to assess the impact of the implementation of differentiated learning on students.

Differentiated learning was an instructional or learning technique in which teachers used various teaching methods to meet the individual needs of each student according to their needs. These needs are in the form of existing knowledge, learning styles, interests, and knowledge of the material being taught. This differentiated learning provides freedom in expressing the needs, abilities of students to improve their quality or potential according to the abilities, needs, interests, talents, and learning profiles of different students (Wahyuni, 2022:118).

Learning designed to adjust the learning process to meet the individual learning needs of each student. So that differentiated learning is an effort, an approach taken by teachers to students according to the needs, desires, and abilities of students to provide useful and quality learning experiences so that the goals in the learning process are achieved. In the implementation of differentiated learning, a teacher must understand that there is not only one

action or way to carry out learning to students. Not only that, as a teacher or educator, you must really understand the character, background, and abilities of your students so that teachers are truly able to meet the learning needs of their students. Therefore, teachers must understand the models, methods and strategies in the learning process. Before the learning process is carried out, a professional teacher needs to prepare learning materials, activities, daily tasks both in class and at home, and final assessments according to the readiness of students to learn the learning materials, interests or what their students like in learning, and how to deliver lessons that are in accordance with the student's learning profile.

Differences in students' abilities in understanding Pancasila education subject matter will be a reference for teachers to implement learning that is appropriate for students. So differentiated learning is a solution that can be applied in learning to support and facilitate student learning through the planning stage, of course, it requires thorough readiness and preparation by a teacher. In the stages or process of planning differentiated learning, there are several things that teachers must pay attention to, such as mapping the abilities of students. Mapping carried out after the teacher has carried out or applied a diagnostic assessment, then from the results of the assessment the teacher groups students based on their abilities, learning styles, and learning needs. Students are grouped based on their abilities, into three learning groups, including advanced learning groups, moderate learning groups, and developing learning groups. In addition, in the planning stage, teachers need to design teaching materials that are appropriate to the learning needs of students, as well as determine learning methods, models, and strategies that match the abilities of students.

The implementation stage of differentiated learning in grade IV in the subject of Pancasila education, has several components that must be carried out by the teacher, such as content differentiation, process differentiation, and product differentiation. In the process differentiation component, the teacher divides students into three learning groups based on the students' initial understanding of the material to be discussed in the Pancasila education subject, then divides the students' learning process, so that students understand the content studied according to their abilities and learning needs. The second component was content or material differentiation, in this component the teacher presents learning materials to students according to the level of understanding and needs of students, so that students do not feel forced to learn. The last component is product differentiation, in this component, the teacher directs students to make a product based on the group, and the students' abilities, and the results of the products that students make will be presented in front of the class.

The evaluation process in the implementation of differentiated learning carried out with the aim of measuring the level of success in the learning process. The implementation of evaluation in differentiated learning can be applied in two types of evaluation, namely formative evaluation and summative evaluation. Formative evaluation in differentiated learning is carried out to measure and ensure whether the activities in the differentiated learning process are appropriate and feasible for students. Summative evaluation is carried out to assess the impact of the implementation of differentiated learning on students.

Supporting and Inhibiting Factors in the Implementation of Differentiated Learning

The implementation of differentiated learning was a challenge for a teacher to be more professional in educating students, therefore teachers must have an understanding of differentiated learning. In its implementation, of course, there are factors that can hinder and support the implementation of differentiated learning. The implementation of differentiated learning means helping students learn according to their abilities and conditions, in implementing differentiated learning, teachers must understand the abilities of their students in mastering learning materials. Of course, this was not easy for a teacher in implementing differentiated learning. Resource person SH said that "the obstacles that I often experience when compiling teaching devices or at the planning stage of differentiated learning are time and opportunity because of the large workload that must be completed, and obstacles during implementation such as time, and limited teaching materials that are in accordance with the learning material so that they can hinder the implementation of differentiated learning itself. As well as psychological challenges that arise from students" (W/5/28/2024).

The success of teachers in implementing differentiated learning was certainly due to the efforts and competence of teachers in understanding the nature of differentiated learning. There were other things that support teachers in the process of differentiated learning. Resource person SH said that "factors that support the implementation of differentiated learning are that I, other teachers and school administrators collaborate with each other, making it easier for me to implement differentiated learning. In addition, there is also the PMM application which can help me find references on the implementation of differentiated learning" (W/28/5/2024).

The implementation of differentiated learning in the subject of Pancasila education for grade IV at SD Negeri 1 Kelayu Jorong was due to the collaboration of the resource SH with other teachers and school administrators. So that the implementation of differentiated learning can be carried out. In addition, there is also support from the government through the PMM application, which used for learning and sharing between professional teachers about differentiated learning.

The implementation of differentiated learning through cognitive diagnostic assessment in the subject of Pancasila education for grade IV is a form of teacher's efforts to students in learning, so that students can learn according to their desires and cognitive abilities. The implementation of differentiated learning is a challenge for teachers to be more professional in educating students. Implementing differentiated learning in the subject of Pancasila education means that teachers are aware of the different needs of their students, both in terms of their abilities, learning styles, characters, and learning needs of students. Therefore, teachers must map based on the cognitive and noncognitive abilities of students. So it was necessary to carry out an initial assessment or what is called a diagnostic assessment, which aims to identify students both cognitive and noncognitive.

The implementation of differentiated learning will be carried out if the teacher already knows, and maps or groups students based on their abilities, learning styles, and learning needs. So it is necessary to carry out an initial assessment or what is called a diagnostic assessment, which aims to identify students both cognitively and non-cognitively. The obstacles to the implementation of differentiated learning are caused by several factors such as time, and

teacher opportunities because teachers have a lot of other workloads which result in obstacles in the process of implementing differentiated learning. Meanwhile, the success in implementing differentiated learning in the Pancasila education subject for grade IV at SD Negeri 1 Kelayu Jorong, because there are factors that support its implementation such as support or collaboration with other teachers, and the ease of finding sources through the merdeka mengajar platform (PMM) because teachers can share experiences with professional teachers.

Supporting and inhibiting factors in differentiation learning namely, the leadership of the school principal who always provides motivation to teachers and organizing various assistance for teachers through various seminar activities, in house training and workshop activities, in addition to administrative support available for teachers, parents and guardians of students to also help with the implementation of learning differentiation runs more optimally. Apart from that, there are obstacles that influence it the implementation of differentiated learning is time limited. Learning needs different students require teachers to be able to accommodate them well, whereas to do this it is not enough to have limited time, besides that there is some teachers do not understand and are less skilled in implementing differentiation learning (Negari, 2024).

Conclusion

Based on the results of the research and discussion of the implementation of differentiated learning through cognitive diagnostic assessment in the subject of Pancasila education for grade IV at SD Negeri 1 Kelayu Jorong, it was concluded that the process of implementing differentiated learning consists of three stages that will be passed by the teacher. These stages consist of: design stage, implementation stage, and evaluation stage. At the design stage, the teacher maps students into three learning groups, namely advanced, moderate, and developing learning groups. At the implementation stage of differentiated learning, there were three components such as process differentiation, content/material differentiation, and product differentiation. In the evaluation stage, the teacher used two types of evaluation, namely formative evaluation and summative evaluation.

The implementation of differentiated learning in the learning process will not be separated from supporting and inhibiting factors. Supporting factors that support the success of teachers in implementing differentiated learning such as support or collaboration with other teachers, and being given the ease of finding sources of information through the merdeka teaching platform because teachers can share experiences with professional teachers. The factors that inhibit the implementation of differentiated learning were influenced by time factors and opportunities to improve teacher competence through various workshops and seminars, due to the large workload.

Recommendation

The implementation of differentiated learning needs to be pursued by all teachers because this learning accommodates the different learning needs of students, so that various methods, models and strategies are adapted to the needs of students. Apart from that, careful

planning and involvement of students should play a role in reflection activities, to express their opinions regarding the desired learning.

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