Profiling Student Learning Styles to Design Differentiated Learning to Support Independent Learning

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A R T I C L E   I N F O

A B S T R A K

Kendala lainnya yang sering dihadapi guru yaitu kurangnya fasilitas belajar yang dapat mendukung pelaksanaan kurikulum merdeka. Berdasarkan hal tersebut, tujuan penelitian ini yaitu untuk menghasilkan data atau informasi yang signifikan terkait dengan karakteristik profiling gaya belajar siswa khususnya pada gaya belajar siswa kelas V sekolah dasar yang dapat dijadikan pijakan untuk mengoptimalkan kegiatan pembelajaran melalui pembelajaran berdiferensiasi. Jenis penelitian ini yaitu penelitian kualitatif. Penelitian ini menggunakan metode studi kasus untuk mengeksplorasi kenyataan, menerapkan pembelajaran yang berbeda melalui profiling gaya belajar siswa. Subjek penelitian yaitu kepala sekolah, guru dan siswa kelas V. Metode yang digunakan untuk mengumpulkan data adalah wawancara, observasi dan angket siswa. Teknik analisis data yang digunakan dalam penelitian ini adalah deskriptif kualitatif dengan teknik analisis data versi Miles dan Huberman. Hasil dari penelitian menunjukkan bahwa peserta didik kelas V memiliki dominan gaya belajar masing-masing. Guru menjadikan hal tersebut sebagai pijakan untuk merancang pembelajaran berdiferensiasi yang disesuaikan dengan karakteristik gaya belajar siswa. Guru kelas V juga menerapkan beberapa strategi pembelajaran dalam upaya menangani kesulitan dan kekurangan dalam pelaksanaan pembelajaran berdiferensiasi.

A B S T R A C T

Another obstacle teachers often face is the lack of learning facilities that can support the implementation of the independent curriculum. Based on this, this research aims to produce significant data or information related to the profiling characteristics of student learning styles, especially the learning styles of fifth-grade elementary school students, which can be used to optimise learning activities through differentiated learning. This type of research is qualitative research. This research uses the case study method to explore reality, implementing different learning through profiling student learning styles. The research subjects were the principal, teachers and class V students. The methods used to collect data were interviews, observation and student questionnaires. The data analysis technique used in this research is descriptive qualitative with the Miles and Huberman version of the data analysis technique. The research results show that class V students have their dominant learning styles. Teachers use this as a basis for designing differentiated learning that is adapted to the characteristics of students' learning styles. The fifth-grade teacher also implemented several learning strategies to overcome difficulties and shortcomings in implementing differentiated learning.

1. INTRODUCTION

The basis of education is the interaction between educators and students to achieve learning goals. Education and learning are related to educational values. Educational value refers to the meaning of giving, growing and instilling positive values in students (Kidd & Murray, 2020; Saputro, 2020). Giving students grades can help develop their potential and abilities and their characteristics in a more positive direction (Intania & Sutama, 2020; Padmadewi et al., 2018; Prayitno et al., 2022). In the new paradigm, teaching is considered a process of managing the environment in the hope that students learn. Independent Learning Education is a response to the needs of the education system in the Industrial Revolution 4.0 era. The new Independent Learning paradigm facilitates students to learn according to their learning needs, as well as contextual development stages, which are then called the principles of differentiated learning (Indarta et

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al., 2022; Malikah et al., 2022; Yunaini et al., 2022). The Merdeka Curriculum is an innovative initiative in education in Indonesia that aims to provide flexibility for teachers in planning learning experiences according to students' needs and characteristics (Abidah et al., 2020; Chaniago et al., 2022). The implementation of the independent curriculum expects teachers to focus on academic learning and pay sufficient attention to the development of student's social and emotional aspects. The Merdeka Curriculum allows teachers to apply different teaching methods (Chaniago et al., 2022; Sopiansyah et al., 2022). This method accommodates individual differences in the classroom, such as learning styles, abilities, interests, and pace

However, in reality, many teachers still need help understanding the meaning of the independent curriculum. Previous research findings also found that many teachers still need to apply varied learning methods so that students feel bored with learning activities (Amalia et al., 2022; Putri & Koeswanti, 2022; Qodriani et al., 2022). This indicates that teachers need to be more creative and innovative in learning activities, contrary to the independent curriculum. Other research also states that many teachers still need help implementing the independent curriculum (Firdaus et al., 2022; Sasmita & Darmansya, 2020). The obstacles faced by teachers certainly have an impact on learning activities that need to run optimally. Teachers need a good understanding of the Independent Curriculum, including concepts, learning strategies, and assessment of learning outcomes (Chaniago et al., 2022; Sopiansyah et al., 2022). A lack of teacher understanding and preparation can hinder the effectiveness of implementing the Merdeka Curriculum. Previous research findings also reveal that teachers need more resources, such as textbooks, learning tools, and training, which can hinder learning activities (Lestari et al., 2022; Mustadi et al., 2022; Putri & Koeswanti, 2022). The observations at SDN Sadeng 02 also found that teachers experienced problems in learning activities. Teachers often need help in determining appropriate methods for students. Apart from that, the results of observations also found that some students needed to be more serious about participating in learning activities. Learning activities that are not optimal certainly have an impact on low student learning outcomes.

Based on these problems, the solution can be offered by profiling student learning styles to design differentiated learning to support independent learning. Teachers can improve Indonesian education by learning new paradigms applied to the independent curriculum (Fauzia & Ramadan, 2023; Rahayu et al., 2022). An instructor can provide a new paradigm in learning by understanding diverse learning. Developing learning techniques based on analysing student learning needs is one way to create a positive learning environment. Merdeka Belajar allows children to receive instruction based on individual learning needs and contextual development stages (Nahdhiah et al., 2024; Retnaningsih & Khairiyah, 2022). This approach is known as differentiated learning. The Merdeka Curriculum is a cutting-edge education project in Indonesia that seeks to give teachers more freedom in designing learning based on the needs and characteristics of their students (Anggara et al., 2023; Gusteti & Neviyarni, 2022). Implementing the Independent Curriculum encourages teachers to focus on academic learning and properly develop students' social and emotional elements. Learning activities like this can accustom children to learning in a fun way and foster a solid urge to acquire knowledge (Bunga Nabilah et al., 2023; Suryaman, 2020). Teachers can apply many pedagogical approaches to the Merdeka curriculum. This approach considers student learning styles, aptitudes, interests, and pace variations.

Differentiation is an innovative strategy that teachers can use to reinvent learning (Hadi et al., 2022; Hilman et al., 2023). This aligns with the government's new paradigm education system adopted to create an autonomous curriculum (Betancourt-Odio et al., 2021; Sun, 2023). In the learning process, learning style is very determining. Teachers must be able to adapt their teaching to their students' interests and learning styles. This will help students understand the content or information that has been selected. This is obtained through different learning processes (Hafizha et al., 2022; Nahdhiah et al., 2024). Differentiated learning is essential to maximise each student's potential and provide an inclusive learning environment. By concentrating on each student's interests, preferences and learning, teachers can provide content for differentiated learning (Bendriyanti et al., 2022; Faiz et al., 2022). Teachers can use different approaches to develop learning tactics that suit each student's needs.

Learning tailored to each student's needs is closely linked to differentiated teaching topics. Different learning demands arise from the nature and profile of students from various backgrounds (Hidayati et al., 2022; Lubaba & Alfiansyah, 2022). Additionally, differences in students' IQs require different teaching approaches from different teachers. In all their diversity, children need individualized classroom teaching (Aminuriyah et al., 2022; Herwina, 2021). Differentiated learning allows students to learn in a way that best suits their abilities, circumstances and individuality, fostering a sense of ease and comfort in the classroom environment created by the teacher. If applied in the classroom, the differentiation approach affects students' abilities (Hadi et al., 2022; Rahmah et al., 2022). The differentiation approach

positively impacts students' ability to maximize capacity in learning activities based on student learning needs (Hadi et al., 2022; Rahmah et al., 2022).

Previous research findings also confirm that differentiation can help optimize learning activities to improve student's abilities (Gusteti & Neviyarni, 2022; Nahdhiah et al., 2024). Other research also reveals that teachers must know students' learning styles to facilitate appropriate learning activities for students (Hilman et al., 2023; Isnanto & Hamu, 2022). There are no studies regarding profiling student learning styles to design differentiated learning to support independent learning. This research is intended to produce data related to profiling student characteristics, especially learning style profiles, as necessary information that will be used to determine learning planning references that are differentiated from various optimal methods for designing learning to achieve learning success. Activity. This research will also explain teachers' strategies for overcoming various challenges and obstacles in implementing differentiated learning. Based on this, this research aims to analyze student learning style profiling to design differentiated learning to support independent learning.

2. METHOD

This type of research is descriptive qualitative. Qualitative research is a research procedure that produces descriptive data originating from the speech, behaviour and writing of the people being observed. Qualitative research aims to understand an event or reality from the perpetrator's perspective (Sugiyono, 2013). This research uses a post-positivism paradigm. This paradigm ontology views that reality is what it is, but the truth cannot be seen if humans distance themselves from the object of their study. This paradigm has an approach that utilizes various methods, data sources, researchers and theories (Irawati et al., 2021). So, in implementing different learning or the curriculum, this paradigm will help this research see the reality in schools.

This research uses the case study method to explore reality, implementing different learning through profiling student learning styles. This research was carried out at SDN Sadeng 02, with research subjects, namely the principal, teachers and class V students. The methods used to collect data were interviews, observation and student questionnaires. Interviews were conducted with informants who met the criteria, namely teachers and homeroom teachers who taught in class V because, at the time of this research, the Independent Curriculum had been implemented in class V. The instrument used to collect data was a questionnaire sheet. The questionnaire grid is presented in Table 1.

Table 1. Student Learning Style Questionnaire Grid Instrument

Learning Style Aspects	Indicators
Visual	Learn by reading
	Easily remember what is seen rather than heard
	Not easily disturbed by noise
	How to work following image instructions and a good long-term planner
	Speak quickly and answer with a yes/no only
	Often fill free time by watching or reading
Auditory	Learn by listening
	Easily remember what it heard than seen
	Easily disturbed by noise
	Work while talking and being able to mimic voice changes
	Rhythmic and intonated coherent speaking
	Often fill your free time by listening to music
Kinesthetics	How to learn happy with the practice model / with movement
	Easy to remember with body movements
	Can't sit for too long and likes to move
	Enjoys communicating by moving their limbs
	Speak slowly
	Often fill free time with games/games

(Porter & Hernacki, 2007)

The data validity technique in this research will use data triangulation. Triangulation is a credibility test that examines data from various sources, methods, and times. The Likert scale technique is used to assess questionnaire data and determine the dominant learning style of each class V student. The following are the stages of data analysis using the Likert Scale: (1) Determine the answer score; (2) Determine the

ideal score; (3) Determine the rating scale. The data analysis technique used in this research is the Miles and Huberman version of the data analysis technique (Jayanti et al., 2023). Miles and Huberman applied three stages in analyzing data: data reduction, data presentation, and conclusion (Miles & Huberman, 2014). The three steps of this research are as follows. The data reduction stage aims to identify relevant, significant and valuable data based on the research conducted and obtain the data researchers need. The information collected for this research is presented as data (data display) in a concise narrative description (with text). Verification of conclusions (verification): Researchers will conclude by explaining the methods used to collect data through interviews, observations and questionnaires.

3. RESULT AND DISCUSSION

Result

One aspect implemented in the independent curriculum is differentiated learning. Although differentiated learning is nothing new, teaching and learning activities are rarely carried out. One way to design and implement a learning process based on student characteristics is with a differentiation learning strategy. One of the essential characteristics for teachers to know is the characteristics of students' learning styles. Students also have their style of learning. This learning style embodies individual differences that teachers must pay attention to. Learning styles include visual, audio and kinesthetic learning styles. The teacher's understanding of students' learning styles will motivate students to participate in learning. Teachers realize that knowing students' various learning styles is essential to see what students' character is like during the learning process, so teachers are expected to be able to present lesson material according to the material and media that will be taught. The results of mapping the dominance of learning styles from 29 class V students at SDN Sadeng 02 are presented in Figure 1.
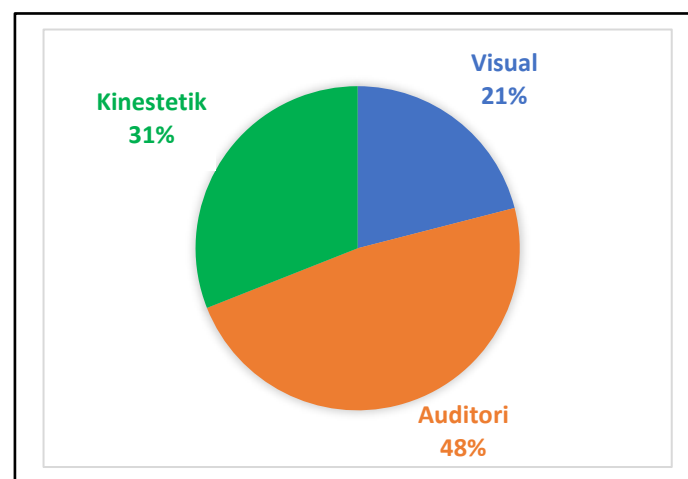

Figure 1. Chart of Student's Dominant Learning Styles

The results of data analysis show that 6 (21%) students predominantly use visual learning styles, 14 (48%) students dominate auditory learning styles, and 9 (31%) students predominantly use kinesthetic learning styles. Based on the interview results, the teacher explains learning styles, namely how students learn to understand and accept the material. Every child or student has different characteristics, attitudes and characteristics, so a teacher needs to understand and know each student's learning style. These various learning styles provide a fast and good way for everyone to understand information from outside themselves. Therefore, educators can find out how students' learning styles differ.

The analysis results show that, on average, students prefer listening to learning videos. However, some students like to study material independently by reading and discussing with other colleagues. Then, when differentiating the process, the average student is more focused on listening to the material presented by the teacher and the video presentation sung in front of the class. When differentiating products, students enthusiastically explain their learning results and work on them by presenting them in front of the class. Apart from that, on school days, the fifth-grade teacher also maps out several days to carry out differentiated learning, such as Mondays for literacy, Thursdays specifically for class assignments, and other extracurricular activities that can meet the dominant learning styles of each student. Based on the results of interviews with class V homeroom teachers, several obstacles were encountered in implementing differentiated learning. The first obstacle faced is facilitating students with an auditory learning style.

Teachers also need more time explaining fairly complex and extensive learning material to students. When teachers deliver lesson material, students sometimes do not need help understanding. However, teachers have various efforts to overcome some of these limitations; teachers will be more disciplined in using time.

Differentiated learning uses three strategies: content, process, and product differentiation. Content differentiation is what is taught to students. Differentiating content can be done based on students' learning profiles, interests and readiness, or a combination. Teachers prepare various learning tools for their students through content differentiation, such as reading books, watching films, making PowerPoint presentations, making graphics, and creating the surrounding environment. The term "process differentiation" describes how students understand or apply what they have learned. This activity can be carried out in stages by giving assignments to students or directing questions to be completed according to areas of interest, making individual agendas in the form of to-do lists, adjusting the amount of time given for assignments, and creating various kinds of assignments. The difference in the process is by providing Student Worksheets (LKPD), which contain challenging activities for each group that differ according to their learning styles.

Learning methods adapted based on these needs can meet the unique demands of each student. Students' diverse learning styles, interests, and levels of learning readiness must be accommodated through differentiated teaching, assessment, and learning activities. Applying differentiated learning to education is very beneficial. These needs include pre-existing knowledge, preferred learning methods, hobbies, and subject understanding. This method allows students with learning abilities to demonstrate what they have learned at school. Differentiated learning is more successful in increasing understanding of each indication tested. The learning media in the differentiated learning process is adjusted to meet student's individual needs, so differentiated learning is seen as more attractive than other forms of teaching, enabling students to follow the learning process quickly and flexibly.

Discussion

The research results show that students have various learning styles. Teachers use this as a basis for designing differentiated learning that is adapted to the characteristics of students' learning styles. Differentiated learning can be applied in learning activities due to various factors. First, differentiated learning can be applied in learning activities because it facilitates diverse learning styles in children. One way to design and implement a learning process based on student characteristics is with a differentiation learning strategy (Asuke et al., 2023; Hilman et al., 2023). Differentiated learning requires teachers to continuously understand their students' strengths and weaknesses and observe and evaluate their readiness, interests and learning preferences (Marlina, 2019; Nahdhiah et al., 2024). Teachers who act as facilitators still need direction when implementing independent curricula in various learning environments. When using an independent curriculum, independent learning emphasizes students' capacity to expand and perfect their critical thinking abilities (Anggara et al., 2023; Fitra, 2022). This allows teachers to educate and have a focal point for student learning. Teachers contribute significantly and must proactively find and plan ways to express how their students learn (Alhafiz, 2022; Prabanitha et al., 2020). Teachers' teaching styles and students' learning styles are closely related, supporting each other and determining the success of teaching and learning ((Jatmiko & Putra, 2022). The fifth-grade teacher at SD Negeri Sadeng 02 also realized that the learning process was no longer centred on educators alone but was more focused on students

Second, differentiated learning can be applied in learning activities because it makes learning more accessible for students. Suitability of learning will create an effective and efficient learning process and make it easier to achieve learning goals (Hilman et al., 2023; Irma & Misriyati, 2020). One way to design and implement a learning process based on student characteristics is with a differentiation learning strategy. To meet the requirements of the Independent Curriculum, differentiated learning can be applied not only based on learning styles but also on learning readiness, interests and student profiles (Ayu, 2022; Marlina & Aini, 2023). This is also reinforced by findings stating that students can learn using their learning style, making it easier to understand learning material (Irma & Misriyati, 2020; Isnanto & Hamu, 2022; Syofyan, 2018). Student learning styles play an essential role in the learning outcomes that will be obtained. This is reinforced by research that the more dominant a student's learning style, the better the learning outcomes obtained (Prabanitha et al., 2020; Yuliastini et al., 2020). Students who know their learning styles will find learning easier, which impacts student learning outcomes.

Third, differentiated learning can be applied in learning activities to motivate students to learn. Implementing differentiated learning is challenging because teachers must genuinely understand the characteristics of students. Apart from that, teachers must also apply appropriate learning strategies and methods. This is in line with research that states that educators must be competent in preparing learning through various media according to the results of mapping students' learning style needs to achieve

learning objectives (Herwina, 2021; Mastuti et al., 2022). Differentiated learning does not require teachers to pair intelligent students with equally intelligent children or vice versa (Bendriyanti et al., 2022; Gusteti & Neviyarni, 2022). In addition, differentiated learning does not involve an unorganized learning process; teachers have to make many learning plans simultaneously. This motivates students to learn (Kusuma et al., 2023; Sutrisno et al., 2023).

Previous findings state that differentiation strategies can improve student learning outcomes (Ayu Sri Wahyuni, 2022; Latifah, 2023). Other findings also state that the independent curriculum gives teachers the freedom to create exciting and highly relevant learning experiences that are tailored to the specific needs of each student and the learning environment (Basra, 2023; Dafitri et al., 2022; Nugraha, 2022). In implementing differentiated learning, several challenges are found because each student has their own dominant learning style and characteristics in one class. Differences in learning styles challenge teachers to apply different learning strategies. However, with these challenges, teachers are increasingly motivated to maximize the learning process while still paying attention to the needs of each student. This is, of course, realized by implementing differentiated learning.

Apart from these challenges and obstacles, teachers certainly have strategies and efforts to overcome them. This research implies that the results contribute to teachers so that teachers must know each student's learning style so that learning activities can run optimally. Differentiated learning ideas have significant relevance to the principles of the new paradigm in education. In the new paradigm, the learning perspective is different because each learner is different but has the same learning goals. Facilitating learning tailored to each student's needs allows teachers to provide unique input to each student. Based on student growth and development in many environments and cultures, this interpretation explains how learning is implemented using various techniques to help students understand their interests and abilities. A new paradigm in the curriculum triggers Merdeka Belajar to optimize the learning process, focusing on students and giving teachers the freedom to organize their classes. It is hoped that this research can serve as an illustration for further research and for teachers to implement differentiated learning by profiling each student's learning style.

4. CONLUSION

Based on the results of the research that has been carried out, class V students dominate various learning styles, including visual, auditory and kinesthetic. The fifth-grade teacher at SD Negeri Sadeng 2 understands the characteristics of students' learning styles quite well; this can be seen through the results of interviews that have been conducted. Teachers have implemented different learning practices to meet the learning needs of each student. In its implementation, teachers still need help implementing different learning in terms of students' learning styles. However, teachers still optimize their abilities to teach well.

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