


Improving fourth-grade students' reading numerical notation using melodica through a directed learning method in elementary school



Uliy Elma Fadila ^{a,1}, Sularso ^{a,2*} 

^aElementary Teacher Education, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

¹ uliy1900005004@webmail.uad.ac.id; ² sularso@pgsd.uad.ac.id*

* corresponding author

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ABSTRACT

This research is motivated by the less-than-optimal use of learning media and learning methods used by teachers in the learning process of music, especially the material of numerical notation in grade IV students of SD Muhammadiyah Noyokerten. This study aims to explain the steps in an effort to improve the ability to read numerical notation using a melodica through direct learning methods and determine the improvement in the ability to read numerical notation through direct learning methods using a melodica. The method used in this research is classroom action research. The subjects in this study were fourth-grade students of SD Muhammadiyah Noyokerten, totaling 18 students. The results showed an increase in students' ability to read numerical notation as evidenced by an increase in test scores by 51.9% and the results of observations of students' ability to read numerical notation using melodica musical instruments through direct learning methods in cycle I of 78.69% in the good category and cycle II of 95.5% in the very good category which increased by 16.81%. The contribution of this research is that the application of the direct learning method is able to improve students' ability to read numerical notation, and students can easily recognize numerical notation through demonstration and guidance from the teacher directly.



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1. Introduction

At SD Muhammadiyah Noyokerten, music is treated as a distinct subject, separate from Cultural Arts and Crafts. However, the teaching approach for music, specifically the numerical notation material, remains teacher-centered, relying on lectures and the reference book. The teacher briefly covers the material as per the book, often without incorporating musical instruments. Consequently, students' understanding of numerical notation remains rudimentary. This is evident from assessment data, where 40% of students failed to meet learning objectives. This approach contradicts the essence of music education, which emphasizes practical skills and nurtures student creativity [1]. Elementary school students should engage in music learning that encourages them to experiment and create directly [2]. In line with Ozgul and Sahin's opinion, mentors in music lessons must possess musical skills. This enables mentors to develop music learning in a way that can be easily practiced and understood by students [3]. In light of these challenges, this study aims to outline the steps taken to enhance the ability to read numerical notation among fourth-grade students at SD Muhammadiyah Noyokerten, utilizing the melodica musical instrument and employing the direct learning method. The study also intends to assess the improvement in students' proficiency in reading numerical notation through this method.

Previous researchers have explored the topic of reading notation in music education. For instance, Rogers *et al.* study aimed to determine the impact of colored rhythmic notation on the rhythm reading skills of first and second-grade elementary school students. The research revealed that using colored notation enhances students' affective engagement in reading music, with a majority of students expressing a preference for experimental notation. Rogers *et al.*'s findings indicate that applying randomly varying colors to the notation may be more effective than color coding alone, demonstrating that the use of varied colors can enhance music reading skills. According to them, 'Colored notation increases students' affective engagement in reading music, with almost 80% of students preferring experimental notation.' This suggests that using colored notation can make reading music more interesting for elementary school students [4]. Kuo *et al.* research proposed a color music notation system designed to enhance music reading for beginners by associating colors with pitch, duration, range, and intensity of musical elements. According to them, this system is based on Itten's color wheel and the natural color system, simplifying traditional staff and numbered musical notation and making it more accessible for beginners to memorize, read, and play music. Kuo's research results demonstrate that the color music notation system simplifies the issue of multiple signs in traditional notation, enabling beginners to quickly identify notes and calculate the lengths of color music scores. Furthermore, it assists beginners in analyzing music and identifying similar melodies and sections based on the combination of music, color, and shape elements [5].

Demirel's research aims to introduce a method for teaching notation using colors to facilitate musical instruction, especially for illiterate preschool children and educators seeking effective teaching techniques. The study is designed to assist children in adapting to the standard notation system by initially introducing notes with colors and intervals, gradually transitioning away from color dependence. The outcome of this study is a teaching system that can enhance music notation education, particularly for young children and educators facing challenges with traditional methods. This innovative approach combines the use of colors with the traditional notation system, aiming to mitigate difficulties in adapting to a familiar notation system [6]. Reybrouck *et al.* research aims to understand how children perceive and comprehend music by analyzing their graphic notations in music listening tasks. The study comprises two empirical investigations involving children aged 8-13 years, both with and without musical training. These studies explore the influence of age, training, and musical characteristics on children's notations. In music listening tasks, children employ a range of notations, including self-invented symbols and existing symbols borrowed from various domains. These notations differ in levels of specification, abstraction, formalization, and reflection. Overall, the research highlights the diversity of children's graphic notations in tasks related to musical sense-making and underscores the impact of age, musical education, and musical characteristics on these notations [7]. Jonathan Martinez and Diane Persellin's research explores efforts to build basic musical skills, including numerical notation, using ensemble musical instruments for sixth-grade elementary school students. The study's results conclude that ensemble musical instruments are effective tools for developing basic musical skills as students can practice directly using real instruments [8]. Based on previous research, direct learning methods have not yet been fully explored.

The direct learning method engages students directly in the learning process, emphasizing mastery of material concepts and behavioral changes through a deductive approach to improve student learning achievement [9]. This direct learning refers to a special teaching approach where students are actively and immediately involved in the learning process [10]. This method is characterized by direct involvement, in contrast to passive learning methods, where students may be more passive recipients of information. It not only covers material but also ensures that students understand and master concepts thoroughly [11]. Direct learning methods are specifically designed to support students' learning processes related to structured and organized declarative knowledge that can be obtained step by step [12]. Structured and organized declarative knowledge refers to clear, specific, and factual information [13]. This type of knowledge often includes facts, concepts, and principles that can be stated and studied explicitly [14]. This method also enables students to develop procedural knowledge independently and responsibly [15]. In music education, students are expected to express and appreciate art creatively to foster their personal growth. Utilizing supporting media enhances the process of student self-development. The incorporation of media in music education simplifies material delivery for teachers and helps students grasp the concepts concretely [16]. This research employs the direct learning method because it is considered effective when applied to music education, especially concerning numerical notation material in elementary schools.

The direct learning method offers the advantage of allowing students to hear and see demonstrations related to the material through explanations from the teacher [17]. By combining auditory and visual elements (hearing and seeing demonstrations), students are given a multisensory learning experience [18]. This approach caters to different learning styles, improving understanding and retention of the material. Teachers play a critical role in clarifying concepts, providing context, and answering questions [19]. These interactions ensure students receive accurate and comprehensive information, fostering a deeper understanding of the material [20]. Specifically designed to enhance students' knowledge based on facts in the field, this method is taught gradually and procedurally. This approach aligns with the conditions of SD Muhammadiyah Noyokerten, which has limited learning resources and requires structured teaching methods to effectively guide students. Every study is unique, different, and novel compared to previous and current research. To emphasize the distinctiveness of this research from previous studies, the researcher compares various variables, research methods, and results. Unlike previous studies, this research employs direct learning methods to enhance students' ability to read numerical notation. By utilizing the direct learning method alongside musical instruments such as the melodica, it is hoped that student's ability to read numerical notation will improve, enabling the achievement of learning objectives.

2. Method

The research methodology employed in this study is Classroom Action Research, which involves active participation in the classroom by teachers and researchers [21]. This participation allows for a more practical research approach, often focused on addressing specific problems or challenges in the classroom environment [22]. Classroom Action Research is recognized as a method capable of bridging the gap between theory and practice in the context of teacher and student development [23]. Classroom Action Research consists of four stages: planning, implementation, observation, and reflection [24]. Data collection techniques are methods used to gather information, forming the basis for drawing research conclusions [25]. In the planning stage, researchers identify the problem or question they want to address, plan the research design, and develop data collection and analysis strategies [26]. In the implementation stage, the researcher carries out the plan by implementing specific interventions or changes in the classroom environment based on the research question [27]. This stage involves the active application of teaching methods or strategies. The observation step is carried out systematically by the researcher, involving the observation and documentation of the results of the changes implemented [28]. This process includes collecting data about student behavior, understanding, or other variables relevant to assessing the impact of the intervention. Lastly, in the reflection stage, researchers analyze the observed results, reflect on the effectiveness of the strategies implemented, and consider possible modifications or improvements [21]. Reflection is essential for refining teaching methods and improving the learning experience [29]. As for the data collection technique stage, the methods used by researchers to gather information serve as the basis for drawing research conclusions. This section emphasizes the importance of data collection techniques in the research process. Data collection techniques refer to specific methods or tools that researchers use to collect relevant information.

Data collection techniques used in this research include observation, tests, and documentation. Observation involves observing and recording visible elements and symptoms that exist in the research object. Observation, in the context of research, refers to the systematic process of observing and recording events, behavior, or phenomena [30]. In this research, the researcher observes certain elements and symptoms that appear to be related to the focus of the research. This can include behavior, reactions, interactions, or any aspect that can be observed and is relevant to the research objectives. Observation provides researchers with direct, real-time data, offering valuable insight into the behavior or phenomenon of the subject being studied [31]. This observation is conducted by directly observing students during the learning process, focusing on their understanding of numerical notation in music as taught in Class IV at SD Muhammadiyah Noyokerten. A test is a tool used to measure specific criteria in a predetermined manner and follows certain rules [32]. Within the framework of Classroom Action Research, tests function as tools to evaluate particular criteria [33]. These criteria can include students' understanding of specific concepts, problem-solving abilities, or other measurable aspects related to the research objectives. Tests are designed with clear objectives and consistent evaluation methods. They must adhere to specific rules, meaning they are required to comply with established guidelines, ensuring fairness, reliability, and validity in the assessment process [34].

In this study, the test technique was used to assess the increase in students' knowledge of reading numerical notation using melodica musical instruments among Grade IV students at SD Muhammadiyah Noyokerten. The tests were administered in the form of pre-tests and post-tests, conducted in each cycle. Documentation was carried out to gather information during the research process regarding the learning tools used by teachers in the fourth-grade music learning process at SD Muhammadiyah Noyokerten. This activity involved researching relevant materials such as documents, magazines, books, and news sources related to the research topic. Documentation was performed to obtain information during the research process related to the learning tools used by teachers in the learning process of Class IV music at SD Muhammadiyah Noyokerten. The observational data will be calculated as percentages in each cycle. After obtaining the percentage results for each aspect, they will be compared, and improvements will be sought. Test results data will be searched for numerical scores or values, and then the averages will be calculated. After obtaining the average results for each test, the values will be compared, and percentage increases will be determined. Conclusions will be drawn based on the observation and test data, which have been calculated for the percentage of improvement. Data analysis is a method used to systematically process information obtained through interviews, observations, and documentation. In this study, data analysis was conducted considering three aspects: learning methods that remained teacher-centered using the lecture method, absence of learning media, and limited reference sources. To address these issues, the analysis was performed using the direct learning method. This analysis involved five stages: orientation, material presentation or demonstration, structured practice, guided practice, and independent practice. All these stages were analyzed using the direct learning approach while observing students' practice of reading numerical notations performed using melodica musical instruments. Consequently, the results of implementing the direct learning method in reading numerical notation using the melodica instrument were obtained. The flow of data analysis stages is illustrated in Fig. 1.

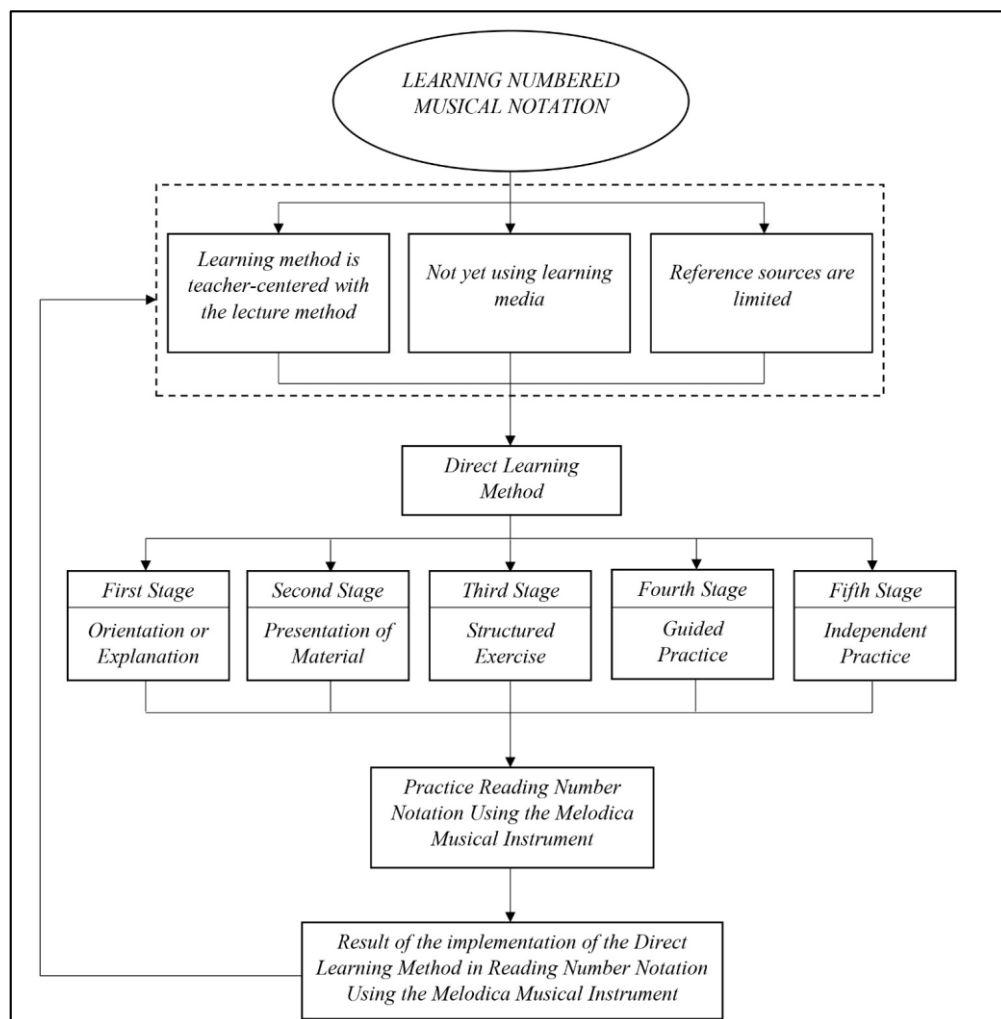


Fig. 1. Data Analysis Stage

3. Results and Discussion

Based on the results of observations made by researchers before conducting research at SD Muhammadiyah Noyokerten, it is evident that the ability to read numerical notation among Grade IV students is still low. This is supported by the fact that 40% of the students scored below the criteria for achieving learning objectives in the assessment of numerical notation material. The learning method employed by the teacher remains teacher-centered, where students are solely focused on the teacher's explanation and are not given the opportunity to practice the material directly. Considering these issues, improvements are necessary to enhance the ability of Grade IV students at SD Muhammadiyah Noyokerten in reading numerical notation. One effective approach is the implementation of the direct learning method. This method involves the teacher delivering the material using various media that align with learning through a systematic pattern of activities. The direct learning method consists of five stages, namely orientation, presentation or demonstration of material, structured practice, guided practice, and independent practice [35]. The direct learning method consists of five steps: orientation, material presentation or demonstration, structured practice, guided practice, and independent practice. The orientation phase is the stage where the teacher explains the learning framework learning objectives and prepares students for learning [36]. In the orientation step, learning activities with the direct learning method are conducted by the teacher, who explains the outline of the material, learning objectives, and the activities to be carried out.

The material presentation stage is where the teacher presents the material and provides examples to help students better understand it. In the material presentation or demonstration step, students observe the teacher's explanation and demonstration of the material using the melodica. This includes instructions on how to play the melodica correctly, different types of numerical notation, various tones, various symbols in numerical notation, distinguishing tones according to octaves, and distinguishing tones according to taps. The structured practice stage is where the teacher gives students small exercises, provides feedback and reinforcement for student responses, and corrects any misunderstandings that students may have. In the structured practice step, students are divided into five groups, with each group consisting of three to four students. The teacher gives each group a sample note or section of the score. Together with the students, the teacher plays the sample notes or sheet music. The teacher also observes the students practicing the notes to identify any difficulties they might have. The guided practice stage is where the teacher supervises students and provides guidance if needed. In the guided practice step, each group is given the opportunity to practice together with their group members, alternating between one group and another. To minimize noise made by other students, the group that is not practicing must listen and comment on the group that is practicing. The independent practice stage is where the teacher provides opportunities for students to practice independently without direct supervision. In the independent practice step, students are given the opportunity to play the melodica independently. They are free to explore according to their preferences within the scope of the numerical notation material. The teacher ensures that all students engage in independent practice activities without disturbing their classmates who are exploring. The teacher is available to answer questions from students who are still confused about the material. During the closing activity, the teacher asks questions related to the material that has been learned and reinforces the concepts covered.

The assessment conducted to measure students' knowledge in reading numerical notation is through tests. These tests include the cycle I pre-test, cycle I post-test, and cycle II post-test. In cycle I, the average score for the student pre-test was 56.78, falling within the 'Fair' category. The average score for the student post-test was 67.1, indicating a 'Good' category, but it still remained below the criteria for achieving learning objectives of 75. During the learning process, the teacher observed students' attitudes. Observation activities were conducted using a prepared observation guideline sheet. These activities aimed to assess students' abilities in reading numerical notation, playing the melodica, and their capacity to follow the learning process using the direct learning method. Observations were conducted in each cycle. Based on the data obtained, it can be explained that the average percentage of student observation results in learning numerical notation using the melodica through the direct learning method in cycle I was 78.69%. This percentage includes the ability to read numerical notation at 68.49%, the ability to play the melodica at 70.06%, and the ability of students to follow the direct learning method at 90%. Reflection activities were carried out to prepare for improvements in cycle II. These activities were conducted as an evaluation effort by researchers and teachers regarding the actions that had been implemented. Based on reflection activities conducted on the learning process in cycle I, it went well, but there are several areas that need improvement. In cycle

I, there were students who did not pay attention and made noise during the learning process. Additionally, some students were passive in their participation, their ability to recognize numerical notation remained low, and the average score after the intervention was still below the criteria for achieving learning objectives, which was 67.1. Consequently, the research continued into cycle II. In cycle II, the test scores after the second cycle of intervention improved to 86.3, categorized as 'very good' and above the criteria for achieving learning objectives. The observation results in cycle II showed an average percentage of 93.51%, calculated from the ability to read numerical notation at 92.29%, the ability to play the melodica at 91.35%, and the student's ability to follow learning using the direct learning method at 95.5%.

Based on the description's results, it can be explained that learning numerical notation using the melodica through the direct learning method improved from cycle I to cycle II. Thus, it can be concluded that the direct learning method enhances the ability to read numerical notation. When applying the direct learning method to numerical notation material, students are guided to learn the material in a real and structured manner. They are encouraged to practice the material directly using the melodica, starting from the basics and progressing coherently. The teacher can monitor students' abilities in numerical notation material directly. Tests and observations are the instruments used in learning numerical notation with the melodica through the direct learning method. Tests measure students' knowledge related to numerical notation material in learning using the melodica through the direct learning method. The tests employed in this method include the cycle I pre-test sheet, cycle I post-test sheet and cycle II post-test sheet. The results of these tests are presented in Fig. 2.

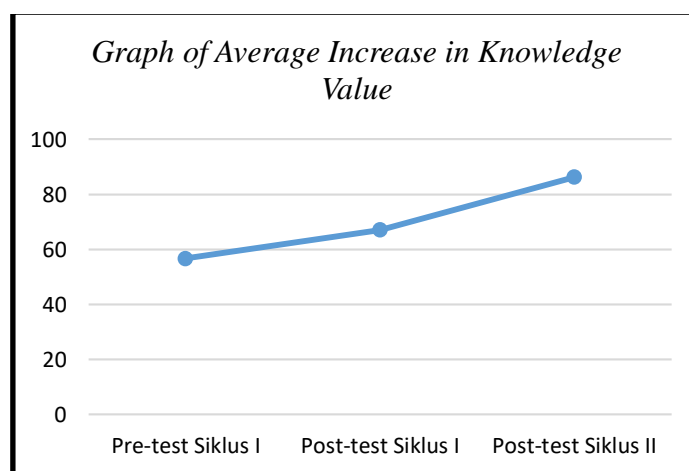


Fig. 2. Graph of Average Improvement in Ability Score

The average score of students' knowledge related to numerical notation material before the pre-test in cycle I was 56.78, classified as sufficient. It increased in the post-test of cycle I, with an average score of 67.1, still in the sufficient category. The percentage increase in students' knowledge scores related to numerical notation material, from the pre-test to the post-test of cycle I, was 18.17%. The score of 67.1 in the post-test of cycle I, in the sufficient category, further increased in the assessment after the cycle II action, reaching an average value of 86.3 and classified as very good. The percentage increase in students' knowledge scores related to numerical notation material, from the post-test of cycle I to the post-test of cycle II, amounted to 28.61%. The overall percentage increase in students' knowledge scores, from before the pre-test of cycle I to after the post-test of cycle II, was 51.9%. Observation activities in learning numerical notation using the melodica through the direct learning method were conducted to observe changes in students' attitudes regarding reading numerical notation, playing the melodica, and following direct learning after cycle I and cycle II interventions. The observation results from both cycle I and cycle II are presented in Table 1.

Table 1. Observation Data

Aspect	Cycle I	Cycle II
Reading Numerical Notation	68.49	93.51
Playing the Melodica	70.06	92.29
Implementation of Direct Learning Method	90	91.35

The average percentage of student observation results in learning numerical notation using the melodica through the direct learning method in cycle I was 78.69%. This percentage includes the ability to read numerical notation at 68.49%, the ability to play the melodica at 70.06%, and the student's ability to follow the direct learning method at 90%. In cycle II, the average percentage of student observation results in learning numerical notation using the melodica through the direct learning method was 93.51%. This percentage was calculated based on the ability to read numerical notation at 92.29%, the ability to play the melodica at 91.35%, and the student's ability to follow learning with the direct learning method at 95.5%. From the observation table, it can be seen that students' attitudes towards learning numerical notation using the melodica through the direct learning method increased by 16.81% in cycle I and cycle II. Specifically, there was a 25.02% increase in the aspect of reading numerical notation, a 22.23% increase in playing the melodica, and a 1.35% increase in applying the direct learning method.

4. Conclusion

Based on the results of research and discussion, it can be concluded that the use of melodica through the direct learning method in numerical notation subjects can improve the ability to read numerical notation of fourth-grade students of SD Muhammadiyah Noyokerten. Learning numerical notation using the melodica through the direct learning method is carried out in accordance with the steps of classroom action research, namely planning, implementation, observation, and reflection, which are adjusted to the steps or syntax of the direct learning method, namely orientation, material presentation, structured practice, guided practice, and independent practice. The increase in students' abilities is evidenced by the increase in students' knowledge scores on numerical notation material by 51.9% and the ability to read student numerical notation, which increased to 93.51%. This research is expected to be able to provide novelty to the learning methods used by teachers in the daily learning process through direct learning methods. The weakness in this study is that the object of research is still limited to one school. It is hoped that future researchers will be able to develop this research more broadly and optimally.

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