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Improving Science Learning Outcomes through a 5M Based Scientific Approach for Class IV Students at Madrasah Ibtidaiyah Imam Syafi'i Gorontalo

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Abstract

This research aims to improve science lesrning outcomes trhough a scientific approach by applying the 5Ms, namely (Observe, Ask, Try, Reason and Communivate). The approach used show that 5m based learning has been implementated in science learning using a scientifi approach with the activities of observing, acking, trying, reasoning and comunacating.

Introduction

Science subjects are considered difficult by most students (Elsalem et al., 2021). From elementary school to college. The opinion of most students that science is difficult is true, as proven by the results of the School Examination (UAS) reported by the Ministry of National Education, which is still far from their educational attainment, because the average UAS score for science education has fallen (Panditrao, 2020). The scientific way of learning still emphasizes the concepts in books and does not make maximum use of environmental approaches in learning. Inviting students to interact directly with the environment is rarely done. The science section always maintains the correct order in the book, regardless of whether it suits the student's learning environment or not. This makes learning ineffective because students do not respond to the lessons being taught. So learning like this tends to make students bored (Sihombing & Fatra, 2021).

The change in curriculum, namely from the KTSP curriculum to the 2013 curriculum, has had a huge impact on educators, especially in providing lessons (Nurdin et al., 2023). The implementation of the 2013 curriculum cannot be implemented optimally, this is due to: (1) There is limited time in delivering material. Educators need more time to provide material; (2) The teaching material covered in the 2013 curriculum is so broad that the material presented cannot be covered in one meeting; (3) Educators still experience difficulties in the learning process so that the teaching and learning process is less than optimal. In delivering the 2013 curriculum, educators must take a scientific approach.

The reality in this field is that educators still experience difficulties, namely developing students' activities, asking questions or thinking creatively, because in its implementation educators still prioritize cognitive aspects (Nurkhin & Pramusinto, 2020). In this regard, there are several methods and approaches that educators must face in carrying out learning in the classroom. Of the many approaches, researchers chose the scientific approach because this approach has advantages, especially the scientific approach is not limited to learning outcomes towards final results but learning is considered very important (Puma, 2022).

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The scientific approach is a learning process that aims to provide understanding to students in terms of familiarity, understanding different material, and a scientific approach. Information can come from anywhere and at any time, regardless of the information provided to educators. and learner-centered delivery is one of the keys to modern classroom learning. In this case, students play an active role in learning, so that educators only act as facilitators. Therefore, the lecture method is no longer popular in the 21st century classroom, because it relies more on one-way communication between educators and students (Szymkowiak et al., 2021).

According to Sugiyarti, L., Arif, A., and Mursalin, M. (2018), the concept of 21st century learning uses 4C: (1) Critical Thinking and Problem Solving (Critical Thinking and Problem Solving); (2) Creativity and Innovation (Creative Power and Innovation); (3) Collaboration (Cooperation); (4) Communication (Communication).

The scientific approach in science education can be applied through process competencies. Scientific process skills are a set of skills that scientists use to conduct scientific research. Process competency must be developed through direct experience such as learning experiences.

The scientific approach has advantages in the learning process. According to the Ministry of Education and Culture (2013) (Nurjanah et al., 2020), the scientific approach has several advantages, including: (1) increasing students' intellectual abilities, especially high-level thinking abilities; (2) forming students' abilities to solve problems systematically; (3) creating a learning environment where students feel that learning is a necessity; (4) achieving high learning outcomes; (5) teach students to communicate ideas, especially through writing scientific papers; (6) developing students' character.

Based on the results of initial observations carried out on teachers at MIS Imam Syafi'i, the researcher found several obstacles related to the application of a scientific approach, especially for class IV B students. The background of the researcher in conducting research at MIS Imam Syafi'i is one of the schools in the city of Gorontalo which has implemented a scientific approach in 2018 (Sitorus, 2021) Based on the description above, there is a need for research that examines how to implement a scientific approach in science learning. Therefore, this research determines the title of a description of the scientific approach in class IV science subjects at the Imam Syafi'i Ibtidaiyah Madrasah.

Methods

This research uses qualitative research with a descriptive qualitative approach. This research aims to determine the description of the scientific approach in class IV science subjects at Madrasah Ibtidaiyah Imam Syafi'i. The time for this research is approximately six months from December 2022 to June 2023. Researchers first came to the research location to collect data based on field observations carried out at Madrasah Ibtidaiyah Imam Syafi'i. Based on the various results of observations made, the researcher formulated and grouped certain sections that were directly related to the research focus. Researchers also collected data through interviews, dividing it into primary informants and secondary informants. Primary and secondary informants are school principals, educators and students at Madrasah Ibtidaiyah Imam Syafi'i. Researchers also conducted document studies by taking data from various parties directly involved in the research, as an effort to strengthen the problems studied. Apart from that, the data obtained was also obtained through reference books in the form of understanding and theories related to the problems studied.

However, qualitative research can use a variety of different techniques, according to creativity. In qualitative data analysis, in general there are 3 steps, including: (1) Data Reduction, at this stage the researcher obtains information directly from the field as raw material and then

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summarizes it and arranges it according to the research objectives; (2) Display data, at this stage the researcher presents the data in the form of descriptions and charts in accordance with the data found in the field; (3) Drawing conclusions, where the researcher draws final conclusions which have been described in the results and discussion of this research.

Results and Discussion

Based on the results of research using observation techniques, interviews and supported by documentation, it is known that it describes the implementation of a scientific approach in class IV science subjects at MIS Imam Syafi'i. The indicators that form the basis of a scientific approach in class IV science subjects are as follows: 1. The substance or learning material is based on facts or phenomena that can be explained using certain logic or reasoning (not just mere guesswork, fantasy, legend or fairy tale). 2. Disinterested, meaning that learning must be carried out impartially, but is truly based on students' actual learning achievements. 3. Learning objectives are formulated simply and clearly, but the presentation system is interesting. 4. Objective, meaning that learning is always carried out on certain objects and students are accustomed to giving objective assessments. 5. Encourage and inspire students to think critically, analytically and precisely in identifying, understanding, solving problems and applying learning substances or materials. 6. Encourage and inspire students to be able to understand, apply and develop rational and objective thought patterns in responding to learning substances or materials.

The researchers used these indicators as material for the selected informants and described them on the interview text sheet. From the data obtained, both from observations and interviews conducted and documentation obtained by the researcher, the researcher describes the implementation of a scientific approach in class IV science subjects at the Imam Syafi'i Private Madrasah Ibtidaiyah. The following is a discussion of the research data that researchers obtained, namely: The substance or learning material is based on facts and phenomena that can be explained using certain logic or reasoning (not just guesswork, imagination, legends or fairy tales). At the Imam Syafi'I Private Madrasah Ibtidaiyah, educators provide space for students to study without relying solely on textbooks and without having to study in class. Because this kind of learning tends to make students bored quickly. During the learning process, the teacher explains and shows directly a natural phenomenon that occurs so that students can observe it. Apart from that, the teacher also provides examples of the causes of this phenomenon so that students can easily understand and communicate with their fellow students. The way educators show directly a natural phenomenon that occurs so that students can observe it so that students in learning activities can carry out the observing process, where in this case observing includes reading, listening, listening or seeing. This is done by educators to train sincerity, accuracy and search for information.

Learning must be carried out impartially, but truly based on students' actual learning achievements. Educators must have full involvement with students so that educators can know each obstacle that students experience so that the learning atmosphere can run well and be conducive.

In communicating activities, educators apply collaborative learning. In this way, educators can easily teach students during the teaching and learning process, because educators already know the flow of the learning. This is in line with Hovland's opinion which states that communicating is the process of conveying a goal to other people by telling the results of observations, conclusions based on the results of analysis orally, written or other media.

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Learning is always carried out on certain objects and students are accustomed to giving objective assessments. Educators always provide space for students to try to give each other grades based on the results of their friends' work objectively, apart from that, students will also confirm or match the knowledge they already have. That way, students can understand how to weight grades. Educators always give students the opportunity to express their own opinions and ask what things the students don't understand, apart from that, students are asked to reason about the learning material so that students can express their own opinions so that students think. critical during the learning process.

Encourage and inspire students to be able to understand, apply and develop rational and objective thinking patterns in responding to learning substances or materials. Educators often provide motivation to students to encourage and arouse students' interest in learning, educators also ask about the benefits of the learning that has been given so that educators and students can communicate it, apart from that students are asked to reason or connect the material that has been given previously so that participants students can respond back. Through questioning, educators can develop students' creativity, curiosity, and the ability to formulate questions to form students' critical thinking. They can ask questions about information they don't understand.

Conclusion

Based on the results of research conducted by researchers at MIS Imam Syafi'I, Gorontalo Regency, through indicators, it can be concluded that from the six indicators, 5M-based learning has been implemented, namely (Observe, Ask, Try, Reason and Communicate). (1) Observing activities, educators show directly a natural phenomenon that occurs for students to observe; (2) Questioning activities, educators and students conduct questions and answers regarding the material being studied and students are asked to create or ask questions from material they do not yet understand. However, there are still some students who are less active during question and answer activities and there are students who still have difficulty in making questions; (3) Trying activities, educators provide science practice to students to make students try something new related to learning; (4) Reasoning activities, students are asked to think logically and systematically looking for differences in the material they have studied or from the experiments carried out; (5) Communicating activities, students present the results of their work and then other students comment or add answers from their friends. Apart from that, educators and students discuss the material they have studied again and then conclude.

Based on the research results and conclusions above, the suggestions that researchers can give to improve the scientific approach in class IV science subjects at the Imam Syafi'I Private Madrasah Ibtidaiyah are as follows: (1) For Madrasah Heads, it is hoped that they will hold training activities for educators related to 5M-based learning so that educators' abilities increase; (2) Educators are expected to continue learning and understanding 5M-based learning, so that learning runs smoothly and optimally. And use interesting learning media so that students don't get bored and understand the material more easily; (3) For students, the 5M learning approach can increase students' interest in learning in science subjects.

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