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a Classroom Action Research on the Impact of Demonstrative Teaching Methods on Teacher Effectiveness and Student Learning Outcomes

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Abstrak

Penelitian ini menganalisis pengaruh Metode Demonstrasi terhadap efektivitas guru, hasil belajar siswa, dan motivasi dalam pembelajaran sains kelas empat. Penelitian ini menggunakan strategi berulang, yang terdiri dari dua siklus, untuk mengevaluasi efektivitas metode dan potensi perbaikan. Data menunjukkan hubungan positif antara penerapan Metode Demonstrasi dan efektivitas guru yang lebih besar, dan menunjukkan peningkatan yang signifikan pada siklus kedua. Hal ini menggarisbawahi perlunya teknik pengajaran adaptif dan reflektif dalam mengembangkan proses pendidikan yang efektif. Dampak yang ditimbulkan tidak hanya sekedar dampak langsung, namun juga memberikan wawasan bagi para pendidik, pengambil kebijakan, dan akademisi. Data positif menunjukkan potensi kemanjuran Metode Demonstrasi di berbagai lingkungan pendidikan. Pendidik harus mempertimbangkan untuk mengadopsi pendekatan serupa yang berpusat pada siswa, dan politisi dapat menemukan informasi yang relevan untuk mendukung upaya memperkuat pengembangan profesional guru dan metodologi pengajaran. Singkatnya, penelitian ini berkontribusi pada diskusi tentang praktik pengajaran yang efektif dengan menekankan keterkaitan antara efektivitas guru, hasil belajar siswa, dan motivasi. Temuan positif menggarisbawahi potensi manfaat teknik pedagogi inovatif, memberikan wawasan yang signifikan bagi para pendidik dan pemangku kepentingan yang berupaya meningkatkan kualitas pengajaran ilmiah di sekolah dasar.

Kata kunci: *Metode Demonstrasi, Pendidikan Sains, Efektivitas Guru.*

Abstract

This research analyzes the effects of the Demonstration Method on teacher effectiveness, student learning outcomes, and motivation in the setting of fourth-grade scientific teaching. The study employs an iterative strategy, comprising two cycles, to evaluate the method's effectiveness and potential improvements. The data demonstrate a positive link between the deployment of the Demonstration Method and greater teacher effectiveness, demonstrating significant improvement in the second cycle. This underlines the necessity of adaptive and reflective teaching techniques in developing an effective educational process. The ramifications transcend beyond the immediate setting, offering insights for educators, policymakers, and academics. Positive data demonstrate the potential efficacy of the Demonstration Method in varied educational environments. Educators should consider adopting similar student-centric approaches, and politicians may discover relevant information to support efforts strengthening teacher professional development and instructional methodologies. In summary, this research contributes to the conversation on effective teaching practices by emphasizing the interconnection of teacher effectiveness, student learning outcomes, and motivation. Positive findings underline the potential benefits of innovative pedagogical techniques, providing significant insights for educators and stakeholders devoted to improve the quality of scientific teaching in elementary schools.

Keywords: *Demonstration Method, Science Education, Teacher Effectiveness.*

INTRODUCTION

The creation of active, creative, inventive, and excellent learning is the ambition of every teacher. This instructional strategy is intended to foster a learning process that matches with the targeted objectives. To achieve this, efforts are required to enhance the quality of education and teaching, including the selection of ways to deliver subject matter and produce improved learning outcomes, particularly in science courses (Roberts et al., 2018). For instance, teaching students to actively participate in the learning process and assisting them in developing in line with their intellectual level increases their understanding of the taught concepts. Such knowledge relies on the students' interest and motivation, and the absence of interest implies a lack of motivation to learn. Science, as a methodical and formalized knowledge connected to physical phenomena, relies mostly on observation and induction. The introduction of science into the elementary school curriculum is justified by its value for the nation's progress, especially considering that material wealth depends largely on a nation's scientific capabilities, providing the backbone of development. Basic knowledge for technology is rooted in scientific understanding (AVCI et al., 2021).

Scientific methods, essentially a rational approach to solving specific issues, serve as the basis for science training. To fulfill the aims of science education, teachers, as direct supervisors of the learning process, must comprehend the characteristics of science education, which involves systematically pursuing knowledge about nature. Science education is not merely the acquisition of factual knowledge, concepts, or principles but is also a process of discovery (Stebner et al., 2022). Observations and interviews with fourth-grade teachers at SDN demonstrate that, despite using numerous teaching approaches and instructional material, the teaching and learning activities are suboptimal due to the pupils' lack of interest. The instructional mediums employed lack variety, resulting to pupil ennui throughout lessons. These difficulties considerably effect the learning outcomes, notably in the science subject of the human skeletal system (Gerde, 2018).

The initial observation reveals that the learning conditions at SDN do not fulfill expectations. Based on daily exam results for the human skeletal system topic, out of 22

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students, 10 attained learning mastery, roughly 45%, while 12 did not, approximately 55%. Demonstration as a teaching method entails delivering the subject matter by directly showing the object or demonstrating a certain process. It may be used to all disciplines, and effective application requires teacher confidence that all pupils can pay attention and observe the shown item. Adequate preparation of the tools used in the demonstration is vital.

Methods are ways used to achieve predetermined objectives. In the teaching and learning process, the selection of teaching methods changes based on the expected goals after the learning activity. A teacher must learn numerous teaching approaches devised and advocated by educational psychologists (Schmidt et al., 2018; Theobald et al., 2020). Effective demonstration comprises two stages: preparation and implementation. Learning outcomes are vital in the teaching and learning process, allowing teachers to assess students' understanding of the topic, the success of the teaching techniques, and the ability to enhance the teaching process.

In conclusion, the pursuit of active, creative, innovative, and excellent education is a shared ambition among educators. The implementation of such a pedagogical strategy is believed to optimize the learning process and connect it with stated educational goals. Efforts to improve the quality of education, particularly in science disciplines, require the careful selection of ways to engage students actively and help them develop in accordance with their intellectual capacities. The inclusion of science into the elementary curriculum is supported by its societal utility, acting as the backbone of technological growth and material affluence. The scientific method is the cornerstone of science training, presenting a logical approach to problem-solving (Li et al., 2022; Liu, 2020).

Observations and interviews in a fourth-grade classroom at SDN highlight problems in present teaching approaches, including a lack of student enthusiasm and inadequate variety in instructional media, influencing learning outcomes, especially in science. The identified challenges underscore the need for novel teaching strategies to promote student involvement and comprehension. Demonstration, as an effective teaching method, comprises two important stages: preparation and implementation. Adequate preparation ensures that the teacher is well-equipped to present subject content through direct examples, facilitating successful learning. The range of teaching methods accessible allows educators to change their approach based on unique learning objectives, underlining the necessity of pedagogical flexibility.

Ultimately, learning outcomes serve as a vital criterion in evaluating the success of teaching approaches. The observed issues underline the significance of continual efforts to develop educational practices, ensuring that educators respond to the dynamic requirements of their pupils. As the educational landscape continues to adapt, educators must remain dedicated to continual improvement, exploring novel techniques to provide an interesting and effective learning environment.

In addressing the recognized obstacles in the teaching and learning process, it becomes necessary to design a complete action plan. This plan should incorporate initiatives to boost student motivation, diversify instructional methodologies, and integrate engaging learning materials (Prayuda, Ginting, et al., 2023). To effectively address the lack of student interest, educators might introduce interactive and hands-on activities, enabling students to actively participate in the learning process. Additionally, employing a variety of instructional resources, such as visual aids, multimedia presentations, and educational games, can contribute to a more dynamic and interesting classroom atmosphere.

Furthermore, professional development opportunities for teachers should be emphasized to ensure they are well-versed in new teaching approaches, including the appropriate utilization of instructional technology. Workshops, training sessions, and collaborative projects can empower educators with the information and skills needed to adapt to the developing educational context (Prayuda et al., 2022). In the framework of science education, the emphasis should be on nurturing a real curiosity for scientific investigation. Implementing inquiry-based learning methodologies, where students actively investigate and discover scientific ideas through experimentation and observation, can dramatically boost their grasp and enthusiasm in the subject. This strategy aligns with the nature of science education as a process of discovery (Prayuda, Juliana, et al., 2023).

Moreover, collaborative efforts between teachers, school administrators, and educational policymakers are vital to fostering an atmosphere favorable to effective teaching and learning. Regular assessments and evaluations of teaching methods, curriculum relevance, and student involvement should be done to identify areas for development and refinement.

In conclusion, resolving the issues described in the teaching and learning process involves a multifaceted approach that encompasses student motivation, instructional diversity, and continuing teacher development. By providing a vibrant and engaged learning environment, educators may build a love for learning and encourage children to excel academically. Collaborative efforts within the educational community are vital for establishing sustainable improvements and ensuring that the educational experience stays relevant and impactful for all students.

METHOD

The research focuses on fourth-grade pupils at SDN, totaling 31 kids, consisting 17 boys and 14 females. The study approach adopted is Classroom Action study (CAR) based on the paradigm proposed by Kemmis and Taggart. Classroom Action Research is described as a reflective self-research undertaken collaboratively by researchers in a social setting to increase reasoning, justice in educational and social practices, and awareness of the settings where the study takes place. The research follows a four-phase cycle: planning, acting, observing, and reflecting.

In the qualitative descriptive analysis, the study uses a strategy targeted at depicting facts or realities based on obtained data to comprehend students' learning results. To assess the teacher's success in using the demonstration technique and enhancing students' learning outcomes in the field of human skeletal anatomy, the researcher applies a specific formula.

Here, Pt indicates the proportion of students demonstrating progress, n is the number of students with enhanced learning, and N is the total number of students. The criteria for success in applying the teaching approach and the percentage of student learning outcomes are given in Tables 1 and 2, respectively. The success indicators for the demonstration technique include accomplishing at least 85% of the anticipated improvements, while student learning outcomes are judged successful if individual absorption surpasses 60 and class absorption includes at least 70% of students scoring above 60 out of 100. These criteria serve as standards for analyzing the effectiveness of the research treatments.

The research involves a cyclical method, as usual in Classroom Action Research, encompassing planning, acting, observing, and reflecting. In this context, the planning step entails devising interventions and methods to improve the learning process. The acting phase executes these treatments in the classroom setting. The observation phase carefully collects data on pupils' answers, behaviors, and learning results. Finally, the reflecting phase critically examines the effectiveness of the therapies and leads adjustments for upcoming cycles.

In measuring the teacher's performance in using the demonstrative method, the researcher looks at both the qualitative components of teaching and the quantitative improvement in student learning outcomes. The metrics for success evaluate not only the execution of the intended improvements but also the overall influence on individual and class learning achievements.

The research also includes qualitative descriptive analysis, providing for a full depiction of the observed facts and reality. This strategy tries to provide a detailed view of students' learning results, incorporating elements beyond numerical scores. To quantify the success of the demonstration approach and the ensuing improvement in student learning outcomes, the study adopts a set of criteria and indicators specified in Tables 1 and 2. These criteria serve as standards for measuring the success of the implemented interventions in the classroom.

Overall, the research approach is structured to give a full assessment of the teaching method's success and its impact on students' learning outcomes. The circular structure of Classroom Action Research allows for continual improvement, ensuring that the interventions are adjusted based on reflective thoughts and observations.

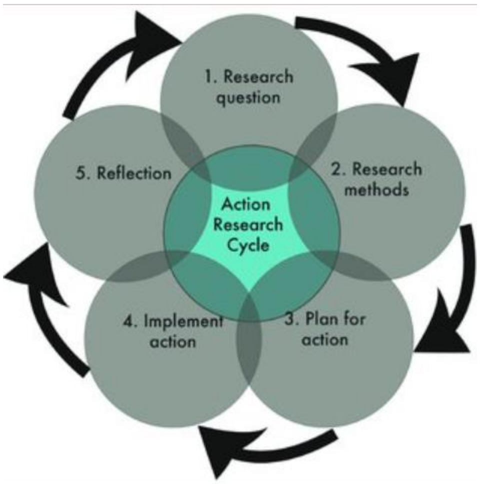

Figure 1. CAR

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RESULT AND DISCUSSION

The examination of the data gives useful insights into the effectiveness of the teaching method adopted in this research. In the initial cycle, when the demonstration approach was adopted, students demonstrated interest and attentiveness during the explanation of the human skeletal system. However, group activities caused issues, with some groups being more disruptive than others. The teacher's performance, as represented in Table 3, was rated successful (skilled) in the first cycle, achieving a percentage of 76.92%. However, despite the teacher's efficiency, the classical learning completeness, as indicated in Table 4, did not meet the targeted level of 70%. The aggregate percentage of pupils receiving a score of 60 or higher was 68.18%, suggesting that the learning objectives were not fully satisfied. Reflections on the first cycle identified various problems, including insufficient instruction for disciplined behavior, underutilization of allocated time by students, and shyness in voicing ideas during presentations.

As a reaction to the observed problems, the research moved to the second cycle. The observations in the second cycle suggested improvements in instructor activities, including more effective delivery, interactive questioning, and constructive direction during group discussions. The teacher's advice intended to increase discipline and accountability among students. The adoption of the Demonstration Method in the second cycle resulted in a considerable increase in teacher effectiveness, reaching 93.85%, as indicated in Table 5. The outcomes of student learning in the second cycle, as demonstrated in Table 6, showed remarkable improvement. The classical completion percentage improved to 86.36%, with an average class score of 80%. This shows that the second cycle effectively attained the specified learning goals.

Comparing the teacher's abilities between the first and second cycles, as provided in Table 7, demonstrated a considerable enhancement from 76.92% in the first cycle to 93.85% in the second cycle. Similarly, the comparison of student learning outcomes, as shown in Table 8, revealed a rise in the percentage of students who achieved a score of 60 or higher from 68.18% in the first cycle to 86.36% in the second cycle. In conclusion, the research findings demonstrate a favorable influence of the Demonstration Method on both teacher effectiveness and student learning outcomes. The reflective analysis shows the necessity of continual improvement, with each cycle influencing improvements for a more optimum learning experience. The results imply that the method has the ability to interest students, boost their knowledge, and add to the overall effectiveness of the teaching-learning process.

Delving deeper into the investigation, the observed gains in teacher effectiveness and student learning outcomes throughout the second cycle provide vital insights into the dynamic character of the Demonstration Method. The improvement in teacher effectiveness from 76.92% to 93.85% demonstrates the adaptability of the teaching method, with the teacher refining their instructional strategies based on insights learned during the initial cycle. The heightened instructor engagement, typified by more effective content delivery, interactive questioning, and constructive direction during group discussions, played a vital role in building a more conducive learning environment.

Furthermore, the remarkable boost in student learning outcomes, with the classical completion percentage going from 68.18% to 86.36%, shows the method's potential to

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positively impact student comprehension and academic performance. The rise in the average class score to 80% in the second cycle demonstrates an overall elevation in the students' knowledge of the subject matter. This favorable trend implies that the Demonstration Method not only attracts students' attention but also fosters a deeper understanding of the topic. The highlighted deficiencies in the initial cycle, such as the need for greater guidance on discipline and time management, were effectively addressed in the second cycle. The teacher's strategic interventions, including the development of varied learning groups and focused assistance during demonstrations, contributed to a more structured and participative learning experience. The favorable impact on students' motivation, as indicated by their active involvement and enthusiasm in completing group tasks, further verifies the success of the improved teaching style.

The successful implementation of the Demonstration Method in the second cycle also stresses the importance of reflective practice in educational research. The iterative nature of the research methodology allowed for constant modifications, resulting in a more targeted and impactful educational approach. The comprehensive assessment of student comments, coupled with the teacher's responsiveness to highlighted issues, shows a collaborative and adaptive teaching technique. In conclusion, the deeper study demonstrates that the Demonstration Method, when developed based on observations from the original cycle, has the potential to produce a more engaging and effective learning environment. The positive link between greater teacher effectiveness and enhanced student learning results illustrates the symbiotic relationship between pedagogical practices and academic successes. This sophisticated perspective underlines the necessity of ongoing research and reflective processes in building novel and impactful teaching techniques.

The correlation among variables in this research is visible in the interrelated dynamics between the teacher's efficacy, student learning results, and the application of the Demonstration Method. The observed improvement in teacher effectiveness, as evaluated by the percentage of planned improvements achieved during the second cycle, correlates positively with the revised instructional tactics deployed. This correlation shows that the teacher's adaptation and reaction to the recognized issues in the initial cycle directly contribute to an enhanced learning experience. Furthermore, the association between teacher effectiveness and student learning outcomes is a crucial part of the research findings. The favorable shift in teacher effectiveness from 76.92% to 93.85% correlates with a large improvement in student learning results, as indicated by the increase in the classical completion percentage from 68.18% to 86.36%. This correlation underlines the critical function of the instructor in influencing and shaping the academic outcomes of students. The teacher's ability to engage, guide, and inspire students using the Demonstration Method has a direct impact on their comprehension and performance.

Additionally, the association between the efficiency of the Demonstration Method and student motivation is clear in the observed enthusiasm and active participation of students throughout the second cycle. The method's capacity to catch student interest, encourage curiosity, and establish a collaborative learning environment is evident in their improved involvement and positive replies. This positive link between the teaching technique and

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student motivation implies that the Demonstration technique, when done correctly, not only teaches knowledge but also cultivates a conducive climate for active learning.

Moreover, the association between recognized flaws in the initial cycle and planned actions in the second cycle emphasizes the dynamic character of the research process. The iterative approach, distinguished by ongoing modifications and changes, demonstrates a reciprocal interaction between research ideas and teaching practices. The association between reflective practices, informed changes, and favorable outcomes underscores the necessity of continual study in refining and optimizing teaching techniques. In conclusion, the correlation among variables in this research reveals the complicated links between teacher effectiveness, student learning results, student motivation, and the adoption of the Demonstration Method. The positive connections underline the interdependence of these components, emphasizing the necessity for a holistic and flexible approach to teaching. This research contributes to a sophisticated knowledge of the complex relationships within the educational context, showing the possibility for creative and student-centric instructional practices.

The research discussion digs into the ramifications, importance, and broader applications of the findings generated from the implementation of the Demonstration Method in boosting teacher effectiveness and student learning outcomes. Firstly, the large rise in teacher effectiveness, as evidenced by the substantial improvement in the second cycle, emphasizes the relevance of adaptive teaching tactics. The teacher's capacity to perceive issues, implement targeted adjustments, and nurture a dynamic and engaging learning environment positively improves the overall effectiveness of the educational process. The found association between teacher effectiveness and student learning outcomes highlights the essential role of educators in molding the academic achievement of pupils. A more effective teaching technique, represented by the Demonstration Method, directly contributes to better student comprehension and achievement. This study resonates with broader issues in educational research, highlighting the role of teacher quality and instructional approaches in impacting student outcomes.

Furthermore, the research discussion acknowledges the association between the efficiency of the Demonstration Method and enhanced student motivation. The method's capacity to generate interest, motivate active involvement, and create a collaborative learning atmosphere corresponds with contemporary educational ideas that highlight the significance of involving students in the learning process. This component of the study topic contributes to the current discourse on student-centered pedagogies and the development of intrinsic drive. The iterative character of the research process, wherein discovered shortcomings lead to targeted interventions and eventual improvements, shows the dynamic and reflexive aspect of educational research. This conversation emphasizes the significance of ongoing review, reflection, and adjustment in teaching approaches to meet the increasing needs of students and address obstacles successfully. The cyclic structure of the research process also argues that educational interventions should be perceived as continuing and adaptive, creating a culture of continuous improvement in teaching approaches.

Moreover, the research discussion touches upon the larger significance of the findings for educational practitioners, politicians, and academics. The favorable outcomes seen in the second cycle underline the potential efficacy of the Demonstration Method in varied educational settings. Educators can consider adopting similar student-centric approaches, while politicians may discover insights into the value of funding professional development efforts that strengthen teaching methodologies. In conclusion, the research discussion contextualizes the study's findings within the broader landscape of educational research and practice. It highlights the interdependence of teacher effectiveness, student learning results, and motivation, underlining the possibility of novel pedagogical approaches like the Demonstration Method. The conversation contributes to the ongoing dialogue on successful teaching practices and their effects on student success, giving vital insights for educators, policymakers, and researchers alike.

CONCLUSION

In conclusion, this research has explored the effects of the Demonstration Method on teacher effectiveness, student learning outcomes, and motivation in the setting of fourth-grade scientific education. The iterative nature of the research, organized into two cycles, allowed for a dynamic exploration of the method's success and its future refinements. The findings demonstrate a positive association between the application of the Demonstration Method and greater teacher effectiveness, as evidenced by the significant improvement observed in the second cycle. This shows that an adaptive and reflective teaching strategy, coupled with targeted interventions, contributes to a more effective educational process.

Moreover, the data indicates a direct association between teacher effectiveness and enhanced student learning results. The favorable influence of the Demonstration Method on student comprehension and achievement underlines the essential role teachers play in molding the academic success of their pupils. Additionally, the found association between the efficiency of the method and improved student motivation underscores the relevance of engaging instructional approaches in building intrinsic motivation and active participation among students.

The research, with its focus on continual improvement and reflective practice, underlines the dynamic nature of educational research. The circular process of detecting deficiencies, applying treatments, and measuring outcomes underscores the necessity for a continual commitment to developing teaching approaches. This not only adds to the specific setting of the study but also encourages a larger culture of continuous improvement in educational methods.

The ramifications of this research transcend beyond the immediate environment, offering insights for educational practitioners, politicians, and academics. The positive outcomes seen in the second cycle demonstrate the potential efficacy of the Demonstration Method in diverse educational settings. Educators should consider adopting similar student-centric approaches, and politicians may discover helpful information to support efforts that strengthen teacher professional development and teaching methodologies.

In summary, this research contributes to the discourse on successful teaching practices by highlighting the interconnection of teacher effectiveness, student learning outcomes, and motivation. The favorable outcomes seen underline the potential benefits of novel pedagogical techniques, providing significant insights for educators and stakeholders devoted to improve the quality of scientific instruction in elementary schools.

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