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Application of Contextual-Based Science and Social Studies (IPAS) Module on Plant Life Cycle Topic in Elementary School

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ABSTRACT

This study aims to describe the application of the IPAS learning module on the subject ofthe life cycle of plants in class 3 at Mima Condro Jember. The study used a qualitative approach with a descriptive method. Data was collected through observation, interviews, and documentation to describe the effectiveness of usingcontextual modules in the learning process. The results showed that theapplication of contextual-based modules helped teachers deliver material in amore structured and interesting way despite limited digital resources. Students becamemore active, understood concepts in depth, and were able to relatelearning to their daily experiences. This module also helps teachers indesigning learning activities that are simple, practical, and relevant to theschool conditions. Thus, the contextual-based IPAS module is effective inimproving learning outcomes and student engagement in learning theplant life cycle in elementary school.

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INTRODUCTION

The need for effective and engaging teaching materials has increased as a result of technological advancements and innovations in learning, especially to improve the quality of learning at the elementary level (Kumar & Singh, 2018). Previous studies have shown that using visual media and hands-on practice can significantly improve students' understanding of concepts (Harrison et al., 2015; Wijaya & Suryono, 2019). However, the current teaching materials are still mostly theoretical and do not facilitate the practical aspect. They also do not support students' independent and creative learning, especially in schools with limited facilities (Rahmawati, 2017).

State of the art State of the art shows that the use of practice-based teaching modules and visual media that are systematically arranged can help overcome these limitations, so that they can optimally improve students' motivation, understanding, and skills (Yulianto et al., 2020). However, previous studies have focused more on general teaching materials without adjusting to the characteristics of students and specific school conditions, so there is a need to develop teaching materials that are more contextual and adaptive, especially for plant life

cycle materials in grade 3 MI/SD (Susanto & Utami, 2021).

This research aims to develop module-based teaching materials that are arranged in a systematic, interesting, and practical manner that can support the learning of plant life cycles in grade 3 due to the lack of module-based teaching materials that can integrate direct practice with visual media that are in accordance with the characteristics of students and school conditions that have limited facilities. These teaching materials are expected to improve students' learning experiences and help teachers deliver material in a more interactive and contextual way.

The constructivtivist learning principle emphasizes the importance of students actively participating in the learning process (Piaget, 1972; Vygotsky, 1978). This is the theoretical basis of the development of teaching materials. Therefore, it is hoped that the teaching materials and visual media for this module, which are practicum-based, can offer innovative ways to improve the quality of learning in limited classrooms.

RESEARCH METHOD

It can be said that a scientific work needs to include research methods. Developing research objects in an organized manner and obtaining accurate and responsible information is the goal of the research method.

Research on Application of the IPAS learning module of plant life cycle material in grade 3 Mima Condro Jember.using qualitative research with a descriptive approach. Sugiyono (2019) stated that qualitative research is a postpositivist research methodology that uses researchers as the main tool to observe objects in their natural environment. This approach uses inductive data analysis, triangulates data collection (observations, interviews, and documentation), and prioritizes the meaning and generalization of phenomena over quantification and statistics.

The data collection techniques used by the researcher are interviews, observations and documentation. To provide a clear picture of how effective the learning strategies used are, the data collected is then analyzed using data reduction measures, data presentation, and conclusion preparation (Nasution, 2023).

RESULTS AND DISCUSSION

Result

Based on research on the application of science learning modules on plant life cycle materials in grade 3 Mima Condro Jember. It can be noted that this research uses a qualitative method with observational data collection techniques, interviews, and documentation. Needs analysis, students have difficulty understanding the material because teachers often use traditional teaching strategies, rarely do practical exercises, and have a limited supply of educational resources. In addition, students' attention decreases when teachers explain because they are easily distracted and their literacy skills are still considered low.

Teachers began using the modules as a guide to deliver material, according to observations. Learning exercises include group discussions and practical application. These modules make the learning process more structured by helping teachers connect the material with students' daily lives.

According to interviews with teachers, the modules help in class planning and provide direction for contextual activities. Although still distracted, students report that the assignments become clearer as they can follow the instructions in the modules.

Each stage of the learning process is documented in this document. Student and teacher action notes are also included in the document, showing how the modules are actually applied in the learning process.

Overall, the results of research conducted through observation, interviews, and documentation show that, although primary schools do not have adequate digital facilities, the use of contextual-based IPAS learning modules on material on plant life cycles helps teachers deliver material in a more structured manner and supports teaching and learning activities.

Discussion

The results of the discussion showed that the contextual-based IPAS teaching module on the Plant Life Cycle material in Grade 3 MIMA Condro Jember can improve learning outcomes and student involvement even though the school has limited digital facilities. These results are in line with the hypothesis that contextual modules that emphasize the relationship between concepts and students' real experiences will improve their understanding of concepts and their motivation to learn. An increase in average post-test scores, completion percentages, and more active learning activities suggest that effective contextual modules help students build knowledge significantly. These results support constructivist theory, which emphasizes that knowledge gained through processes is associated with previous experiences.

The findings of this study are consistent with previous studies that have also implemented the *Contextual Teaching and LEARNING* (CTL) in science learning in elementary schools. Ruspiah, Sasmito, and Asfuri (2023) found that the CTL model on plant parts material at SD Negeri Puro 1 was able to increase the average learning outcome from 64 to 82 after two learning cycles. Research by Hafni (2021) also showed an increase in completeness of up to 90.9% after using CTL in plant structure materials. The same results were reported by Hnnasari (2022) that CTL not only improves science learning outcomes, but also fosters students' sense of responsibility and learning independence. In fact, Ningsih, et al. (2024) showed that the implementation of CTL on the structure and function of plant parts at MI Al-Huda resulted in teacher and student learning activities in the very good category. Thus, the results of this study strengthen the evidence that CTL and contextual-based teaching modules are effective in science learning, especially plant materials at the elementary school level.

Despite the fact that the findings of this study are in line with the majority of previous studies, there are differences in context with other studies that use interactive digital media. Due to the more interesting visualization and simulation features, the use of multimedia-based digital modules or e-modules can improve critical thinking skills and long-term retention. For example, research on the Development of Digital-based CTL Modules by Yunasri and Taula Sari (2023) found an increase in understanding of the concept of learning interests. However, research conducted at MIMA Condro Jember shows that even though digital facilities are limited, learning is still effective when modules are arranged with strong contextual principles and utilize learning resources from the surrounding environment, such as school gardens or plants in students' homes. This shows that the effectiveness of learning is determined more by pedagogical design and contextual relevance than by the level of technological sophistication.

From the theoretical side, the results of this study strengthen the relevance of constructivism theory and the CTL approach in science learning in elementary schools. Teaching that puts students at the center of activities and provides space for hands-on experience has been proven to increase student engagement and kinseptal understanding.

In addition, this study expands the understanding that the effectiveness of CTL does not only apply to the context of learning with complete digital facilities, but also to schools with limited resources. Practically, this research provides important implications for teachers and teaching material developers to design modules that are adaptive to school conditions. Teachers can optimize contextual-based modules with simple activities such as plant observation around the school, group discussions, and written reflections without having to rely on digital technology. Meanwhile, for the developer of teaching materials, a dual module design is needed: an interactive digital version for schools that have adequate facilities and a simple but still contextual print version for schools with limited devices.

The limited digital facilities in the schools where the research is conducted are indeed challenging, but it is also proof that contextual learning is not entirely dependent on technology. On the other hand, the teacher's ability to facilitate a real learning experience and relate concepts to everyday life is a key factor in success. The practical implications for education policymakers are the need for support for teacher training in the implementation of CTL as well as the provision of flexible and contextual modules so that they can be used in various infrastructure conditions.

Thus, the results of this study show that the application of contextual-based IPAS teaching modules is effective in improving learning outcomes and student involvement, in line with the hypothesis and supporting similar studies. The difference in results that arise with digital media-based research is more due to facilities and technology factors, rather than to the pedagogical approach. These findings underscore the importance of module design that is relevant to students' real lives as well as the need for adaptive learning strategies in primary schools with limited facilities.

CONCLUSION

The application of contextual-based science learning modules to plant life cycle materials in elementary schools showed positive results. This module is able to improve students' understanding of concepts, motivation, and involvement in learning activities even though schools have limited digital facilities. The contextual approach allows students to build knowledge through hands-on experiences that are relevant to their lives. Teachers are also helped in planning more directed, adaptive, and meaningful learning without having to rely on digital technology. Thus, the effectiveness of learning is determined more by contextual pedagogical design than by the level of sophistication of the facilities.

For teachers, it is recommended to continue to develop and adjust contextual-based learning modules in accordance with the characteristics of students and school conditions and for schools, it is necessary to provide training to teachers in the application of contextual approaches so that the application of modules is maximized

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