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Teachers' Efforts to Improve Thematic Learning Outcomes Using a Tpack-Based Scientific Approach

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Abstract
This research aims to address the issue of low learning outcomes among third-grade students at SDN 08 Batang Lolo, which were below the Minimum Completeness Criteria (KKM). Observations revealed that the existing teaching methods, focused primarily on lectures and textbook usage, led to student disengagement and lack of motivation. To enhance student engagement and learning effectiveness, a TPACK-based scientific approach was proposed. This method integrates Technological Pedagogical Content Knowledge (TPACK), which encompasses technological, pedagogical, and content knowledge, facilitating a more dynamic and interactive learning environment. The study employed Classroom Action Research (PTK) during the 2023/2024 academic year, conducted over two cycles. Each cycle involved planning, action, observation, and reflection stages to improve teaching methods and evaluate their impact. The results demonstrated a significant improvement in student learning outcomes. In Indonesian language content, student achievement increased from 53% in cycle I to 87% in cycle II, while in PPKn content, it rose from 73% to 100%. The findings suggest that a TPACK-based scientific approach not only improves academic performance but also encourages student activity and creativity. Recommendations include the adoption of multimedia tools like PowerPoint to enhance teaching and learning processes. This study serves as a valuable reference for educators aiming to integrate technology into their pedagogical practices, ultimately contributing to higher quality education.

Keywords : Classroom action research, learning outcomes, technological pedagogical content knowledge.

1. Introduction

Education aims to guide humans toward maturity by helping students carry out their life tasks to be independent and responsible (Ramadan et al., 2022). According to National Education System Law No. 20 of 2003, education is a conscious and planned effort to create a learning atmosphere so that students actively develop their potential and have the intelligence, personality, and skills needed in society. Basic education, including elementary schools, is essential for achieving this goal (Abidin, 2019; Tambun, Sirait, & Simamora, 2020).

Based on the researcher's initial observations of class III students at SDN 08 Batang Lolo, student learning outcomes were still below the Minimum Completeness Criteria (KKM). The third-grade teacher, Mr. Edwardi, S.Pd., tends to focus only on

the teacher's and student's books and uses the lecture method in the learning process. This causes students to feel bored and less motivated to learn. During the learning process, students often do not focus, ignore the teacher's explanations, and rarely ask questions or have opinions.

To overcome this problem, it is necessary to apply a more exciting and effective learning approach, namely the Scientific Approach Based on TPACK (Technological Pedagogical Content Knowledge). This approach integrates three main components: technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK) (Akyuz, 2018; Celik, 2023; Deng & Zhang, 2023; Schmid, Brianza, & Petko, 2021; Valtonen et al., 2019).

According to Jen, Yeh, Hsu, Wu, & Chen (2016), "Technological pedagogical content knowledge-practical (TPACK-P) refers to the knowledge construct that teachers in the digital era develop for and from their teaching practices with technology." The goal of the Technological Pedagogical Content Knowledge (TPACK) theory is to describe the body of information that educators must have to successfully teach their students and utilize technological tools in the classroom (Santos & Castro, 2021). With this approach, it is hoped that students can be more active, creative, and not always dependent on the teacher (Ariani, 2015).

According to Faisal & Lova (2018), meaningful thematic learning helps students understand concepts through direct experience, connecting concepts in various subjects. The scientific approach also helps improve high-level thinking skills, as also explained in research (Sun, Xie, & Lavonen, 2022), olves problems systematically, and creates learning conditions that make students feel that learning is necessary.

According to Hosnan (2014), the scientific approach involves observing, asking, gathering information, reasoning, and communicating. These stages help students develop the competencies of seriousness, thoroughness, creativity, communication skills, and critical thinking. The TPACK-based scientific approach is hoped to provide a new learning atmosphere for class III students at SDN 08 Batang Lolo, thereby improving their thematic learning outcomes. Teachers must develop innovative teaching approaches integrating technology, pedagogy, and content to create more exciting and compelling student learning experiences. Based on the background explanation of the problem above, this research intends to overcome students' learning difficulties and improve learning actions in the classroom through a TPACK-based scientific approach.

2. Research Method

This type of research is called Classroom Action Research (PTK). This research is concerned with improving or enhancing learning outcomes in a class. Arikunto, Supardi, & Suhardjono (2015) stated that classroom action research is research that

explains the causes of treatment and the entire process from the beginning to the treatment's impact. Thus, it can be said that classroom action research describes both the process and results, which carry out PTK in the class to improve the quality of learning.

The time the research was carried out they coincided with the odd semester of the 2023/2024 academic year. Cycle I meeting was held on Tuesday, 18 July 2023, meeting two on Thursday, 20 July 2023, and meeting 3 on Tuesday, 25 July 2023. Cycle II meeting one was held on Thursday, 27 July 2023, meeting 2 was on Tuesday, 1 August 2023, and meeting three on Thursday, 3 August 2023. The steps are taken in each cycle by researchers and colleagues, namely (1) identifying problems, (2) planning, (3) designing problem-solving to improve the cycle, (4) action, namely improving learning steps, (5) observation, researchers make joint observations with collaborators, and (6) reflection, researchers carry out analysis and evaluation activities to determine the success and failure of actions in achieving the level of completeness of student learning outcomes.

3. Results and Discussion

3.1 Data Description

3.1.1 Initial Conditions

The primary data collected in this research is data in the form of student test results. The test was carried out with the aim of seeing the extent to which there was an increase in student scores. Supporting data in this research is in the form of teacher and student observation sheets, which are used to see teacher and student activities during the learning process. Observations were carried out by Observer 1, Mrs. Marlianeta, S.Pd, who was tasked with observing teacher activities, and Observer 2, Mr. Edwardi, S.Pd, who observed student activities.

Based on observations from a preliminary study they carried out with a written test, students were asked to fill in a question sheet the teacher gave. The test results showed that out of 15 students, only 6 students answered thoroughly, and 9 students did not complete it. Based on these conditions, researchers conducted Classroom Action Research (PTK) to improve the thematic learning outcomes of class III students at SDN 08 Batang Lolo. Researchers use a learning approach that can attract students' interest to be more active and deepen the learning presented by the teacher by using a Tpack-based scientific approach.

3.1.2 Cycle I

Based on cycle I, meeting 1 in the thematic lesson on Indonesian language content, there was a completion percentage of 7%. It increased at meeting 2, the percentage of completeness was 20%, and at meeting 3, the percentage of completeness was 53%.

In the thematic lessons on Civics lesson content in cycle I, meeting 1 had a completion percentage of 27%, meeting 2 had a complete percentage of 33%, and meeting 3 had a complete percentage of 73%.

Students who have not finished are affected because some do not pay attention to the teacher when conveying the material being taught, and students play around more. Based on data obtained in cycle I, which was held in 3 meetings, students' scores increased after being given action using the Tpack-based scientific approach. However, students are still often confused and not careful when working on the questions given by the teacher. Therefore, the researcher and observer continued to cycle II. This aims to ensure that students can follow and answer questions related to the thematic learning taught by the teacher.

So, the learning results in cycle I show that the lesson has not reached the set standards and is not as expected. This is proven by the fact that Indonesian language and PPKN lessons have not shown any improvement. So, this research was continued in cycle II by researchers who improved the learning approach.

3.1.2.1 The Reflection of Cycle I

Reflection on the actions of the first cycle, looking at the presentation of the learning results of the first cycle, it turns out that the learning process in the first cycle did not go very well because, at the 1st meeting, the students who succeeded in exceeding the KKM in the thematic learning of the Indonesian language lesson content were only 2 students out of 15 students. In the PPKN lesson content, 10 students out of 15 students succeeded in exceeding the KKM.

The success rate has not yet reached 75%. Thus, this research cannot be stopped; this research needs to be continued in cycle II to achieve the target of classical student success criteria.

3.1.3 Cycle II

Based on student learning outcomes, in cycle II, meeting 1, thematic lesson content in Indonesian, the percentage of completion was 33%, meeting 2 with a percentage of 67%, and meeting 3 with a percentage of 87%. In Civics learning, at meeting 1, the percentage of completion was 66%, meeting 2 had a percentage of 80%, and meeting 3 had a percentage of 100%.

Students who have not completed the results are because they are still less active, are not serious about following the learning process, and are not careful in answering the questions given by the teacher. Because this criterion had been achieved well, this research was stopped in cycle II.

3.1.4 The Reflection of Cycle I and II

Classically, the implementation of thematic learning in cycle II has improved compared to cycle I. Data on thematic learning outcomes of class III students at SDN 08 Batang Lolo, South Solok Regency, which has been collected in both cycles, has also experienced an increase in both data on student learning outcomes and student observation score data. On the other hand, teachers have improved their learning process by being more careful in choosing words, clearer in conveying material, and not being too fast when presenting material.

The data described in the analysis of learning outcomes in cycle II, both data on student learning outcomes through tests and scores from observations of student attitudes through observation sheets, illustrates that this research has succeeded in achieving the research performance indicators discussed previously. The indicator of the success of this research is that if 70% of the students have reached the Thematic KKM class III at SDN 08 Batang Lolo, then this research is said to be successful.

Based on the description of reflection II, it can be concluded that in cycle II, the % of students who reached the KKM in thematic learning for Indonesian language lesson content was 87%. The ppkn lesson content was 100%, and this research was stopped until cycle II. This is because the number of students who have completed the success indicator requirement is 75%.

However, this level of success can still be increased in the future. Efforts to improve student learning outcomes use a tpack-based scientific approach with better methods and implementation to achieve maximum student learning outcomes.

4. Conclusion

Based on the results of research using Classroom Action Research (PTK) and the discussion that has been described, it can be concluded that implementing thematic learning using a TPACK-based scientific approach can improve the thematic learning outcomes of students in class III SDN 08 Batang Lolo. There was a significant increase from cycle I to cycle II, where the completeness of student learning outcomes in Indonesian language lesson content increased from 53% in cycle I to 87% in cycle II, and in PPKn lesson content increased from 73% in cycle I to 100% in cycle II. This approach not only succeeded in improving learning outcomes but also trained students to be active in the learning process.

Based on these conclusions, the researcher suggests several things that can be considered. First, teachers should consider using learning media such as PowerPoint as an alternative in school teaching and learning process. Second, students completing their education can use this research as a basis or comparison for other research that uses PowerPoint learning media. Third, the results of this research can be used as motivation and consideration for implementation in schools to improve the quality of education.

References

Abidin, A. M. (2019). PENERAPAN PENDIDIKAN KARAKTER PADA KEGIATAN EKSTRAKURIKULER MELALUI METODE PEMBIASAAN. *Didaktika : Jurnal Kependidikan*, *12*(2), 183–196. https://doi.org/10.30863/DIDAKTIKA.V12I2.185

Akyuz, D. (2018). Measuring technological pedagogical content knowledge (TPACK) through performance assessment. *Computers & Education*, *125*, 212–225. https://doi.org/10.1016/j.compedu.2018.06.012

Ariani, D. N. (2015). Hubungan antara Technological Pedagogical Content Knowledge dengan Technology Integration Self Efficacy Guru Matematika di Sekolah Dasar. *Muallimuna : Jurnal Madrasah Ibtidaiyah*, *1*(1), 79–91. https://doi.org/10.31602/MUALLIMUNA.V1I1.277

Arikunto, S., Supardi, & Suhardjono. (2015). *Penelitian Tindakan Kelas*. Jakarta: Bumi Aksara.

Celik, I. (2023). Towards Intelligent-TPACK: An empirical study on teachers' professional knowledge to ethically integrate artificial intelligence (AI)-based tools into education. *Computers in Human Behavior*, *138*, 107468. https://doi.org/10.1016/j.chb.2022.107468

Deng, G., & Zhang, J. (2023). Technological pedagogical content ethical knowledge (TPCEK): The development of an assessment instrument for pre-service teachers. *Computers & Education*, *197*, 104740. https://doi.org/10.1016/j.compedu.2023.104740

Faisal, & Lova, S. M. (2018). *Pembelajaran Tematik di Sekolah Dasar*. Medan: CV. Harapan Cerdas.

Hosnan, M. (2014). *Pendekatan Saintifik dan Kontekstual dalam Pembelajaran Abad 21*. Bogor: Ghalia Indonesia.

Jen, T.-H., Yeh, Y.-F., Hsu, Y.-S., Wu, H.-K., & Chen, K.-M. (2016). Science teachers' TPACK-Practical: Standard-setting using an evidence-based approach. *Computers & Education*, *95*, 45–62. https://doi.org/10.1016/j.compedu.2015.12.009

Ramadan, F., Awalia, H., Wulandari, M., Nofriyadi, R. A., Sukatin, & Amrizal. (2022). MANAJEMEN TRI PUSAT PENDIDIKAN SEBAGAI SARANA PEMBENTUKAN KARAKTER ANAK. *Bunayya : Jurnal Pendidikan Anak*, *8*(1), 70–82. https://doi.org/10.22373/BUNAYYA.V8I1.12257

Santos, J. M., & Castro, R. D. R. (2021). Technological Pedagogical content knowledge (TPACK) in action: Application of learning in the classroom by pre-service teachers (PST). *Social Sciences & Humanities Open*, *3*(1), 100110. https://doi.org/10.1016/j.ssaho.2021.100110

Schmid, M., Brianza, E., & Petko, D. (2021). Self-reported technological pedagogical content knowledge (TPACK) of pre-service teachers in relation to digital technology use in lesson plans. *Computers in Human Behavior*, *115*, 106586. https://doi.org/10.1016/j.chb.2020.106586

Sun, H., Xie, Y., & Lavonen, J. (2022). Exploring the structure of students' scientific higher order thinking in science education. *Thinking Skills and Creativity*, *43*, 100999. https://doi.org/10.1016/j.tsc.2022.100999

Tambun, S., Sirait, G., & Simamora, J. (2020). ANALISIS YURIDIS HAK DAN KEWAJIBAN WARGA NEGARA ATAS PENDIDIKAN MENURUT UNDANG-UNDANG NOMOR 20 TAHUN 2003 TENTANG SISTEM PENDIDIKAN NASIONAL. *Visi Sosial Humaniora*, *1*(1), 84–92. https://doi.org/10.51622/vsh.v1i1.27

Valtonen, T., Sointu, E., Kukkonen, J., Mäkitalo, K., Hoang, N., Häkkinen, P., … Tondeur, J. (2019). Examining pre-service teachers' Technological Pedagogical Content Knowledge as evolving knowledge domains: A longitudinal approach. *Journal of Computer Assisted Learning*, *35*(4), 491–502. https://doi.org/10.1111/jcal.12353