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EFFECTIVENESS OF TPACK-BASED PJBL MODEL IN INDONESIAN LANGUAGE SUBJECTS IN INCREASING LEARNING MOTIVATION OF ELEMENTARY SCHOOL STUDENTS

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Abstract *The purpose of this study was to identify the effectiveness of the TPACK-based PjBL model in Indonesian language subjects in increasing the learning motivation of elementary school students. This research is a classroom action research conducted in two cycles using the spiral model by C. Kemmis and MC. Taggart. The research subjects consisted of 33 fourth grade students of SD N Lempayangan 1. Data collection techniques used observation, questionnaire, test, and interview methods. The results showed that the application of the TPACK-based PjBL model showed a significant increase in teacher activity from cycle I (67.32%) to cycle II (88.45%), with a good category. Student activities also increased from cycle I (75.38%) to cycle II (89.32%), with a good category. Results from the questionnaire showed that students' learning motivation increased from 65% to 90%. Test results showed an improvement in student learning outcomes, with an average pretest score of 68 and posttest score of 85, an increase of 17 points. Students' response to learning was also very positive, increasing from 63% who felt less interested before to 93% who felt more interested and motivated after applying this model, compared to conventional learning methods.*

Keywords *Indonesian language, learning motivation, TPACK-based PjBL.*

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Abstrak Tujuan penelitian ini adalah untuk mengidentifikasi efektivitas model PjBL berbasis TPACK pada mata pelajaran Bahasa Indonesia dalam meningkatkan motivasi belajar siswa Sekolah Dasar. Penelitian ini merupakan penelitian *tindakan* kelas (PTK) yang dilaksanakan dalam dua siklus menggunakan model spiral oleh C. Kemmis dan MC. Taggart. Subjek penelitian terdiri dari 33 siswa kelas IV SD N Lempayangan 1. Teknik pengumpulan data menggunakan metode observasi, angket, tes, dan wawancara. Hasil penelitian menunjukkan bahwa penerapan model PjBL berbasis TPACK menunjukkan peningkatan signifikan dalam aktivitas guru dari siklus I (67,32%) menjadi siklus II (88,45%), dengan kategori baik. Aktivitas siswa juga mengalami peningkatan dari siklus I (75,38%) menjadi siklus II (89,32%), dengan kategori baik. Hasil dari angket menunjukkan bahwa motivasi belajar siswa meningkat dari 65% menjadi 90%. Hasil tes menunjukkan peningkatan dalam hasil belajar siswa, dengan rata-rata nilai *pretest* 68 dan *posttest* 85, meningkat sebesar 17 poin. Respons siswa terhadap pembelajaran juga sangat positif, meningkat dari 63% yang merasa kurang tertarik sebelumnya menjadi 93% yang merasa lebih tertarik dan termotivasi setelah menerapkan model ini, dibandingkan dengan metode pembelajaran konvensional.

Kata Kunci Bahasa Indonesia, motivasi belajar, PjBL berbasis TPACK.

PENDAHULUAN

Education is one of the important aspects in the development of quality human resources. In the era of globalization and rapid technological advances, the education system is required to always innovate and keep up with the times. (Lestari, 2018; Salsabila dkk., 2022). One of the emerging innovations in education is the implementation of a learning model that combines aspects of technology, pedagogy, and content, known as the *Technological Pedagogical and Content Knowledge* (TPACK) (Hanik dkk., 2022; Muzaini, 2023).

Project Based Learning (PjBL) is one of the learning methods that prioritizes active student participation through real projects that are relevant to the learning material (Rusmansyah dkk., 2023; Yanti & Novaliyosi, 2023). This model has been proven to increase student engagement, critical thinking skills, and collaborative abilities (Majid dkk., 2024; Prajoko dkk., 2023). However, in its implementation, PjBL requires technological support and the right pedagogical approach to be effective and efficient (Agustin dkk., 2024; Antari dkk., 2023; Riyasni dkk., 2023). This is where the TPACK concept plays an important role, by integrating technology into the learning process synergistically with pedagogy and content aspects.

Indonesian language as a basic subject has a crucial role in shaping students' communication skills and literacy understanding. (Arrosid dkk., 2023; Sirait dkk., 2023). However, it is not uncommon to encounter the problem of low learning motivation in elementary school students in

this subject (Kusuma & Fadiana, 2024; Setyarini & Purnomo, 2023). Low learning motivation can negatively impact learning outcomes and students' overall academic development (Ariefka & Sari, 2023; Romaito & Dafit, 2024). Therefore, a learning approach is needed that is able to overcome this problem and increase students' learning motivation.

The application of the TPACK-based PjBL model in Indonesian language learning is expected to be an effective solution to increase students' learning motivation. This model not only actively involves students in the learning process through interesting and challenging projects, but also integrates technology to make learning more interactive and fun (Elita & Sari, 2022; Khaerunisa dkk., 2024; Saputri dkk., 2023). Thus, students can experience learning that is more meaningful and relevant to their daily lives.

The results of initial observations conducted by researchers obtained information that SD N Lempayangan 1 has implemented project-based learning in every subject, including Indonesian language learning by integrating technology, pedagogy and content, with the aim of increasing student learning motivation. A recent study showed that learning using a project-based learning model with a TPACK approach showed positive results, with teacher and student activities reaching 85.62% and 86.93% respectively in the “good” category. Student responses were also good with a percentage of 83.53%. In conclusion, this learning model has a positive effect on student learning outcomes in WLAN network subjects (Auria dkk., 2023).

Another study showed that the application of Project-Based Learning (PjBL) with the TPACK approach in Pancasila Education subjects had an overall positive impact. Students involved in this activity experienced an increased understanding of Pancasila, which was shown by an average increase in pretest to posttest results of 24% (Fadilasari dkk., 2024). Before the application of the PjBL model, 65% of students had creativity skills below the criteria. After the application of the PjBL model, 85% of students achieved scores above the KKM. In conclusion, the Project Based Learning model for grade VI students, especially in batik techniques with the ecoprint method, succeeded in increasing student creativity with 70% learning completeness (Widiyaningsih & Nisa, 2023).

Based on the above issues, the researcher wants to examine the effectiveness of the TPACK-based PjBL model in the Indonesian language subject in increasing the learning motivation of students at Lampuyangan I Public Elementary School. It is hoped that the results of this study can provide a positive contribution to the development of innovative and effective learning methods,

as well as provide practical solutions for teachers in overcoming students' learning motivation problems.

METHOD

The research method used is the classroom action research (CAR) method with a spiral model design by Kemmis and McTaggart. The research process was conducted at SD Negeri Lempuyangan I Jl.Tukangan, Yogyakarta, DI. Yogyakarta, Indonesia. Implemented in the even semester of the 2023/2024 academic year. This research was conducted in several stages, including planning, action implementation, observation, and reflection. This research uses a classroom action research design implemented in two cycles. Each cycle consists of the following stages: Planning, Action Implementation, Observation, and Reflection. The subjects of this research are fourth-grade students at an elementary school, SD Negeri Lempuyangan I. The number of students involved in this research is 33 students. Data were collected using observation, questionnaires, tests, and interviews.

The obtained data were analyzed descriptively and comparatively, with the following steps: 1) Data from the observation sheets were analyzed to see the improvement in teacher and student activities from the first cycle to the second cycle. The percentage of activities is calculated to assess the success of the learning model implementation. 2) Data from questionnaires are analyzed to observe changes in students' learning motivation. The percentage of motivation levels is calculated and compared between before and after the implementation of the TPACK-based PjBL model. 3) Data from pretest and posttest results are analyzed to measure the improvement in students' learning outcomes. The average pretest and posttest scores are compared to see the effectiveness of the learning model. and 4) Interview data are qualitatively analyzed to support findings from observations, questionnaires, and tests, as well as to gain deeper insights into students' views on learning with the TPACK-based PjBL model.

RESULT AND DISCUSSION

RESULT

Teacher activities in the implementation of the TPACK-based PjBL model show significant improvement. Cycle I, the percentage of teacher activity was at 67.32%, Cycle II, the percentage of teacher activity reached 88.45% with a "good" category, an increase of 21.13%. This improvement indicates that the teacher was more involved and effective in guiding students through each stage of the project. Teachers not only serve as conveyors of material but also as facilitators who help students develop critical thinking and problem-solving skills. This reflects the teacher's better understanding of how to integrate technology with the appropriate pedagogical approach, in accordance with the content being taught.

Student activities also experienced a significant increase. Cycle I, the percentage of student activity was at 75.38%, Cycle II, the percentage of student activity reached 89.32% with a "good" category, an increase of 13.94%. This shows that students are more active and engaged in the learning process. They are no longer passive recipients of information, but active participants who collaborate, communicate, and think critically in completing projects. Active involvement is very important in the PjBL model because students learn through direct experience and reflection, which can enhance their understanding of the material.

The survey results show that students' learning motivation increased in Cycle II of the TPACK-based PjBL model. In Cycle I, the percentage of students' learning motivation was at 65%. In Cycle II, this percentage increased to 90%. This improvement indicates that the TPACK-based PjBL model is capable of sparking students' interest and enthusiasm for learning. High motivation is a key factor in learning success, as motivated students tend to be more persistent, take initiative, and demonstrate perseverance in facing learning challenges.

The test results show an improvement in student learning outcomes. The average pretest score of the students was 68, while the average posttest score reached 85, with an average increase of 17 points. This improvement in learning outcomes indicates that the TPACK-based PjBL model not only enhances motivation but also the effectiveness of the learning itself. Students are able to understand and master the material better when they are involved in relevant and meaningful projects that integrate technology as a learning aid.

Students' responses to learning with the TPACK-based PjBL model are very positive. Cycle I, the percentage of student learning motivation was at 65%. Cycle II, this percentage increased to 90%, students felt that this learning model was more interesting and motivating compared to conventional teaching methods. This positive response indicates that students enjoy the interactive

and dynamic learning process. They are more enthusiastic and interested in learning because the PjBL model allows them to explore further, collaborate in teams, and apply knowledge in real contexts.

Overall, these results indicate that the implementation of the TPACK-based PjBL model has a significant and positive impact on various aspects of student learning, from engagement and activity, motivation, to the learning outcomes achieved. This model successfully creates a more interactive, collaborative, and relevant learning environment for students in the digital era. Thus, the TPACK-based PjBL model can be considered an effective approach to improving the quality of learning and student learning outcomes in elementary schools.

The diagram of the learning improvement can be seen in Figure 1 below:

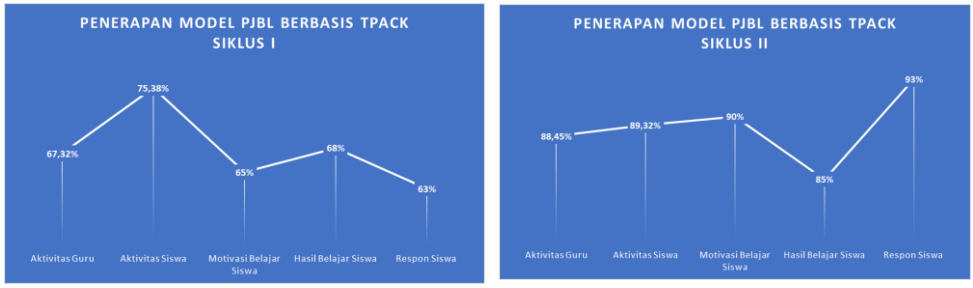

Figure 1. Diagram of the Application of the TPACK-Based PjBL Model

From the image above, it can be understood that the teacher's activity in the implementation of the TPACK-based PjBL model shows a significant increase, from 67.32% in cycle I to 88.45% in cycle II, with a "good" category. Student activity also increased from 75.38% in cycle I to 89.32% in cycle II, also with a "good" category. The survey results show that students' learning motivation increased from 65% to 90% after the implementation of the TPACK-based PjBL model. The test results indicate an improvement in students' learning outcomes, with an average pretest score of 68 and a posttest score of 85, an increase of 17 points. Student responses to the learning process were very positive, increasing from 63% who felt less interested before the implementation to 93% who felt more interested and motivated after the implementation compared to conventional methods.

Discussion

The results of this study indicate that the implementation of the Project Based Learning (PjBL) model based on Technological Pedagogical and Content Knowledge (TPACK) in the

Indonesian language subject is effective in increasing the learning motivation of students at Lempuyangan I Public Elementary School. The increased activities of teachers and students show that the TPACK-based PjBL model is capable of creating a more interactive and participatory learning environment. Teachers do not only function as conveyors of material, but also as facilitators who guide and direct students through various stages of the project. Students are more engaged in the learning process, providing constructive feedback, and helping other students overcome the obstacles they face. On the other hand, students become more active, engage in group discussions, and collaborate with their friends to complete projects. This increase in activity reflects deeper engagement and stronger commitment from both parties in the teaching and learning process.

Learning that uses project-based learning strategies can improve students' learning outcomes, especially in intellectual skills and problem-solving (Rochmadi & Rochastuti, 2023). PjBL-based LKPD integrated with TPACK has proven to be effective in improving student learning outcomes, meeting the effective category with a completion percentage of 75.7%. This has a positive impact on students during the learning process (Ayu, 2023). The implementation of Project Based Learning based on TPACK can increase student engagement in chemistry learning. This learning combines the innovative Project Based Learning model with technology-based learning media support, diverse learning methods, and a student-centered approach (Yulyaningsih, 2023).

The increase in student learning motivation can be linked to the PjBL approach, which is more engaging and relevant to students' daily lives. The projects assigned allow students to apply the knowledge they have gained in real-world contexts, which enhances their interest and motivation. For example, in projects involving story writing or creating multimedia presentations about Indonesian culture, students can directly see how the Indonesian language skills they are learning are used in the real world. Involvement in these projects also gives students a sense of achievement and ownership over their work, which further enhances their motivation.

Before using the Project Based Learning (PjBL) model, the classical completeness was 14.29%. In the first cycle, there was a significant increase with classical completeness reaching 52.38%, and in the second cycle, classical completeness increased to 90.48% (Rasputri, 2022). The Project Based Learning (PjBL) model supported by TPACK components showed improvement in each cycle. Curiosity increased from 75% to 86.9%, cooperation from 76.1% to

88%, openness from 79.3% to 84.8%, and critical thinking from 77.2% to 83.7%. These findings indicate an improvement in scientific attitudes as part of efforts to achieve competence in learning (Putra, 2023).

The increase in average scores from pretest to posttest indicates that the TPACK-based PjBL model not only enhances motivation but also the effectiveness of learning. Students are not only more motivated but also able to achieve better learning outcomes. This shows that the TPACK-based PjBL method provides a stronger and more in-depth learning structure, allowing students to understand the material more comprehensively and applicably. The improved learning outcomes reflect better understanding and higher skills in applying the knowledge they have learned. Positive responses from students indicate that this learning model is well-received and considered more enjoyable and challenging compared to traditional methods. Students feel more enthusiastic and excited about participating in learning because this method gives them the opportunity to create, explore, and innovate. This is important to create a conducive and sustainable learning environment, where students feel comfortable and challenged to continue learning and developing.

The Project Based Learning model based on the TPACK approach can improve students' learning outcomes in the Pancasila Education content, specifically the element of Bhineka Tunggal Ika, with results showing a significance value of the relationship between pretest and posttest data of 0.000, which is less than 0.05 (Kumalasari dkk., 2023). Pancasila Education learning using the TPACK-based PjBL model can help students focus more and facilitate material comprehension due to its engaging presentation. The results show an increase in student activity from cycle I by 10.34% (Poor) to 89.65% (Good) in cycle II (Sinta dkk., 2023). The application of the PjBL model with the TPACK approach can optimize students' interest in learning about classification material, as evidenced by an increase in learning interest to 88.15% in the second practice and reaching 92.40% in the third practice when using the PjBL model online (Laili, 2022).

The TPACK approach, which integrates technology into learning, shows that technology can be an effective tool in supporting the learning process. The use of technology in PjBL allows students to access information more broadly, communicate more effectively, and present their projects in a more engaging and interactive way. For example, students can use presentation software to create engaging slides, or use the internet to conduct in-depth research on their project topics. This integration of technology not only makes learning more engaging but also prepares students to face the challenges of the digital world in the future.

The application of the project-based learning model using TPACK media is very effective in improving student learning outcomes in the Multimedia Vocational subject Multimedia (Paputungan dkk., 2023). The integration of the TPACK approach with the Project Based Learning (PjBL) model has proven to be very effective in enhancing critical and creative thinking skills, with an average score reaching 89.90. A significance value of 0.000, which is less than 0.05 (0.000 < 0.05), indicates that the hypothesis can be accepted (Muskitta dkk., 2023). The application of Project Based Learning integrated with TPACK through lesson study can enhance students' creative thinking abilities. With the percentage of students achieving thinking skills above 75 in the first open class reaching 78.13%, the second open class reaching 81.25%, and the third open class reaching 93.75%, showing an average increase of 7.81% (Waluyo, 2023).

Overall, this study proves that the TPACK-based PjBL model is effective in enhancing student motivation and learning outcomes in the Indonesian language subject at elementary schools. These findings have important implications for the development of more innovative and effective curricula and teaching methods. This model can serve as a reference for teachers in designing learning strategies that can enhance student engagement and achievement. Thus, the application of the TPACK-based PjBL model is not only relevant in the context of Indonesian language learning but can also be applied to various other subjects to achieve similar results.

CONCLUSION

Teacher activities in implementing the TPACK-based PjBL model showed a significant increase, from 67.32% in cycle I to 88.45% in cycle II, with the category “good”. Student activity also increased from 75.38% in cycle I to 89.32% in cycle II, also in the “good” category. The questionnaire results showed that student learning motivation increased from 65% to 90% after the application of the TPACK-based PjBL model. The test results showed an increase in student learning outcomes, with an average pretest score of 68 and posttest score of 85, an increase of 17 points. Students' response to learning was very positive, increasing from 63% who felt less interested before implementation to 93% who felt more interested and motivated after implementation compared to conventional methods.

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