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THE EFFECT OF USING FLASH CARD MEDIA ON THE READING ABILITY OF SECOND GRADE STUDENTS AT SD MUHAMMADIYAH 13 MEDAN, ACADEMIC YEAR 2024/2025

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ABSTRACK

This study is a Research and Development (R&D) study that produces a product in the form of a Smart Box learning media for mathematics learning on solid geometry material in Grade IV at Bakti 1 Private Elementary School. This study aims to determine how the Smart Box media is developed for solid geometry material in Grade IV at Bakti 1 Private Elementary School, to test the validity of the Smart Box media in mathematics learning on solid geometry material in Grade IV at Bakti 1 Private Elementary School, and to test the practicality of the Smart Box media in mathematics learning on solid geometry material in Grade IV at Bakti 1 Private Elementary School. This study uses the ADDIE model, which consists of Analysis, Design, Development, Implementation, and Evaluation. However, in this study, the researcher only reached the Implementation stage. The result of this study is a Smart Box media product for mathematics learning on solid geometry material. Based on the validation results, the average score from the media expert was 97.33% ("very valid"), the material expert was 96.36% ("very valid"), and the language expert was 98% ("very valid"). The practicality results based on the teacher's response reached 86% ("very practical"), and the student response trial conducted in Grade IV A at Bakti 1 Private Elementary School with 17 students obtained 95.52% ("very practical"). Based on these results, the Smart Box media developed for mathematics learning on solid geometry material in Grade IV at Bakti 1 Private Elementary School is considered very valid and very practical, meaning that the media is "feasible" to be used in the teaching and learning process.

Keywords: Media Development, Smart Box Media, Mathematics Learning

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1. INTRODUCTION

Vocabulary is a fundamental component in learning English that plays an important role in supporting language skills, namely speaking, reading, listening, and writing. Adequate vocabulary mastery enables students to understand and convey meaning effectively. Conversely, limited vocabulary becomes a major obstacle in the learning process. Harisma (2021) states that vocabulary is the initial element that must be mastered by language learners, while Sari, Wahyuni, and Siregar (2021) emphasize that vocabulary mastery plays a more significant role than grammar in supporting language skills.

The success of vocabulary learning is greatly influenced by the teaching methods used. Nurdin (2022) mentions that effective methods can increase student engagement, while Syahraeni (2010) highlights the important role of teachers in motivating students. However, based on the researcher's experience during PLP 1 at Asuhan Jaya Junior High School in the 2020/2021 academic year, it was found that students had low vocabulary

mastery, lacked confidence in speaking English, and experienced difficulties in memorizing and understanding new vocabulary despite using a dictionary.

One of the factors influencing this condition is the difference in students' learning styles. Gilakjani and Ahmadi (2011) state that Visual, Auditory, and Kinesthetic (VAK) learning styles affect how students absorb information. Miller (2001) shows that students have diverse learning style tendencies, so a learning approach that can accommodate these differences is needed. The VAK learning model, which integrates activities of seeing, hearing, and doing, is considered effective in improving students' understanding and memory (Priya et al., 2020).

Based on these problems, the implementation of the VAK learning model is expected to improve students' vocabulary mastery in a more effective and interactive way. Therefore, this study is entitled: **"The Effectiveness of Using Visual, Auditory, and Kinesthetic (VAK) Learning Style Model on Students' Vocabulary Mastery."**

2. METHOD

This study employs the Research and Development (R&D) method, which aims to produce a product in the form of learning media while also testing its feasibility. The R&D method allows researchers to create new products or improve existing ones, and then evaluate their effectiveness and usefulness in an educational context (Okpatrioka, 2023).

The development model used is the ADDIE model developed by Dick and Carey (1996), which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. This model was selected because it provides a systematic approach to developing instructional media, ensuring that each component is integrated and aligned with students' needs (Pradiani et al., 2023). The ADDIE model is also suitable for classroom-based learning media development, making it practical to apply in the teaching and learning process.

The first stage, Analysis, involves identifying learning needs, student characteristics, and problems related to solid geometry material. The Design stage includes planning the Smart Box media, covering content, layout, and interactive mechanisms. In the Development stage, the media is created based on the design, followed by the Implementation stage, where the media is applied in Grade IV at Bakti 1 Private Elementary School. The final stage, Evaluation, involves expert validation and student trials to assess feasibility, effectiveness, and students' responses to the learning media.

Through the implementation of the ADDIE model, this study is expected to produce a Smart Box learning media that is effective, interactive, and capable of improving students' understanding of solid geometry material, while also providing practical guidance for teachers in applying innovative media in the classroom.

3. RESULTS AND DISCUSSION

This study was conducted in Grade IV at Bakti 1 Private Elementary School, located at Jl. Pelajar No.1, Pulo Brayan Bengkel, Medan Timur District, Medan City, North Sumatra. The purpose of this research was to test the development of mathematics

learning media to be used in Grade IV, particularly on solid geometry material. The learning media developed is the Smart Box, which is designed attractively to increase students' enthusiasm in learning. This development research used the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) with four stages; however, due to research adjustments, the process was carried out only up to the implementation stage.

At the Analysis stage, a needs analysis was conducted through interviews with the homeroom teacher and direct observation of students. The results showed that the use of learning media was still limited and not concrete, as teachers relied mainly on textbooks, making the learning process monotonous and less engaging. The analysis of students' characteristics revealed that some students lacked focus and required a more enjoyable learning environment involving games. Based on these findings, an engaging and interactive learning media was needed, leading to the development of the Smart Box for solid geometry material.

The Design stage involved the initial planning of the Smart Box media, which was designed in the form of a box with four sides that can be opened, containing material explanations, images, and games inside. The colors and design of the box were made attractive to avoid boredom. Assessment instruments, including product feasibility questionnaires and teaching modules, were also prepared to guide the learning activities in alignment with learning objectives, achievement indicators, and students' initial competencies.

At the Development stage, the Smart Box media was constructed using plywood measuring 40 × 50 cm, covered with colored layers, with the material printed as stickers and attached inside the box. The solid geometry material was placed in rotating pockets, complete with questions and interactive games. Product validation was carried out by media experts, material experts, and language experts. The validation results showed high scores with the criteria "Very Valid": media expert 97.33%, material expert 96.36%, and language expert 98%, indicating that the media is feasible for use.

The Implementation stage involved testing the practicality of the media on both teachers and students. The teacher practicality test showed a score of 86% ("Very Practical"), while the student practicality test resulted in 95.52% ("Very Practical"). These results indicate positive responses toward the use of the Smart Box media in Grade IV at Bakti 1 Private Elementary School, both from teachers and students. The media was able to increase students' attention, enthusiasm, and engagement during the learning process.

Based on the discussion above, the developed Smart Box media has proven to be effective in supporting mathematics learning on solid geometry material. This media helps students understand concepts concretely through visualization, games, and direct interaction with the material. In addition, positive responses from both teachers and students indicate that the Smart Box not only facilitates understanding but also enhances students' motivation and creativity. The use of visual elements and games encourages students to actively experiment and interact with the material, making learning more enjoyable. These findings are consistent with constructivist learning principles, where

students learn through direct experience, exploration, and reflection on the material being studied. Therefore, the Smart Box serves as both a teaching aid and an innovative tool to improve the quality of teacher-student interaction in mathematics learning.

4. CONCLUSION

Based on the results of the research on the development of Smart Box media in mathematics learning on solid geometry material in Grade IV at Bakti 1 Private Elementary School, it can be concluded that the Smart Box media developed using the ADDIE model from the stages of Analysis, Design, Development, to Implementation—has proven to be feasible and effective for use. The analysis of needs and students' characteristics at the Analysis stage served as the foundation for designing media that is engaging, interactive, and aligned with learning objectives. The Design and Development stages resulted in a Smart Box media that has been validated by media, material, and language experts, achieving the criteria of "very valid."

In addition, the practicality testing at the Implementation stage showed very positive results. The teacher's assessment obtained a score of 86% ("very practical"), while the students' assessment reached 95.52% ("very practical"), confirming that the Smart Box media can be effectively used in the learning process.

Therefore, the Smart Box media is not only feasible in terms of validity and practicality, but also capable of increasing students' enthusiasm, engagement, and understanding of solid geometry material in a more concrete and enjoyable way. This media can serve as an innovative alternative to support interactive and engaging mathematics learning in elementary schools.

REFERENCES

[1] Agustini, S. A., & Misbah. (2024). Pengembangan Media Pembelajaran Smart Box Untuk Meningkatkan Hasil Belajar Siswa Pada Mata Pelajaran Matematika Kelas 1 SD. Jurnal Ilmiah Pendidikan Dasar, 09(04), 41–56.

[2] Kristanto, D. H., Kurnia, I., & Wahyudi. (2022). Pengembangan Media Kotak Pintar Untuk Meningkatkan Kemampuan Berhitung Perkalian & Pembagian Kelas II SD. 4(2), 1392–1399.

[3] Maulidiana, F., Wardana, L. A., & Jannah, F. (2024). Pengembangan Media Smart Box Pada Pembelajaran Tumbuhan dan Energi Mata Pelajaran IPAS Kelas IV di SDN Curahgrinting 1 Probolinggo. INNOVATIVE: Journal Of Social Science Research, 4(2), 1664–1675.

[4] Novita, R., & Harahap, S. Z. (2020). Pengembangan Media Pembelajaran Interaktif Pada Mata Pelajaran Sistem Komputer Di Smk. Jurnal Informatika, 8(1), 36–44. https://doi.org/10.36987/informatika.v8i1.1532

[5] Okpatrioka. (2023). Research And Development (R&D) Penelitian Yang Inovatif Dalam Pendidikan. Dharma Acariya Nusantara: Jurnal Pendidikan, Bahasa dan Budaya, 1(1), 86–100. https://doi.org/10.47861/jdan.v1i1.154

[6] Pradiani, N. P. W. Y., Turmuzi, M., & Fauzi, A. (2023). Pengembangan Media Pembelajaran Pop-Up Book Materi Bangun Ruang Pada Muatan Pembelajaran

Matematika Kelas V Sekolah Dasar. Jurnal Ilmiah Profesi Pendidikan, 8(3), 1456–1469. https://doi.org/10.29303/jipp.v8i3.1503

[7] Ratnasari, R., Yurahman, Y. B., & Trisnani, N. (2023). Peningkatan kemampuan pemahaman berhitung perkalian dengan media smart candy box. Jurnal Ilmiah Pendidikan Ke-SD-an, 9(1), 6–13.

[8] Sandra, A. L., & Kusuma, D. (2024). Pengembangan Media Pembelajaran Smart Box Mathematic Untuk Meningkatkan Minat dan Hasil Belajar Peserta Didik Kelas 1 SD. Jurnal Ilmiah Pendidikan Dasar, 09(04), 587–601.

[9] Saofah, T., Uswatun, D. A., & Sutisnawati, A. (2024). Pengembangan Media Smart Box berbasis Science Environment Technology Society (SETS) dalam Pembelajaran IPA Sekolah Dasar. Jurnal Karya Ilmiah Guru, 10(1), 357–365.