TUNAS
JURNAL PENDIDIKAN GURU SEKOLAH DASAR
http://journal.umpr.ac.id/index.php/tunas
Vol. 10, Issue. 2, June 2025, PP. 107-114
ISSN: 2477-6076 (print); 2685-8169 (online), DOI: 10.33084/tunas.v10i2.10027

Development of Student Worksheets (LKPD) on Plane Figures Using Indonesian Traditional Houses for Grade IV Elementary/Islamic Elementary School Students

[1]Nurisya, [1]Sri Latifah, [1]Anton Tri Hasnanto
[1]Universitas Islam Negeri Raden Intan Lampung, Bandar Lampung, Indonesia

Article Information
Received:
April 2025
Accepted:
May 2025
Published:
June 2025

ABSTRACT
Background: This study was motivated by the importance of developing valid and practical student worksheets (LKPD) that are student-centered to foster students' interest in learning mathematics. *Aim:* The study aims to examine the development process of student worksheets (LKPD) on plane figures using Indonesian traditional houses for Grade IV students. In addition, this study also aims to evaluate the feasibility of the LKPD and to assess students' and teachers' responses to the worksheets. *Method:* This research used a Research and Development (R&D) approach using the ADDIE model. The instrument used for data collection was a questionnaire. *Result and discussions:* The results show that the average validity scores from the language expert, content expert, and media expert were 95%, 90%, and 96.65%, respectively, all categorized as "highly appropriate." The small-scale trial yielded a total score of 321 out of a maximum of 450, with a feasibility percentage of 71.33%, categorized as "feasible." Meanwhile, the large-scale trial obtained a total score of 883 out of 990, with a feasibility percentage of 89.19%, classified as "highly feasible." *Conclusion:* Therefore, the LKPD on plane figures using Indonesian traditional houses for Grade IV Elementary/Islamic Elementary School Students meets the criteria for validity and practicality and is suitable for classroom learning.

Keywords: Development, Students Worksheet, Two-dimensional Figure, Traditional Indonesian House

Corresponding Author:
Nurisya,
Primary School Teacher Education Department,
Universitas Islam Negeri Raden Intan Lampung,
Lieutenant Colonel H. Endro Suratmin Street, Sukarame Lampung, Indonesia
Email: nurisyai784@gmail.com

Citation Information: Nurisya, Latifah, S., & Hasnanto, A. T. . (2025). Development of Student Worksheets (LKPD) on Plane Figures Using Indonesian Traditional Houses for Grade IV Elementary/Islamic Elementary School Students. *Tunas: Jurnal Pendidikan Guru Sekolah Dasar*, *10*(2), 107–114. https://doi.org/10.33084/tunas.v10i2.10027

INTRODUCTION

Developmental research is a series of steps to create new products or improve existing ones with accountable outcomes. The resulting products are not limited to physical objects or classroom tools, such as books, modules, or instructional aids used in classroom or laboratory settings (Yuwana Sudikan et al., 2023). Development is a process of enhancement or refinement intended to improve quality. In the context of education, development involves strategic planning to improve the quality of learning (Diana et al., 2022). Student Worksheets (LKPD) are instructional materials designed to guide students in the learning process, individually or in groups. LKPD is printed teaching material with sheets containing content, summaries, and instructions for completing learning tasks (Rosmana et al., 2024).

Studies on developing LKPD on plane figures using Indonesian traditional houses highlight the importance of connecting mathematical concepts with local wisdom. This contextual approach helps students understand the properties and characteristics of plane figures through real-life examples derived from traditional houses of the Archipelago. In addition, contextually designed LKPD can foster students' critical thinking skills (Aini & Fathoni, 2022). Students can better relate abstract concepts to real-world situations by integrating mathematics with traditional house structures. Research on LKPD indicates that this approach to teaching plane figures offers significant educational benefits. Recent studies show that LKPD can enhance students' motivation to learn mathematics. However, previous research has also revealed that educators often lack confidence in implementing LKPD. These findings suggest that although LKPD has great potential to improve the quality of education, further efforts are needed to address various challenges to ensure its effective and widespread implementation.

Although the use of Indonesian traditional houses in LKPD shows great potential, their implementation in mathematics learning remains limited. Most previous studies have focused on subjects such as social studies or language, while research on its application in mathematics, particularly on plane figures, is still rare (Sundari & Siregar, 2023). For example, earlier studies revealed that the mathematics LKPD used by educators

did not incorporate elements of Indonesian cultural heritage. This indicates a gap between the potential of traditional houses as learning resources and their actual implementation in mathematics education. Therefore, this study aims to examine the development process of LKPD on plane figures using traditional Indonesian houses. In addition, it aims to assess the feasibility of the LKPD and to analyze the responses of students and teachers to the developed worksheets. Through this LKPD, students are expected to learn mathematics in a more engaging and meaningful way. Thus, the results of this study are expected to contribute to innovations in mathematics learning at the elementary school level. The study is also expected to benefit students, educators, researchers, and schools.

This study offers a new approach by developing LKPD on plane figures using traditional Indonesian houses. This approach utilizes elements of traditional houses as a context for understanding geometric concepts (Putri & Wulandari, 2024). Such an approach has not been widely implemented in mathematics learning at the elementary school level. In addition to enhancing students' understanding of the material, the LKPD also aims to instill cultural values from an early age. Therefore, this study presents an innovation in instructional media that is not only academically relevant but also supports cultural preservation.

Developing student worksheets (LKPD) using Indonesian traditional houses is important to meet the need for relevant and engaging learning experiences for students. According to Vaughn (Lubis et al., 2024), students often struggle to understand mathematics. LKPD based on traditional houses provides a more interactive and meaningful learning approach. This study is also aligned with national education policies that promote the integration of

Indonesian cultural heritage into the learning process. Therefore, the development of this LKPD supports the improvement of student learning outcomes and contributes to the preservation of cultural heritage. In this way, integrating plane figure material with traditional houses enhances students' mathematical understanding and helps shape strong character and cultural identity.

METHOD

This study used a type of research known as Research and Development (R&D), which aimed to develop a new product or improve an existing one. To produce a specific product, the research involved a needs analysis followed by validation and practicality testing to ensure that the product functions effectively for both educators and students. Therefore, the researcher adopted the Research and Development (R&D) approach. The development procedure used in this study followed the ADDIE model. ADDIE stands for Analysis, Design, Development, Implementation, and Evaluation. The ADDIE model consists of simple, easy-to-implement stages that are not overly complex and are designed to help solve problems encountered during the research process.

The subjects in this study were Grade IV Amar and Grade IV Saad students. This research was conducted during the even semester of the 2025 academic year. The study occurred at SD IT An-Nur Gedong Tataan, located on Jalan Hanoman, Kutoarjo Village, Gedong Tataan District, Pesawaran Regency. The instrument used for data collection was a questionnaire. The questionnaires were designed for validation purposes and included media expert validation, content expert validation, and language expert validation, each conducted by the respective expert in their field of specialization. During the trial phase, separate questionnaires were administered to obtain responses from teachers and students regarding the LKPD to assess its practicality and validity. For the validation results, the scores were processed using the following formula to determine the percentage of LKPD validity:

Validity Percentage = (Score Obtained)/(Maximum Score) x 100%

Table 1. Criteria for Product Practicality and Validity

Criteria	Practicality and Validity Category
Highly Feasible	81-100%
Feasible	61-80%
Moderately Feasible	41-60%
Not Feasible	21-40%
Very Not Feasible	0-20%

(Putri &Wulandari,2024)

Based on Table 1, the criteria for the practicality and validity of the product are classified according to the following percentage ranges: a score of 0–20% is categorized as "very unfeasible," 21–40% as "unfeasible," 41–60% as "fairly feasible," 61–80% as "feasible," and 81–100% as "highly feasible." These categories are used to determine the overall quality and appropriateness of the developed product based on the percentage scores obtained from the validation and practicality assessments.

RESULTS AND DISCUSSION

This study aimed to develop LKPD on plane figures by integrating the shapes of plane figures found in the architecture of Indonesian traditional houses. The study results indicate that the developed LKPD is valid and practical in enhancing students' understanding of plane figure concepts. This is

evidenced by the increase in students' percentage scores after using the LKPD and their positive responses toward the materials linked to Indonesian cultural heritage.

These findings are consistent with the results of a study by Hariyanti Nur Aini and Achmad Fathoni, which stated that the development of mathematics LKPD based on local culture can enhance students' motivation and conceptual understanding (Aini & Fathoni, 2022). In addition, the developed LKPD also supports the principles of Contextual Teaching and Learning, in which learning materials are directly connected to students' real-life experiences (Pariza & Marlia, 2024). In this context, traditional houses serve as visual and concrete representations of plane figures, making it easier for students to understand the characteristics of basic geometric shapes.

The implications of these findings suggest that a learning approach that integrates elements of local culture not only strengthens students' conceptual understanding but also fosters an appreciation for cultural heritage. This LKPD can serve as an alternative teaching material that supports the Merdeka Curriculum, as it emphasizes local context and student character development.

Although this study has yielded positive results, several limitations must be acknowledged. First, the trial implementation was conducted in only one elementary school, resulting in a limited data scope that does not fully represent conditions in other schools. This limits the generalizability of the findings. Second, the development of the student worksheets (LKPD) includes only a few examples of traditional houses from specific regions in Indonesia, which means it does not yet fully represent the cultural diversity of the Archipelago. Third, the learning evaluation in this study focused primarily on cognitive aspects, while affective and psychomotor aspects have not been thoroughly analyzed.

Based on these limitations, future research is recommended to involve schools from various regions to examine the effectiveness of the LKPD in a broader context. Furthermore, the development of the LKPD can be expanded by including a wider variety of traditional houses from different parts of Indonesia and by incorporating learning activities that promote critical thinking and collaborative skills. The following section presents the data on the results of the media development at each stage:

A. Analysis Stage

At this stage, the research focuses on the needs analysis in mathematics learning at SD IT An-Nur Gedong Tataan, particularly in Grade IV. Problem identification was carried out through interviews and the distribution of needs assessment questionnaires to teachers and students to determine field needs related to mathematics learning, especially in plane figures. This was followed by identifying existing student worksheets (LKPD) limitations, such as the lack of visualization, low attractiveness, and the absence of contextual relevance. These findings established the urgency to develop a contextual LKPD that integrates local cultural elements as a contextual approach. Therefore, a contextual learning medium in the form of an LKPD that connects plane figure material with traditional Indonesian houses (rumah adat Nusantara) is needed. By developing such an LKPD, the learning process is expected to become more engaging, interactive, and aligned with the characteristics and needs of Grade IV elementary/madrasah students.

B. Design Stage

In this stage, the initial product was designed based on students' identified needs, focusing on making the product more engaging. The main activity in this stage was to determine the specifications of the product being developed. The LKPD was structured sequentially into three main sections. The first section is the preliminary part, which includes the front cover, foreword, table of contents, and learning objectives. The second section is the content section, which consists of material explanations and a variety of practice activities designed to enhance students' thinking skills. The final section is the closing part, which includes a list of references and the back cover. The following is a description of several components included in the LKPD product.

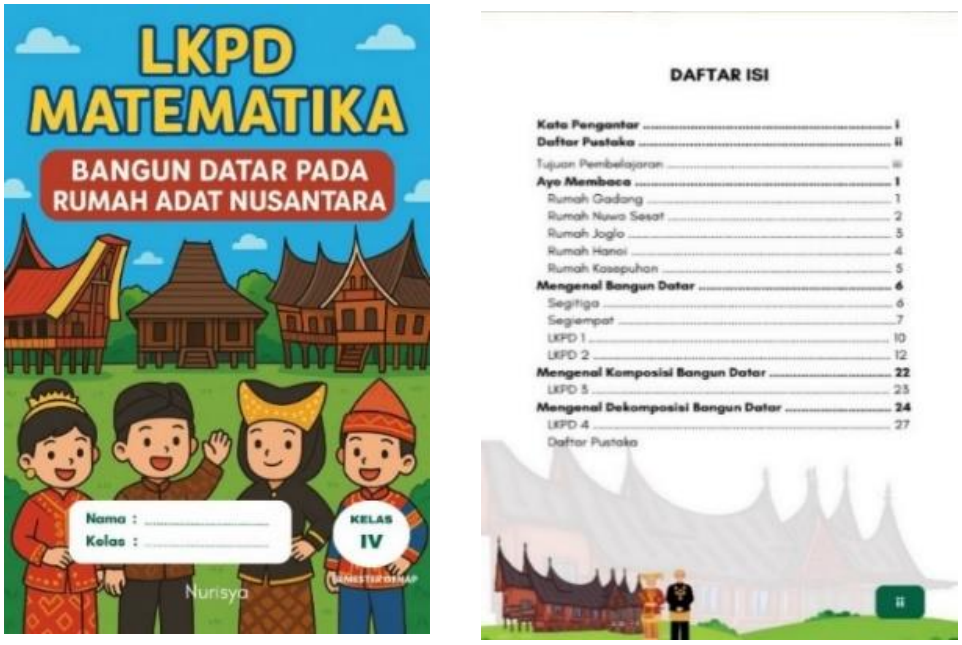

Figure 1. Initial Design of LKPD

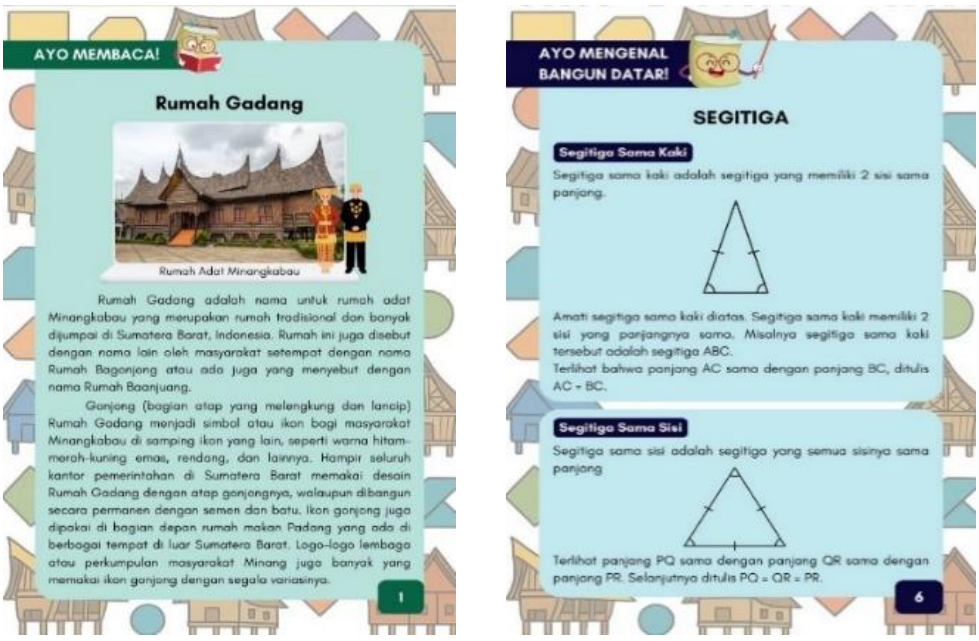

Figure 2. Content Design of LKPD

Figure 3. Final Cover Design of LKPD

C. Development Stage

At the development stage, the designed LKPD product was reviewed by media experts, language experts, and content experts. The results of these reviews included evaluations, feedback, and suggestions based on the developed product. In addition, the Grade IV homeroom teacher assessed the teacher validation sheet, while the student validation was conducted by Grade IV students at SD IT An-Nur Gedong Tataan.

Table II. Results of LKPD Language Validity Assessment by Language Expert

Criteria	No	Validator	∑	%	Rating
Language Accuracy Aspect	1	5	19		Highly Feasible
	2	4		95%	
	3	5			
	4	5			
Average				95%	Highly Feasible

Based on the results in Table 2, the language validity obtained a score percentage of 95%, classified as "Highly Feasible." This indicates that the language used in the LKPD complies with appropriate linguistic standards and is suitable for the student's level of comprehension.

Table III. Results of LKPD Validity Assessment by Content Expert

Criteria	No	Validator		∑	%	Rating
		X_1	X_2			
Content Aspect	1	5	5	54	90%	Highly Feasible
	2	4	5			
	3	4	5			
	4	4	4			
	5	4	5			
	6	4	5			
	Average				90%	Highly Feasible

The results in Table 3 show that the LKPD developed obtained a validity percentage score of 90%, categorized as "Highly Feasible." This indicates that the content presented in the LKPD aligns with school curriculum standards and meets the learning needs of the students.

Table IV. Results of LKPD Validity Assessment by Media Expert

Criteria	No	Validator		∑	%	Rating
		X_1	X_2			
LKPD Cover Design	1	5	5	20	100%	Highly Feasible
	2	5	5			
LKPD Content Design	3	4	4	56	93.3%	Highly Feasible
	4	4	5			
	5	5	5			
	6	5	5			
	7	5	4			
	8	5	5			
	Average				96.65%	Highly Feasible

Based on the results in Table 4, the media expert validation showed a validity percentage score of 96.65%, which falls under the "Highly Feasible." This indicates that the overall appearance and design of the LKPD are highly appropriate for use in the learning process.

D. Implementation Stage

The implementation stage involved distributing the LKPD on plane figures using Indonesian traditional houses to Grade IV Elementary/Islamic Elementary School students. In the small-scale trial, the LKPD was tested on 10 students to determine whether the product was valid and suitable for large-scale implementation. The results of the small-scale trial indicated that the LKPD received a feasible response from the students, with a total score of 321 out of a maximum score of 450, resulting in a percentage of 71.33%, categorized as "Feasible." The percentage obtained from the student response questionnaire in the small-scale trial proved that the LKPD was appropriate to be tested on a larger scale.

E. Evaluation Stage

The evaluation stage was carried out using data collected from teacher and student response questionnaires during the large-scale trial, which aimed to assess the practicality of the developed LKPD. The large-scale trial involved 22 Grade IV Saad students at the Elementary/Islamic Elementary School level. The results of the practicality analysis are presented in the following table:

Table V. Practicality Results Based on Student Responses

Number of Respondents	22 Students
Total Score	883
Maximum Score	990
Percentage Result	89.19%
Criteria	Highly Feasible

Based on the results in Table 5, the LKPD received a percentage score of 89.19%, which falls under the "Highly Feasible" category. This indicates that, in general, students felt supported by using the LKPD in the learning process.

Table VI. Practicality Results Based on Teacher Responses

Number of Respondents	2 Teachers
Total Score	97
Maximum Score	110
Percentage Result	88.18%
Criteria	Highly Feasible

Based on the results in Table 6, the practicality score reached 88.18%, which falls under the "Highly Feasible" category. This

This analysis aimed to evaluate the extent to which the LKPD can be accepted and practically used by students in the learning process. The practicality result from students was 89.19 percent, indicating that the LKPD falls into the "Highly Feasible" category. Meanwhile, the practicality of teachers was 88.18 percent, which is also categorized as "Highly Feasible." Based on these results, the LKPD on plane figures using Indonesian traditional houses for Grade IV Elementary and Islamic Elementary School students received a highly feasible response from both students and teachers in supporting the learning process.

This is in line with the research conducted by Rani Tasya and Nurhudayah (Ginting & Manjani, 2025), which found that interactive E-worksheets based on Liveworksheet for the topic of plane figures demonstrate that the combination of ethnomathematics and interactive technology has a positive impact on improving students' conceptual understanding of plane figures. In addition, Wulandari's (Putri & Wulandari, 2024) findings indicate that the product is valid and effective, even when applied across different classes. These findings are relevant as they emphasize that integrating local cultural content into worksheets can enhance the effectiveness of learning plane figures. Altogether, these studies support the idea that developing worksheets on plane figures based on traditional houses of the Archipelago for fourth-grade elementary/Islamic elementary students can lead to high-quality learning that both teachers and students well accept.

Overall, the evaluation stage, from the analysis to implementation, shows that the developed product meets the criteria of validity and practicality. Using LKPD on plane figures that incorporate the cultural elements of Indonesian traditional houses makes the learning process more engaging and easier to understand for students. These results are the objectives of this study, which aimed to examine the validity and practicality of the developed product. Therefore, the LKPD can be considered suitable for supporting mathematics learning.

indicates that the teachers considered the developed LKPD highly appropriate for classroom learning activities.

CONCLUSION

The following conclusions can be drawn based on the research findings and data analysis conducted in this study on the development of student worksheets (LKPD) on plane figures using Indonesian traditional houses for Grade IV Elementary/Islamic Elementary School students. The developed LKPD has met the criteria for validity, as evidenced by the results of expert validation. The language expert validation reached a percentage of 95 percent, content expert validation reached 90 percent, and media expert validation reached 96.65 percent, all of which fall under the category of "Highly Feasible," according to the experts' assessments. Regarding practicality, the LKPD was rated as highly practical based on the evaluation of two teachers, with a score percentage of 88.18 percent. Student responses to the LKPD also indicated high practicality, with a percentage of 89.19 percent based on questionnaire results. These findings indicate that the LKPD developed in this study fulfills the criteria for both validity and practicality. The positive responses from students toward the LKPD on plane figures using Indonesian traditional houses indicate that the developed instructional material successfully engaged students and enhanced their learning experience, as reflected in the high practicality scores.

ACKNOWLEDGMENTS

Praise and gratitude are extended to Almighty God for His blessings and grace, which have enabled the completion of this article. The author would also like to express sincere thanks to all parties who have supported this article's preparation.

Special appreciation is given to the academic supervisor for their guidance, input, and constructive feedback during the research and writing process.

The author also extends heartfelt thanks to the school community, especially the principal, teachers, and students of SD IT An-Nur Gedong Tataan, for their cooperation and support during the data collection process. The author would also like to thank fellow students for their encouragement, moral

support, and assistance throughout the development of this article.

My deepest gratitude is also conveyed to the author's beloved family for their continuous prayers, support, and understanding, which have greatly contributed to the successful completion of this work.

The author is aware that this article is still far from perfect. Therefore, constructive suggestions and feedback for future improvement are sincerely welcomed.

REFERENCES

Aini, H. N., & Fathoni, A. (2022). Pengembangan Lembar Kerja Peserta Didik (LKPD) Matematika Berbasis Budaya Lokal Siswa Sekolah Dasar. *Jurnal Basicedu*, *6*(4), 6167–6174.

Diana, A., Tahir, M., & Khair, B. N. (2022). Pengambangan Lembar Kerja Peserta Didik (LKPD) berbasis Discovery Learning pada Pembelajaran IPA Materi Sumber Daya Alam untuk Kelas IV SDN 23 Ampenan. *Jurnal Ilmiah Profesi Pendidikan*, *7*(1), 141–150. https://doi.org/10.29303/jipp.v7i1.419

Ginting, R. T. B., & Manjani, N. (2025). *BERBASIS LIVEWORKSHEET PADA MATERI BANGUN DATAR KELAS IV SD NEGERI 060853 MEDAN*. *9*(3), 308–313.

Lubis, M. M., Misykah, Z., & Naution, M. D. (2024). *Identifikasi Kesulitan Belajar Anak Pada Pelajaran MatematikaKelas Rendah*. *2024*(1), 7–12.

Pariza, I., & Marlia, A. (2024). *Peningkatan Hasil Belajar Matematika Menggunakan Model Contextaul Teaching and Learning (CTL) berbasis TPACK di Kelas IV B SD Negeri 04 Bariang Rao-Rao Kecamatan Sungai Pagu Kabupaten Solok Selatan*. *8*(4), 572–579.

Putri, V., & Wulandari, N. (2024). *Pengembangan Lembar Kerja Peserta Didik (LKPD) Berbasis Etnomatematika pada Materi Bangun Datar Kelas 2 SDN Panjer*. 432–442.

Rosmana, P. S., Ruswan, A., Lesmana, A. R. D., Andini, I. F., Yuliani, I. P., Ramanda, N., Nurfitria, R., & Citra, W. R. (2024). Penerapan LKPD terhadap Efektivitas Pembelajaran Peserta Didik di Sekolah Dasar. *Jurnal Pendidikan Tambusai*, *8*(1), 3082–3088.

Sundari, A., & Siregar, N. (2023). Pengembangan LKPD Matematika Berbasis Permainan Tradisional pada Siswa Kelas II SD. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, *7*(2), 1787–1799. https://doi.org/10.31004/cendekia.v7i2.2418

Yuwana Sudikan, S., Titik, I., & Faizan. (2023). *Metode Penelitian & Pengembangan (Research & Development) Dalam Pendidikan dan Pembelajaran*. Universitas Muhammadiyah Malang.