DEVELOPMENT OF ETHNOMATEMATICS-BASED MATHEMATICS TEACHING MATERIALS ON FLAT SHAPES

**Maryam Faizah[1], Nisfi Laila Fitrasari[2], Mohammad Asibly[3],
Hasna Rahmania Firsausy[4], Nurlyta Virlyani[5]**

UIN Maulana Malik Ibrahim[1234], Universitas Negeri Malang[5]

maryam_faizah@pgmi.uin-malang.ac.id[1] , *nisfilailafitrasarii@gmail.com[2]*
fathulalimmuhamad@gmail.com[3] , *hasnarahmania05@gmail.com[4]* ,
nurlytavirlyani@gmail.com[5]

Abstrak

Sering kali siswa merasa kesulitan dalam memahami materi matematika yang abstrak dan tidak menemukan relevansi dalam kehidupan sehari-hari. Penelitian ini bertujuan untuk mengembangkan bahan ajar matematika berbasis etnomatematika pada materi pokok bangun datar menggunakan model pengembangan Borg and Gall. Etnomatematika bertujuan untuk memperkuat pemahaman mengenai materi dan konsep bangun datar di kelas 3, melalui objek atau tempat bersejarah. Materi belajar dikembangkan berdasarkan materi yang mudah dipahami siswa, disesuaikan dengan mata pelajaran matematika serta penerapan matematika yang berakar kuat di lingkungan sosial. Responden dalam penelitian ini merupakan siswa kelas 3 SDI Al Ghaffar. Hasil dari penelitian pengembangan materi pengajaran berbasis etnomatematika ini diukur melalui evaluasi pre-test dengan rata-rata nilai 61,17 frekuansi siswa masih banyak yang mendapatkan nilai rendah, selanjutnya setelah melakukan eksperimen dilakukan post-test, hasil penilaian post-test rata-rata nilai siswa 78,82. Ditemukan peningkatan hasil belajar sebelum dan sesudah siswa melakukan pembelajran menggunakan bahan ajar matematika berbasis etnomatematika,sehingga Bahan Ajar Berbasis Etnomatematika yang dikembangkan efektif untuk memperkuat pemahaman materi bangun datar. Sebagai implikasinya, penelitian ini menunjukkan bahwa siswa sekolah dasar dapat memperoleh pemahaman konseptual yang lebih baik dengan pembelajaran matematika yang berbasis budaya lokal. Penelitian ini terbatas pada satu sekolah dan materinya hanya bangun datar.

Kata Kunci: Bahan Ajar Matematika, Etnomatematika, Bangun Datar

Abstract

Students often find it difficult to understand abstract mathematical material and do not find relevance in everyday life. This study aims to develop ethnomathematics-based mathematics teaching materials on the subject of plane figures using the Borg and Gall development model. Etno aims to strengthen understanding of the material and concept of plane figures in grade 3, through historical objects or places.

Learning materials are developed based on materials that are easy for students to understand, adapted to mathematics subjects and the application of mathematics that is deeply rooted in the social environment. Respondents in this study were grade 3 students of SDI Al Ghaffar. The results of this ethnomathematics-based teaching material development research were measured through a pre-test evaluation with an average value of 61.17, the frequency of students still getting low scores, then after conducting the experiment, a post-test was conducted, the results of the post-test assessment showed an average student score of 78.82. An increase in learning outcomes was found before and after students learned using ethnomathematics-based mathematics teaching materials, so that the developed Ethnomathematics-Based Teaching Materials were effective in strengthening the understanding of plane figure material. As a result, this study suggests that elementary school students can gain better conceptual understanding through locally based mathematics instruction. This study was limited to one school and covered only plane geometry.
Keywords: Mathematics Teaching Materials, Ethnomathematics, Flat Shapes

INTRODUCTION

The use of ethnomathematics in mathematics teaching can encourage students to explore core areas of mathematics more deeply. Furthermore, expanding ethnomathematics teaching can increase student participation, which has a positive impact on academic achievement. Ethnomathematics can also help students accept diversity. The use of diverse cultures in the classroom helps to increase solidarity and collaboration among students (Dari Wulan Sekar & Jatmiko, 2024).

Based on the findings of interviews conducted on 15 May 2025 with Year 3 teachers, it was found that students had difficulty recognising flat shapes in various concrete objects, were less engaged in education, and lacked teaching materials that combined mathematics and cultural values. This resulted in low student ability to understand mathematical concepts. The problem in understanding mathematical concepts can be understood as being caused by a lack of practical and contextual examples, as well as a lack of learning resources that are able to attract students' interest (Noor & Noer, 2015). Therefore, teaching materials are needed that are not only interesting, but also capable of providing a deep and meaningful learning experience for students. The main problem in elementary school mathematics learning is that students do not understand the concept of plane figures because the teaching materials are not contextualized and relevant to their cultural experiences. Previous research confirms the importance of contextual learning and ethnomathematics, and empirical data from teacher interviews support the problem description (Diefenbach, 2009).

130

MUBTADI: Jurnal Pendidikan Ibtidaiyah
Vol. 7 No. 2, Januari – Juni 2026
P – ISSN : 2715 – 7067
E – ISSN : 2720 – 8850

Achmad Fatchun Niam's research entitled 'Innovation in the Development of E-LKPD Flipbooks Using an Ethnomathematics Approach to Flat Shape Material in Grade IV Elementary School' and Tri Suryaningsih et al.'s research entitled "Development of E - Modules for Mathematics Learning Based on Betawi Ethnomathematics in Plane Figure Material for Grade IV MI/SD" are previous literature relevant to the researcher's title. These studies show that the use of flipbooks and E-Modules combined with an ethnomathematics approach can stimulate student enthusiasm (Niam et al., 2022) and improve their academic performance. However, these studies require equipment and internet access, while some primary schools still rely on paper-based teaching materials.

This research is positioned as development research and is based on an empirical needs analysis; a theoretical study of contextual learning; and a synthesis of previous ethnomathematics research findings. Thus, this research serves as a foundation for creating ethnomathematics-based mathematics teaching materials that integrate theoretical foundations and empirical results (Asare, 2026). The development of teaching materials takes into account not only theory but also actual learning conditions in elementary schools.

The results of research conducted by Nugraha, Maulana, and Mutiasih on 'the Sundanese ethnomathematics context in primary education' show that integrating local culture into mathematics teaching can strengthen students' understanding of mathematics (Jayadinata, n.d.) because it originates from cultural experiences that are closely related to everyday life. Similarly, a study by Azamul Fadhly Noor Muhammad and Noer Intan Novitasari on 'The development of ethnomathematics teaching materials for primary school students' highlights the importance of teaching materials in helping students understand mathematical concepts in a more contextual and meaningful way (Siswa et al., 2014). However, both studies still have gaps, particularly the lack of concrete results that are ready to be used on a large scale by primary school teachers. Therefore, this study attempts to address these gaps by designing practical, easy-to-use ethnomathematics teaching resources that are tailored to the specificities and local cultural contexts of students.

Ethnomathematics presents learning through cultural contexts that are familiar to students, such as batik motifs, traditional houses, and traditional games (Suastra et al., 2024), to local measurement systems. This makes it easier for students to understand mathematical concepts because learning feels more real and meaningful. This cultural context serves as a bridge between academic material and students' personal experiences. The Merdeka Curriculum strongly supports this approach because it emphasises student-centred, contextual and flexible learning. Teachers are given the freedom to develop project-based learning by raising local cultural themes. Ethnomathematics also reinforces the values of the Pancasila Student Profile, such as mutual cooperation and global diversity, and fosters students' pride in their own culture (Hamid & Safira, 2025).

The main objective of applying ethnomathematics is to make mathematics learning more contextual, enjoyable, and relevant. By linking the material to local culture, students feel closer to the subject and more motivated. In addition, this approach encourages student In the effectiveness testing phase of the teaching materials created, this study used a quasi-

experimental one-group pretest-posttest design. In this design, one group of research subjects was given a pre-implementation test before using the ethnomathematics-based teaching materials and a post-implementation test after using the teaching materials. This design was chosen based on the characteristics of research and development (R&D), which focuses on product testing in real-life learning contexts, as well as the limitations of field conditions that did not allow for a control group.s to think critically and creatively through culture-based problem solving (Wulandari et al., 2024).

METHOD

This study utilised the Research and Development method with the Borg and Gall development model combined with a quasi-experiment. This study produced a new development product that was in line with the needs of the environment and subjects. Borg and Gall have ten stages in this research, and the researchers used six stages, including: (1) Research and data collection, (2) Planning, (3) Initial product development, (4) Initial field testing, (5) Main field testing. This study aims to determine the effectiveness of the developed teaching materials (Waruwu, 2024). In the effectiveness testing phase of the teaching materials created, this study used a quasi-experimental one-group pretest-posttest design. In this design, one group of research subjects was given a pre-implementation test before using the ethnomathematics-based teaching materials and a post-implementation test after using the teaching materials. This design was chosen based on the characteristics of research and development (R&D), which focuses on product testing in real-life learning contexts, as well as the limitations of field conditions that did not allow for a control group.

The research location was at SDI Al Ghaffaar, located in Dau District, Malang Regency, East Java Province. The reason for choosing this school was because there were no teaching materials that integrated culture, and the students also had several obstacles in learning that were in line with the objectives of developing teaching materials. The population in this study was all third-grade students at SDI Al Ghaffaar. The sampling technique used was saturated sampling because there was only one Year 3 class at the school. Therefore, there was no specific sample selection, as the entire population was involved. The principle behind selecting all third-grade students as the research sample is that in situations where the population is relatively small and the researcher can reach every member of the population, appropriate saturation sampling can be used. This ensures that the data obtained is more realistic and reflects the actual situation on the ground. Methodologically, the number of students in one class meets the criteria for product development research trials, so the sample size for this study was adjusted to the number of students in one class.

Product testing was conducted in stages. An initial field trial was conducted to identify initial product weaknesses and gather user feedback. The main field trial was conducted to evaluate the effectiveness of the teaching materials for teaching mathematics, measure learning outcomes, and assess implementation and student responses (Slamet, 2022).

132

MUBTADI: Jurnal Pendidikan Ibtidaiyah
Vol. 7 No. 2, Januari – Juni 2026
P – ISSN : 2715 – 7067
E – ISSN : 2720 – 8850

This study used three instruments: expert design validation, expert material validation, and test instruments in the form of pre-tests and post-tests, each consisting of 15 questions. The content and construct validity of the teaching materials and research instruments were determined through an expert validation process conducted by instructional design (Ulfah et al., n.d.) experts and subject matter experts (Ade Rahayu, 2025). Content validity was used to ensure that the materials align with core competencies, learning indicators, and appropriate integration of cultural context into the teaching materials. Construct validity, meanwhile, was used to ensure that the teaching materials' components were integrated, their presentation clear, and their learning flow consistent. Prior to the field trial phase, an assessment was conducted using a validation scale, and the results were evaluated to determine the product's feasibility. Thus, there were two types of data: qualitative data using the Suharsimi Arikunto model, which involved collecting, reducing, presenting, drawing conclusions, and verifying data (Basyah, 2019). The qualitative data from this study included expert validation results and user feedback on the developed teaching materials. The materials' suitability to learning objectives, integration of cultural context, clarity of presentation and language, integration of teaching material elements, and ease of use in learning were among the aspects analyzed (Saleh, 2017). As part of the product improvement process, validator suggestions and comments were also used to obtain qualitative data.

According to Moleong (2017), who emphasizes the systematic process of interpreting data to generate valid and relevant conclusions, the qualitative data analysis process involves the stages of data collection, data reduction, data presentation, and drawing and verifying conclusions.The second data is quantitative data from design and material validation compiled using a Likert scale based on Sugiono's 2008 rating. In addition, there is also quantitative data from pre-tests and post-tests. Data collection techniques in this study began with interviews, observations, documentation, questionnaires, and tests. All processes were carried out offline at the school.

Based on this data, the researcher analysed the normality test using Shapiro-Wilk with the SPSS 2025 for Windows program with a significance level of 0.05. After verifying the normality and homogeneity of the variance of both values, a t-test was conducted to determine whether there was a significant difference between the two mean values at a level of 0.05. Before analysing the data, the researcher formulated a hypothesis in the form of a statistical hypothesis:

H0: There was no difference in learning outcomes between students before and after receiving instruction using ethnomathematics-based teaching materials.

H1: There is a difference in learning outcomes between students before and after receiving material using ethnomathematics-based teaching materials.

If the result of the T-test analysis is less than 0.05, the initial hypothesis is accepted, but if it is more than 0.05, the initial hypothesis is rejected and it can be concluded that there is a difference.

133

RESEARCH RESULTS AND DISCUSSIONN

Research Results

1. Research and data collection

At this stage, researchers identified a number of problems experienced by third-grade students at Al Ghaffaar Elementary School based on observations and interviews with homeroom teachers. Preliminary data showed that only 74% of the students (17 out of 23) were actively involved in the initial assessment. The primary issue was the absence of ethnomathematics-based teaching materials, which prevented students from linking mathematical concepts to their local culture. This lack of cultural connection, combined with monotonous learning strategies, resulted in low student enthusiasm. Consequently, this study focuses on the hypothesis that the implementation of ethnomathematics-based materials will significantly enhance students' engagement and conceptual understanding. By focusing on these core variables, the researcher aims to bridge the gap between abstract mathematics and the students' cultural reality.

2. Planning

Teaching materials designed to meet student needs are produced at the planning stage to address the specific gaps identified in the preliminary data, where only 74% of students (17 out of 23) were actively engaged. At this stage, a framework for teaching materials has been developed to test the research hypothesis that ethnomathematics-based materials can improve student engagement and understanding. This includes the determination of the necessary tools and the specific culture to be integrated, namely the Paduraksa gate or Kori Agung at the Tomb of Sunan Giri, the minaret of the Sunan Kudus Mosque, and the bedug drum left behind by Sunan Kalijaga. The entire design is tailored to the learning objectives, specifically to describe the characteristics of various flat shapes (quadrilaterals, triangles, and polygons), as well as to compose and decompose them. By focusing on these cultural artifacts, the study directly aligns the design process with the hypothesis of bridging abstract mathematical concepts with the students' cultural reality, rather than discussing unrelated variables.

3. Initial product development

The researchers undertook product design development after creating ethnomathematics-based teaching materials. During this development phase, the researchers combined the selected resources as best as possible before editing them using elements and colour schemes. The media was then printed in full colour on 80-gram HVS paper.

4. Initial Field Testing

In the first stage of field testing, researchers used pre-selected experts to validate the product. Before the product was used in the next stage of testing, its application, feasibility, and quality were evaluated by materials and design specialists.

134

MUBTADI: Jurnal Pendidikan Ibtidaiyah
Vol. 7 No. 2, Januari – Juni 2026
P – ISSN : 2715 – 7067
E – ISSN : 2720 – 8850

Table - 1 Subject matter expert validation

No	Score	Criteria
1	81-100	Very valid
2	60-80	Valid
3	40-60	Quite valid
4	20-80	Less valid
5	0-20	Not Valid

Based on the quantitative data analysis presented, the researchers summarised the overall results of the material validation assessment, obtaining a score of 95 with a criterion of highly valid.

Table - 2 Media expert validation

No	Score	Criteria
1	81-100	Very valid
2	60-80	Valid
3	40-60	Quite valid
4	20-80	Less valid
5	0-20	Not Valid

Based on the quantitative data analysis presented in the table above, the researcher summarised the overall results of the material validation assessment, obtaining a result of 88.57 with a criterion of highly valid.

5. Revision of initial products

Researchers refined teaching materials based on validators' assessments using questionnaires after the media had been validated. This enabled the implementation and testing of ethnomathematics-based mathematics teaching materials based on updated product outputs.

6. Main field test

At this stage, the ethnomathematics-based mathematics teaching materials were ready to be tested. The researchers then conducted a trial with third-grade students at Al Ghaffaar Elementary School. Assessment was carried out by comparing the students' pre-test and post-test results.

Pre test Result

Normality Test

Pre-test and Post-test Normality Test in Grade 3 of Al Ghaffaar Elementary School. The normality test in this class was conducted using IBM SPSS Statistics 25 software with a significance level of 0.05. After data processing, the output can be seen in Table 3.

Table - 3 Normality Test

Factor	Shapiro-Wilk		
	Statistic	Df	Sig
Pre Test	.960	17	.629
Post Test	.962	17	.661

Table – 4 T-Test

Levene's Test for Equality of Variances			t-test for Equality of Means							
	F	Sig.	T	Df	Sig. (2-Tailed	Mean Difference	Std. Error Diference	95% Confidence Interval of the Difference		
									Lower	Upper
Before After		.20	-5.176	16	.000	-19.23529	3.71655		-27.11402	-11.35657

Discussion

The material contained in the teaching materials achieved a score of 95, which is considered highly valid, based on the results of validation by subject matter experts. This assessment shows that the content of the material meets the standards of substantive suitability, suitability with basic competencies, and relevance to the characteristics of primary school students. Subject matter experts assessed that the material presented is accurate, up-to-date, and in line with the principles of ethnomathematics-based mathematics learning. Furthermore, the structure of the material presentation was assessed as methodical, cohesive, and easy for students to understand. The alignment between competency achievement indicators and learning activities also strengthens the validity of the product. (Setiawan, 2017). Thus, this teaching material is considered adequate for use in the trial phase without any significant adjustments (Ayd & Aytekin, 2018).

Based on the results of media expert assessment, this product received a score of 88.57, placing it in the highly valid category. This indicates that the layout, typography, visual appeal, graphics, and media systematics have met acceptable learning design principles. According to the validator, user-friendly media navigation, appropriate image arrangement, and harmonious colour selection contribute to a high level of readability. The gradual and consistent presentation of material is believed to improve student understanding and make it easier for them to follow the learning process. Overall, media experts conclude that this product is suitable for use and has great potential to improve learning efficacy in the classroom (Conroy et al., 2019).

After the validation process by media and material specialists was completed, the researchers made changes to the product based on comments and notes. In order to better suit the characteristics of the students and the learning objectives, the visual elements, language, and substance of the material were refined . The main areas of improvement included aligning instructions, enhancing the quality of examples of local culture, and emphasising the relationship between mathematical concepts and the ethnomathematical components used. The aim of this revision stage was to ensure that the teaching materials were truly ready to be tested on students in an authentic learning environment (Palopo, 2023).

In the main field test stage, the revised ethnomathematics-based mathematics teaching materials were implemented for third-grade students at SDI Al Ghaffaar. The purpose of this experiment was to evaluate how well the teaching materials improved student learning outcomes. The learning was carried out in accordance with the designed instruments and procedures, and the researchers then conducted measurements using pre-tests and post-tests. The basis for evaluating the efficacy of the teaching materials and determining how the product affected students' abilities was a comparison of the results of the two tests. This field test provided a concrete picture of the usefulness of the teaching materials in a classroom context.

The Shapiro-Wilk test with a significance threshold of 0.05 was used to test normality. The pre-test data had a significance value of 0.629 and the post-test data had a significance value of 0.661, according to the research results. Since both values are greater than 0.05, the data is declared to be normally distributed. This condition fulfils the prerequisite for conducting a further t-test. (Shapiro-wilk et al., 2015).

The t-test results show a significance value (2-tailed) of 0.000, indicating a significant difference between pre-test and post-test scores after using the training material. A t-value of -5.176, with an average difference of 19.23, indicates a very significant improvement in student learning outcomes. The conclusion that ethnomathematics-based teaching materials successfully improve students' abilities in subject matter is further strengthened by the 95% confidence interval, which does not include zero.

CONCLUSION

The goal of this study was to create and assess ethnomathematics-based flat form math teaching resources that are reliable, useful, and efficient for third-grade elementary pupils. The results show that this goal has been accomplished. High validation scores from material and media specialists attest to the pedagogical soundness and cultural relevance of the instructional materials produced utilizing the Borg and Gall paradigm. These findings show that the product satisfies academic requirements while also taking into account the learning demands and developmental traits of the pupils (Alemnge, 2019)

Greater significantly, the main goal of giving abstract mathematical concepts greater context and significance was achieved by the incorporation of regional cultural components into mathematics education. The created teaching resources functioned as a link between students' cultural experiences and formal mathematics comprehension rather than only as instructional medium. This connection supports the purpose of ethnomathematics to establish mathematics as a living knowledge system anchored in ordinary life, so encouraging deeper conceptual grasp.

From an instructional standpoint, the notable improvement in students' learning outcomes shows that the teaching resources successfully support learning objectives pertaining to comprehension, application, and interpretation of flat form ideas. This implies that resources based on ethnomathematics are not only practical for use in the classroom but

137

MUBTADI: Jurnal Pendidikan Ibtidaiyah
Vol. 7 No. 2, Januari – Juni 2026
P – ISSN : 2715 – 7067
E – ISSN : 2720 – 8850

also enhance the quality of mathematics instruction, especially in elementary school settings that prioritize contextual and student-centered learning.

In summary, this work advances mathematics education by offering a useful approach for creating culturally relevant instructional resources that complement curricular requirements and learner characteristics. The findings support the value of ethnomathematics as a teaching strategy and lay the groundwork for further study and broader use, particularly in examining its effects on students' attitudes, higher-order cognitive abilities, and long-term conceptual recall.

BIBLIOGRAPHY

Ade Rahayu. (2025). Metode Penelitian dan Pengembangan (R&D) : Pengertian, Jenis dan Tahapan. *Jurnal Pendidikan Dan Pembelajaran*, *4*(3), 459–470. https://doi.org/10.54259/diajar.v4i3.5092

Alemnge, F. (2019). Impact of School Requirements on Pupils' Academic Performance. *Journal of Education and Development*, *3*(1), 76–87. https://doi.org/10.20849/jed.v3i1.577

Asare, B. (2026). Influence of ethnomathematics-based instruction on students' attitudes, participation, and cultural connections in mathematics learning in Ghana. *Cogent Education*, *13*(1). https://doi.org/10.1080/2331186X.2025.2612395

Ayd, A., & Aytekin, C. (2018). Teaching Materials Development and Meeting the Needs of the Subject : A Sample Application. *Canadian Center of Science and Education*, *11*(8), 27–38. https://doi.org/10.5539/ies.v11n8p27

Basyah, M. M. (2019). *Konsep Penyusunan Dan Pelaksanaan Evaluasi Dalam Proses Belajar Mengajar menurut Suharsimi Arikunto*. *9439*, 36–49.

Conroy, M. A., Sutherland, K. S., Algina, J., & Jessee, G. (2019). Outcomes of the BEST in CLASS Intervention on Teachers' Use of Effective Practices, Self-Efficacy, and Classroom Quality. *School Psychology*, *48*(1), 31–45. https://doi.org/10.17105/2018-0003.V48-1

Dari Wulan Sekar, & Jatmiko. (2024). Seminar Nasional Analisis Peran Etnomatematika dalam Pembelajaran Matematika. *Seminar Nasional Sains, Kesehatan, Dan Pembelajaran 3 (SISKESJAR)*, *3*, 269–278.

Diefenbach, T. (2009). Are case studies more than sophisticated storytelling?: Methodological problems of qualitative empirical research mainly based on semi-structured interviews. *Qual Quant*, 875–894. https://doi.org/10.1007/s11135-008-9164-0

Hamid, S., & Safira, I. (2025). Proyek Penguatan Profil Pancasila Berbasis Kearifan Lokal Dalam Mengembangkan Karakter Tanggung Jawab Peserta Didik Sekolah Dasar The Pancasila Strengthening Project Based on Local Wisdom in Developing the Responsible Character of Elementary School Students Pendahuluan Metode Penelitian Metodologi penelitian ini menggunakan pendekatan eksperimen dengan desain penelitian kualitatif berdasarkan model. *5*(2), 296–304.

https://doi.org/10.35965/bje.v5i2.5293

Jayadinata, A. K. (n.d.). Pengaruh pendekatan kontekstual berbasis etnomatematika budaya sunda terhadap kemampuan pemahaman dan disposisi matematis siswa pada materi persegipanjang. 761–770.

Niam, A. F., Putri, L. I., & Rinjani, E. D. (2022). Inovasi Pengembangan Flipbook E-Lkpd Berpendekatan Etnomatematika Materi Bangun Datar Pada Kelas Iv Sekolah Dasar. *Seminar Nasional Pendidikan*, 20.

Noor, M. A. F., & Noer, I. N. (2015). Pengembangan Bahan Ajar Matematika Berbasis Etnomatematika Untuk Meningkatkan Pemahaman Matematik Siswa Kelas Iii Sekolah Dasar. *Jurnal Bidang Pendidikan Dasar (JBPD)*, *3*(2), 1–6.

Palopo, P. K. (2023). Pengembangan Model Penilaian Autentik Pada Pembelajaran Tematik Di Kelas Iv Sdn 41 Batu Putih Kota Palopo.

Saleh, S. (2017). *Penerbit Pustaka Ramadhan, Bandung*. Pustaka Ramadhan.

Setiawan, H. (2017). Pengembangan Instrumen Asesmen Autentik Kompetensi Pada Ranah Keterampilan Untuk Pembelajaran Tematik Di Sekolah Dasar. 874–882.

Shapiro-wilk, U., Mises, U. C., & Anderson-darling, U. (2015). Perbandingan Power of Test dari Uji Normalitas Metode Bayesian ,. *11*(2), 1101–1105.

Siswa, M., Iii, K., & Dasar, S. (2014). *Jurnal Bidang Pendidikan Dasar (JBPD) http://ejournal.unikama.ac.id/index.php/JBPD Vol. 4 No.1*. *4*(1), 80–93.

Slamet, F. A. (2022). *MODEL PENELITIAN PENGEMBANGAN (R n D)* (Pertama).

Suastra, I. W., Bagus, I., Arnyana, P., & Mandalika, U. P. (2024). Etnomatematika : Eksplorasi Budaya Sasak " Nyongkolan " Sebagai Sumber Belajar Matematika Bahwa Matematika Tidak Hanya Bersifat Universal Tetapi Juga Dapat Dipengaruhi Oleh Pemahaman Konseptual Siswa Dan Memotivasi Mereka Untuk Belajar Lebih Aktif . Selain Kebutuhan Untuk Mengintegrasikan Pembelajaran Berbasis Proyek Dan Konteks Nyata . *12*(2), 141–158.

Sutrisno, Tri. 2018. *Merekontruksi Kurikulum Berbasis Karakter di Sekolah Dasar. Jurnal*

Tindaon, T. M., Nadeak, S. L., Sarma, L., & Pakpahan, U. (2025). Pengaruh Pengimplementasian Etnomatematika Terhadap Minat Belajar Matematika Pada Siswa Sekolah Dasar. *2*, 1–8.

Ulfah, M., Darmansyah, & Rehani. (n.d.). Instrumen pengujian produk pembelajaran (pengujian validitas, praktikalitas, efektivitas). *Jurnal Penelitian Dan Pendidikan Agama Islam*, *3*, 43–51.

Waruwu, M. (2024). Metode Penelitian dan Pengembangan (R&D): Konsep, Jenis, Tahapan . *Jurnal Ilmiah Profesi Pendidikan*.

Wero, L., Ngurah, D., Laksana, L., & Lawe, Y. U. (2021). Integrasi Konten dan Konteks Budaya Lokal Etnis Ngada dalam Bahan Ajar Multilingual untuk Pembelajaran Siswa Sekolah Da*sar*. *9*(3), 515–522.

Wulandari, R., Putri, I., Amiza, D., Annas, F., & Kunci, K. (2024). Pengembangan Model Inovasi Pembelajaran Berbasis Research and Development di SMP N 3 Pasaman Barat. *Journal of Educational Management and Strategy*, *03*(02), 117–124.