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Ethnomathematical Exploration of Siak Woven Shawl Motifs to Reveal Mathematical Concepts

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Abstract

Mathematical ideas embedded in local cultural artifacts offer opportunities to connect abstract school mathematics with cultural practices. This study explored ethnomathematical concepts in the motifs of Siak woven shawls produced by Tenun Siak Annisa. A qualitative exploratory approach was employed at the Tenun Siak Annisa craft site in Sungai Mempura, Siak, Riau, in July 2023. Data were collected through observation, semi-structured interviews with a craftsperson, and documentation, and examined using domain, taxonomic, componential, and cultural-theme analyses with methodological triangulation. The findings identified four principal motif domains—*pucuk rebung*, *tampuk manggis*, *siku awan*, and *siku tunggal*—containing concepts related to plane geometry, geometric reflection, and arithmetic series. The geometric figures included equilateral triangles, rhombi, and hexagons. Reflection was evident in mirrored motif arrangements, while regular sequences of motif elements were interpreted in terms of arithmetic-series concepts. These findings indicate that Siak woven-shawl motifs have potential as contextual cultural resources for mathematics learning while also supporting the documentation of local cultural knowledge. The study contributes empirical documentation of connections between Siak weaving motifs and mathematical concepts, providing a foundation for developing culturally contextualized mathematics learning materials.

Keywords: Ethnomathematics; Siak Weaving; Woven Shawl Motifs; Geometric Concepts; Culturally Contextualized Mathematics Learning

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INTRODUCTION

Mathematics is a field of study comprising fundamental elements such as facts, concepts, operations, and principles that are abstract in nature (Pangadongan & Dimpudus, 2024). This abstract character means that learning mathematics requires experiences that help students connect formal concepts with real-life situations. Mathematical concepts are not merely present in classroom symbols and procedures; they are also found in human activities, object shapes, patterns, measurements, and the ways societies organize their knowledge (Putri et al., 2024). Consequently, mathematics is closely linked to everyday life and can be used to develop systematic thinking skills.

The relationship between mathematics and culture is a focal point in the study of ethnomathematics. Ethnomathematics posits that mathematical practices evolve within specific social and cultural contexts. Activities such as counting, measuring, patterning, locating, designing, and classifying can be found in various cultural products and practices (Mailani et al., 2024). This approach is significant because mathematics and culture essentially evolve in tandem, even though educational practice often perceives them as separate entities (Aila & Sari, 2026). Ethnomathematics also enables the study of mathematical concepts through cultural activities familiar to students, thereby making learning more contextual (Fauzi & Setiawan, 2020).

Developments in ethnomathematics research indicate that cultural artifacts, visual patterns, and traditional activities are frequently utilized to reveal concepts related to geometry, transformations, numbers, and measurement. A systematic review by Krisdiana et al., (2024) highlights the growth of ethnomathematics research and emphasizes the importance of cultural representations that have not yet been extensively documented. Setiawan et al., (2025) also demonstrate that geometry is among the topics most frequently studied using the ethnomathematics approach. Research on Jakarta batik has identified various geometric shapes and transformations such as symmetry, reflection, dilation, and rotation within cultural motifs. In the context of weaving, studies on Timor Island have revealed geometric and reflection concepts inherent in the weaving process (Oktavianti et al., 2022). These findings demonstrate that cultural products can serve as sources for identifying mathematical concepts that are not always explicitly apparent.

Siak weaving is a cultural heritage of the Riau Malay community, holding both historical and social significance. Siak woven fabric developed within the environment of the

Siak Sultanate and has been passed down as part of the community's traditions. Its historical development is linked to cultural ties between the Siak region and the Malay regions of the Malay Peninsula (Lubis et al., 2024). The evolution of Siak Malay weaving also reflects the continuity of the weaving tradition as a component of local cultural richness (Sarwoedi et al., 2018). Beyond its function as attire for traditional ceremonies and specific events, Siak weaving motifs embody symbols and values connected to the worldview of the Siak Malay people (Khaerani et al., 2024). The *selendang* (shawl) a form of Siak weaving features motifs adorning both its central area and edges, visually creating patterns that offer potential for mathematical analysis.

Previous research on Siak weaving has demonstrated that weaving motifs can be linked to concepts of transformation and patterning. Sulfayanti et al., (2022), for instance, examined the application of reflection in Riau Malay weaving motifs, while Wahyuni et al., (2022) discussed frieze patterns in Siak weaving motifs and their implementation in mathematics education. Studies on textiles from other regions have also shown that motifs can serve as resources for learning mathematics, Guslinda & Kurniaman, (2016) developed ethnomathematics-based student worksheets using Sambas weaving motifs to facilitate the understanding of mathematical concepts. However, the study underpinning this article specifically explores the *selendang* (shawl) motifs of Siak Annisa weaving by integrating the identification of motif shapes, cultural meanings, and the mathematical concepts emerging from these patterns. Consequently, the research focus extends beyond a single geometric concept to encompass the connections between the motifs, reflection, and arithmetic series.

Theoretically, this study is grounded in the idea that ethnomathematics acts as a bridge between formal mathematical knowledge and community cultural practices (Jeheman et al., 2019). The study's novelty lies in documenting the relationship between Siak Annisa *selendang* motifs and various mathematical concepts identified through a triangulated approach involving observation, interviews, and documentation. These findings can enrich the range of local contexts used in teaching geometry and patterns while simultaneously supporting efforts to preserve cultural knowledge. Against this backdrop, this study aims to explore the ethnomathematical concepts found in Siak Annisa *selendang* motifs and to describe their connections to mathematical concepts applicable in an educational setting.

METHODS

This study employs a qualitative, exploratory approach to uncover the mathematical concepts embedded in the motifs of Siak woven shawls *(selendang)*. The research was conducted at the Annisa Siak Weaving workshop the production site serving as the study's focal point located in Sungai Mempura Village, Mempura District, Siak Regency, Riau Province, in July 2023.

The primary participants were artisans from the Annisa Siak Weaving workshop, who provided information regarding the history, production process, motif forms, usage, and symbolic meanings of the shawl motifs. Primary data were gathered through direct interaction with informants and observation of the cultural artifacts, while supporting data were obtained from relevant documentation and literature. Data collection involved three techniques: observation, semi-structured interviews, and documentation. The researcher served as the primary instrument, supported by observation sheets, interview guides, field notes, and a camera.

Data validity was ensured through method triangulation, comparing information obtained from observation, documentation, and interviews. Data analysis followed a sequence comprising domain analysis, taxonomic analysis, componential analysis, and cultural theme analysis. Domain analysis was used to define the ethnomathematical scope specifically, the forms of the shawl motifs. Taxonomic analysis detailed the motif types based on their positioning and variations. Componential analysis identified the constituent elements and mathematical characteristics of the motifs, while cultural theme analysis linked the motif forms to mathematical concepts and their symbolic meanings. The analysis proceeded inductively until mathematical concepts consistent with the field data were identified.

RESULTS

This study focuses on the Siak woven shawl produced by Tenun Siak Annisa in Sungai Mempura Village, Mempura District, Siak Regency, Riau Province. Research data were gathered through observation, interviews, and documentation. Data collection and analysis revealed four primary motifs in the Annisa Siak woven shawl: *pucuk rebung* (bamboo shoot), *tampuk manggis* (mangosteen calyx), *siku awan* (cloud elbow), and *siku tunggal* (single elbow). These four motifs differ in terms of positioning, shape, variation, and cultural

significance. Further analysis indicates that the shapes and arrangements of these motifs embody several mathematical concepts that can be examined from an ethnomathematical perspective specifically geometry, reflection transformations, and arithmetic patterns or sequences.



Figure 1. Annisa Siak Woven Shawl

Figure 1 illustrates the overall form of the Annisa Siak Woven Shawl, which serves as the object of this study. The fabric features a layout of motifs positioned at the ends, center, and sides of the shawl. The placement and repetition of these motifs provide the basis for identifying the geometric shapes, reflections, and numerical patterns present in the fabric.

Based on observations, documentation, and interviews, the *pucuk rebung* (bamboo shoot) motif was identified at the ends of the shawl. This motif is triangular in shape, with a total of ten *pucuk rebung* motifs distributed across both ends of the fabric. The design includes variations of the full *pucuk rebung* motif, arranged symmetrically on the left and right sides. Informants explained that the shape resembles a bamboo shoot and symbolizes strength, determination in achieving goals, good fortune, and hope. From a mathematical perspective, the primary *pucuk rebung* shape exemplifies the concept of a triangle, while the symmetrical correspondence between the left and right sides demonstrates the concept of reflection.

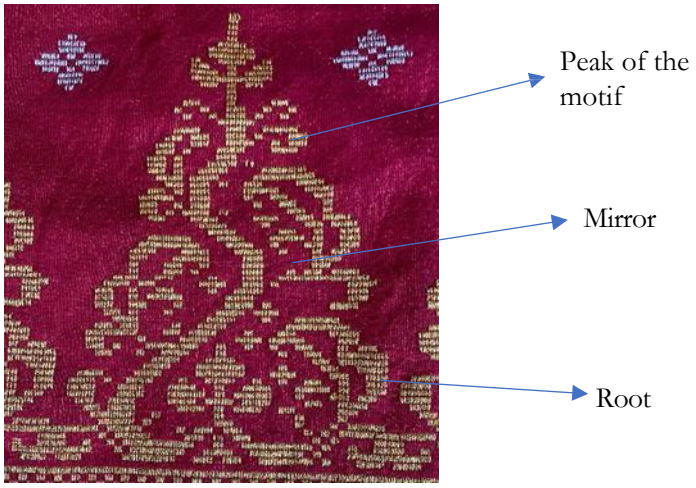


Figure 2. *Pucuk Rebung* (Bamboo Shoot) Motif

Figure 2 displays the *pucuk rebung* (bamboo shoot) motif found at the ends of the Siak woven *selendang* (shawl). The primary element of the motif is identifiable as a triangle, while the symmetrical arrangement of the left and right sections illustrates the concept of reflection. Thus, Figure 2 serves as visual evidence of ethnomathematical findings regarding triangular geometry and reflection transformations.

The second motif is the *tampuk manggis* (mangosteen calyx), located in the center or core of the shawl. Interviews revealed that a single shawl features 14 *tampuk manggis* motifs when fully unfurled. The primary shape of the *tampuk manggis* motif is associated with the rhombus, while a hexagonal shape is also found at its center. A variation observed is the *kembang empat* (four-flower) design; each cluster contains two types of flowers with four of each, resulting in a total of eight components. Culturally, the *tampuk manggis* motif signifies affection, mutual respect, gentleness, and purity of heart. From an ethnomathematical perspective, the rhombus and hexagonal shapes demonstrate concepts of planar geometry, while the repeating arrangement of the motifs indicates pattern regularity.

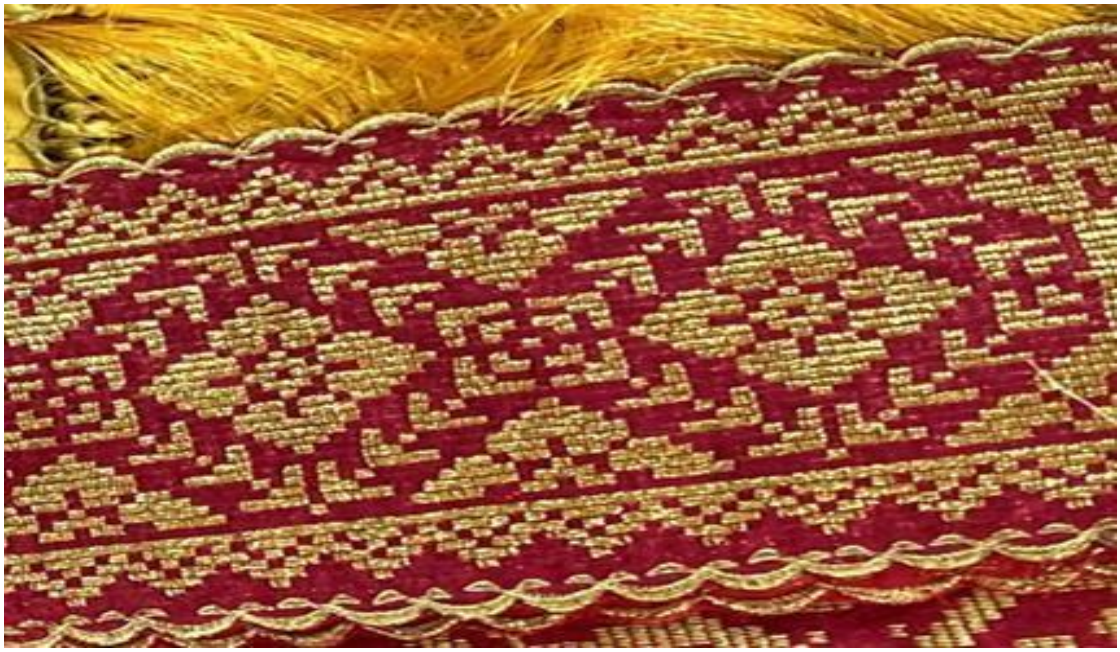


Figure 3. Mangosteen Calyx Motif

Figure 3 illustrates the *tampuk manggis* (mangosteen calyx) motif located at the center of the Siak woven shawl *Selendang Tenun Siak*. A diamond shape is evident in the motif's primary arrangement, while its central section can be associated with a hexagonal form. This image serves as visual evidence of geometric elements specifically diamonds and hexagons and the orderly arrangement of the motif.

The third motif is the *siku awan* (cloud corner), found along the sides of the shawl. This motif features a variation known as *awan bertindih* (overlapping clouds), characterized by a stacked arrangement of cloud shapes. According to the analysis in research, the motif undergoes a 35° rotation to achieve a vertical orientation and is subsequently combined with a reflection to create a geometric composition. The informant describes the *siku awan* motif as a form that curves and tapers upward, resembling a crown. This motif embodies values of good character, courtesy, and refinement of conduct. Beyond its geometric form and transformation, the analysis of cultural themes within the research source also links this motif to an arithmetic progression based on the arrangement pattern found on the fabric.



Figure 4. Cloud Corner Motif

Figure 4 displays the *siku awan* (cloud-like angular) motif located along the sides of the Siak woven shawl. The arrangement of the motif exhibits a regular repetition of shapes. In the ethnomathematical analysis, this section serves to illustrate the identification of patterns or arithmetic sequences as detailed in the research findings and to demonstrate the use of geometric transformations in the motif's composition. Consequently, Figure 4 serves as the primary visual reference for the identified patterns or sequences.

The fourth motif is the *siku tunggal* (single angular) motif, found at the ends of the shawl. Observations and interviews reveal that the *siku tunggal* motif incorporates both diamond and triangular shapes. These motifs are arranged at the ends of the fabric, featuring a light brown color set against a golden-yellow background. Culturally, the *siku tunggal* motif reflects the attitudes and character of the Malay community, emphasizing unity of faith and social harmony. From a mathematical perspective, the diamond and triangular shapes exemplify concepts of plane geometry.



Figure 5. Single Siku Motif

Figure 5 illustrates the *siku tunggal* motif found at the ends of the Siak woven shawl *Selendang Tenun Siak*. The diamond and triangular shapes within the motif demonstrate the presence of planar geometry concepts. Thus, Figure 5 serves as visual evidence of the geometric elements found in the *siku tunggal* motif. Based on the overall findings from observations, documentation, and interviews, the ethnomathematical elements identified in the Annisa Siak woven shawl can be categorized into three main concepts: geometry, reflection, and arithmetic patterns/sequences. A mapping of these findings is presented in Table 1.

Table 1. Ethnomathematical Findings On Siak Woven Shawl Motifs (Annisa)

Motif	Observed Shapes/Patterns	Ethnomathematics Concepts	Evidence Image
Pucuk rebung	Triangle; symmetrical left-right arrangement	Triangle geometry and reflection	Figure 2
Tampuk manggis	Rhombus and hexagon; four-petal flower pattern	Geometry and patterns	Figure 3
Siku awan	Winding, tapering shapes; overlapping and repeating cloud forms	Reflection/transformation and patterns/sequences	Figure 4
Siku tunggal	Rhombus and triangle	Plane geometry	Figure 5

Source: Processed data, 2026

The first finding relates to geometry, evident in several motifs featuring distinct shapes. The *pucuk rebung* (bamboo shoot) motif displays a triangular shape, the *tampuk manggis* (mangosteen calyx) motif appears as a rhombus and a hexagon, and the *siku tunggal* (single elbow) motif exhibits both rhombus and triangular forms. Reflectional symmetry is also observed, particularly in the *pucuk rebung* motif, which features matching patterns on its left

and right sides. This concept of reflection is likewise apparent in the arrangement of the *tampuk manggis* and *siku awan* (cloud elbow) motifs. These findings are primarily illustrated in Figures 2, 3, and 5.

The subsequent finding concerns patterns and arithmetic sequences, demonstrated by the repetition and orderly arrangement of motifs specifically the *siku awan* motif shown in Figure 4. Although the study does not explicitly detail numerical values or sequence differences, the regularity of the motif repetition indicates a connection to the concept of arithmetic sequences. Overall, the Annisa Siak Woven Shawl incorporates mathematical concepts namely geometry, reflection, and patterns or arithmetic sequences manifested through the shapes and arrangements of the fabric's motifs.

DISCUSSION

Research findings indicate that the motifs of the *Selendang Tenun Siak Annisa* (Siak woven shawl) can be interpreted as mathematical representations formed through cultural practices. At the most fundamental level, the motif shapes reveal geometric objects recognizable by the properties and arrangement of their lines. The *pucuk rebung* (bamboo shoot) motif displays an equilateral triangle, while the *tampuk manggis* (mangosteen calyx) and *siku tunggal* (single elbow) motifs exhibit rhombus shapes. A hexagonal shape is also found within the center of the *tampuk manggis* motif. These findings demonstrate that geometric concepts exist as part of the motifs' visual structure, rather than as concepts intentionally articulated in mathematical language by the artisans. From an ethnomathematical perspective, this situation illustrates that communities can generate and utilize mathematical structures through everyday cultural practices (Indriati et al., 2022).

The presence of plane figures in Siak weaving motifs aligns with ethnomathematical research on other cultural artifacts. Hendriyanto et al., (2023) identified various plane figures in Jakarta Batik motifs, as well as geometric transformations such as reflection and rotation. Indriani & Noordyana, (2021) also discovered geometric shapes and reflections in weaving activities on Timor Island. These similarities demonstrate that visual patterns in traditional fabrics possess structures that can be translated into mathematical language. In the context of Siak, this study expands upon existing documentation by showing that a single cultural product can embody multiple concepts simultaneously, ranging from plane figures to numerical patterns.

The finding regarding reflection is significant because the regularity of the motifs is evident in the relationship between their sides. Informants noted that the *pucuk rebung* pattern is mirror-like, as the left and right sides share the same design. In the study of transformation geometry, reflection is an isometric transformation that preserves an object's size and shape. Thus, the motifs can serve to bridge visual observations of the fabric with the formal concept of reflection. These findings reinforce the results of research by Dominikus et al., (2023) regarding the application of reflection to Riau Malay weaving motifs, demonstrating the continuity between the study of Riau Malay motifs and the specific study of the Annisa Siak woven shawl. The study by Fikri et al., (2021) on frieze patterns in Siak weaving motifs also indicates that the regularity and transformations found in weaving can be utilized in mathematics education.

Beyond geometry, the study identified regularities linked to arithmetic sequences within the arrangement of motifs. The presence of number patterns in the woven artifacts demonstrates that mathematical regularity can be discerned not only from shapes but also from the sequencing and repetition of elements. This is significant because ethnomathematics extends beyond the recognition of geometric shapes to encompass activities such as counting, measuring, pattern-making, and determining relationships between elements. A systematic review by Arfani, (2022) confirms the continued evolution of ethnomathematics research across diverse cultural forms and approaches, while Indriani & Noordyana, (2021) highlight geometry as a dominant topic in the field. Findings regarding the Siak Woven Shawl *Selendang Tenun Siak* indicate that the concept of number patterns also serves as a relevant context.

The implications of this study lie in the potential to use the Siak Woven Shawl as a context for mathematics learning that is closely aligned with the students' cultural environment. The identified features can be developed into visual examples for teaching topics such as triangles, quadrilaterals, hexagons, symmetry, reflection, patterns, and arithmetic sequences. Utilizing local contexts has the potential to help students bridge the gap between concrete objects and abstract concepts while simultaneously recognizing the cultural values within their environment. This aligns with research by Dominikus et al., (2023), which demonstrated that Sambas weaving motifs could be developed into ethnomathematics-based student worksheets. Thus, the study's findings go beyond mere cultural documentation; they can serve as a foundation for developing instructional materials that integrate mathematical knowledge with local culture.

However, the study has limitations. Data collection was conducted at a single craft workshop with one primary artisan as the informant; consequently, the study did not extensively compare motif variations across other artisans or Siak weaving centers. The analysis focuses on the forms of the motifs and their connections to mathematical concepts, rather than on testing their effectiveness in an educational setting. Consequently, the article's findings are best understood as the result of a contextual exploration that serves as a foundation for future research. Subsequent studies could compare motifs from various artisans, examine the consistency of mathematical concepts through more detailed pattern measurements, and develop and test teaching materials based on the Siak Woven Shawl *Selendang Tenun Siak* with learners.

CONCLUSION

This study demonstrates that the *Selendang Tenun Siak* (Siak woven shawl) motifs embody mathematical concepts identifiable through an ethnomathematical approach. Four primary motifs were identified: *pucuk rebung* (bamboo shoot), *tampuk manggis* (mangosteen calyx), *siku awan* (cloud elbow), and *siku tunggal* (single elbow). These motifs reveal geometric concepts involving 2D shapes specifically equilateral triangles, rhombuses, and hexagons as well as transformation geometry (reflection) and arithmetic series concepts found in the regularity of the motif arrangements. These findings illustrate that mathematical structures are inherent in cultural artifacts through their forms, repetitions, and patterned regularities.

From a scholarly perspective, this research provides empirical documentation regarding the relationship between Siak weaving culture and mathematical concepts, thereby strengthening ethnomathematical studies focused on weaving artifacts. Practically, *Selendang Tenun Siak* motifs can serve as a context or visual resource for teaching geometry, transformations, patterns, and arithmetic series. Future research should aim to expand the study's scope regarding locations and informants, compare motif variations across different artisans, and develop as well as test teaching materials based on Siak weaving for mathematics instruction.

REFERENCES

Aila, & Sari, M. (2026). Eksplorasi Etnomatematika pada Batik Incoang Kerinci sebagai Sumber Belajar pada Pembelajaran Geometri di Sekolah Menengah Pertama. *Jurnal Cendekia: Jurnal Pendidikan Matematika, 10*(1), 90–104. https://doi.org/10.31004/cendekia.v10i1.4000

Arfani, M. (2022). Peristiwa dalam Episode Pertunjukan Tradisional Dulmuluk. *Jurnal Sitakara, 7*(2), 291–299. https://doi.org/10.31851/sitakara.v7i2.9053

Bunari, Fikri, A., Pernantah, P. S., & Al-Fiqri, Y. (2021). Perkembangan Pembuatan Tenun Melayu Siak: Suatu Tinjauan Historis. *Diakronika, 21*(1), 71–82. https://doi.org/10.24036/diakronika/vol21-iss1/170

Dominikus, W. S., Nubatonis, O. E., Udil, P. A., & Blegur, I. K. S. (2023). Exploration of the weaving activities in Timor Island for mathematics learning. *Ethnomathematics Journal, 4*(1), 1–18. https://doi.org/10.21831/ej.v4i1.58473

Fauzi, A., & Setiawan, H. (2020). Etnomatematika: Konsep Geometri pada Kerajinan Tradisional Sasak dalam Pembelajaran Matematika di Sekolah Dasar. *Didaktis: Jurnal Pendidikan dan Ilmu Pengetahuan, 20*(2), 118–128. https://doi.org/10.30651/didaktis.v20i2.4690

Guslinda, & Kurniaman, O. (2016). Perubahan Bentuk, Fungsi dan Makna Tenun Songket Siak pada Masyarakat Melayu Riau. *Primary: Jurnal Pendidikan Guru Sekolah Dasar, 5*(1), 29–42. https://primary.ejournal.unri.ac.id/index.php/JPFKIP/article/view/1099

Hendriyanto, A., Priatna, N., Juandi, D., Dahlan, J. A., Hidayat, R., Sahara, S., & Muhaimin, L. H. (2023). Learning mathematics using an ethnomathematics approach: A systematic literature review. *Journal of Higher Education Theory and Practice, 23*(7), 59–74. https://doi.org/10.33423/jhetp.v23i7.6012

Indriani, N. D., & Noordyana, M. A. (2021). Kemampuan Koneksi Matematis melalui Model Pembelajaran Connecting, Organizing, Reflecting, and Extending dan Means Ends Analysis. *Plusminus: Jurnal Pendidikan Matematika, 1*(2), 339–352. https://doi.org/10.31980/plusminus.v1i2.906

Indriati, M., Turmudi, & Dahlan, J. A. (2022). Frieze pattern on Siak weaving motifs and their implementation in mathematics learning. *JNPM (Jurnal Nasional Pendidikan Matematika), 6*(4), 761–776. https://doi.org/10.33603/jnpm.v6i4.7711

Jeheman, A. A., Gunur, B., & Jelatu, S. (2019). Pengaruh Pendekatan Matematika Realistik terhadap Pemahaman Konsep Matematika Siswa. *Mosharafa: Jurnal Pendidikan Matematika, 8*(2), 191–202. https://journal.institutpendidikan.ac.id/index.php/mosharafa/article/view/552

Khaerani, Arismunandar, & Tolla, I. (2024). Peran Etnomatematika dalam Meningkatkan Mutu Pembelajaran Matematika: Tinjauan Literatur. *Indonesian Journal of Intellectual Publication, 5*(1), 20–26. https://doi.org/10.51577/ijipublication.v5i1.579

Krisdiana, M., Pujiastuti, H., & Rosmilawati, I. (2024). Pengaruh Pembelajaran Etnomatematika terhadap Hasil Belajar Matematika Siswa Kelas VI Sekolah Dasar. *Ideguru: Jurnal Karya Ilmiah Guru, 9*(3), 2020–2029. https://doi.org/10.51169/ideguru.v9i3.1286

Lubis, A. P., Sirait, C. D., Mailani, E., Purba, L. C. M., Ketaren, M. A., & Maharaja, S. (2024). Efektivitas Pembelajaran Matematika Berbasis Etnomatematika untuk Penguatan

Nilai Budaya. *Algoritma: Jurnal Matematika, Ilmu Pengetahuan Alam, Kebumian dan Angkasa, 2*(5), 228–235. https://doi.org/10.62383/algoritma.v2i5.242

Mailani, E., Rarastika, N., Butar-Butar, C. A., Purba, J. E., & Purba, D. S. (2024). Pendekatan Etnomatematika dalam Pembelajaran Geometri Menggunakan Pola Lantai Rumah Adat Nusantara. *Journal Educational Research and Development, 1*(2), 179–184. https://doi.org/10.62379/jerd.v1i2.121

Oktavianti, D., Hakim, A. R., Hamid, A., Nurhayati, & Mulyatna, F. (2022). Eksplorasi Etnomatematika pada Batik Jakarta dan Kaitannya dengan Pembelajaran Matematika. *JKPM (Jurnal Kajian Pendidikan Matematika), 8*(1), 29–44. https://doi.org/10.30998/jkpm.v8i1.14921

Pangadongan, N. K., & Dimpudus, A. (2024). Etnomatematika terhadap Konsep Geometri pada Ukiran Toraja. *Bilangan: Jurnal Ilmiah Matematika, Kebumian dan Angkasa, 2*(4), 150–154. https://doi.org/10.62383/bilangan.v2i4.172

Putri, W. A., Alpusari, M., & Fendrik, M. (2024). Pengembangan Modul Ajar Berbasis Etnomatematika pada Materi Geometri untuk Siswa Sekolah Dasar. *Didaktik: Jurnal Ilmiah PGSD STKIP Subang, 10*(1), 1897–1910. https://doi.org/10.36989/didaktik.v10i1.2730

Sarwoedi, Marinka, D. O., Febriani, P., & Wirne, I. N. (2018). Efektifitas Etnomatematika dalam Meningkatkan Kemampuan Pemahaman Matematika Siswa. *Jurnal Pendidikan Matematika Raflesia, 3*(2), 171–176. https://doi.org/10.33369/jpmr.v3i2.7521

Setiawan, A., Nurfitriyanti, M., & Alfin, E. (2025). Eksplorasi Etnomatematika Batik dan Kaitannya dengan Pembelajaran Matematika pada Materi Geometri. *Jurnal Lebesgue: Jurnal Ilmiah Pendidikan Matematika, Matematika dan Statistika, 6*(3), 1300–1310. https://doi.org/10.46306/lb.v6i3.1019

Sulfayanti, N., Aziz, T. A., & El Hakim, L. (2022). Peran Etnomatematika dalam Pembelajaran terhadap Karakter Siswa. *Jurnal Pendidikan MIPA, 12*(4), 1167–1174. https://doi.org/10.37630/jpm.v12i4.773

Wahyuni, M., Zulfah, Astuti, & Zulhendri. (2022). The error in ethnomathematics exploration on Silat Perisai in Kampar District. *Journal of Education Research and Evaluation, 6*(3), 565–575. https://doi.org/10.23887/jere.v6i3.53041