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ANALYSIS OF ELEMENTARY SCHOOL STUDENTS' CREATIVE MATHEMATICAL THINKING THROUGH A LOCAL CULTURE-BASED CONTEXTUAL APPROACH: SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

Creative mathematical thinking is a higher-order thinking skill that elementary school students need to develop, yet it often remains underdeveloped in classroom practice. Contextual approaches grounded in local culture have been proposed as a way to make mathematics meaningful and to stimulate creative thinking. This study aims to systematically review the literature on the creative mathematical thinking of elementary school students taught through culture-based contextual approaches. The review followed the PRISMA 2020 guideline. Literature from 2016 to 2026 was searched in Google Scholar, Garuda, Springer Link, and Scopus using keywords related to creative thinking, mathematics, elementary school, contextual learning, and local culture. Studies were included when they explicitly addressed creative mathematical thinking of elementary students in culture-based or contextual learning. Duplicate records were removed before screening. Data were extracted on study type, participants, cultural context, indicators of creative thinking, and main findings, and were synthesized narratively. Of 412 records identified across databases, 6 studies were included after full-text assessment. The six empirical studies report gains in creative mathematical thinking under culture-based or contextual learning, although the indicators differ across studies (fluency, flexibility, originality, novelty, and elaboration). In one qualitative study, students' initial mathematical ability shaped the level of creative thinking reached. The reviews report that culture-based learning can increase motivation and engagement, while limited teacher capacity and learning resources remain barriers. The review underscores the need for empirical studies at the elementary level and for culture-based creative thinking instruments and teacher professional development.

Keywords: Creative Thinking, Contextual Approach, Local Culture, Elementary School.

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PRELIMINARY

Creative mathematical thinking is a higher-order thinking ability that students should develop from the elementary school level onward. This ability is reflected in *fluency* in

generating many ideas, *flexibility* in using various strategies, *originality* in finding unconventional solutions, and *elaboration* in developing ideas in full detail (Torrance, 1974). Process standards for primary and secondary education, now set by Permendikbudristek No. 16 Tahun 2022 and relevant to the Merdeka Curriculum, require learning that encourages students to think critically and creatively (Kemendikbudristek, 2022). Accordingly, developing creative mathematical thinking in elementary school is a curricular demand, not merely a methodological choice.

In practice, this ability often remains underdeveloped. Aji et al (2024) note that many students have not had the opportunity to develop creative thinking in mathematics learning at school. Pertiwi et al (2021) found that Grade V students with low mathematical ability reached only creative thinking level 1 (less creative) when solving problems in a local culture context, whereas students with high and medium ability reached level 3 (creative). This finding suggests that culturally contextual tasks alone are not enough; the quality of the tasks and the learning support also determine students' creative thinking achievement. Utari et al (2023) examine how a Creative Problem Solving model with a scaffolding strategy can improve mathematical creative thinking ability, although it does not focus on elementary students or local culture, so it is cited only as general evidence that instructional design matters.

As the authors' conceptual argument rather than a finding of the reviewed studies, one widely proposed effort is contextual learning, an approach that connects subject matter to real-world situations and encourages students to apply their knowledge in problem solving and higher-order thinking (Lynch, 2006). When the context comes from local culture, mathematics no longer seems foreign but becomes part of cultural practices close to students' lives. This idea is rooted in studies of mathematical ideas embedded in the cultural practices of communities (Rosa & Orey, 2011). Arion and Rosita (2024), through a systematic literature review, show that local culture-based approaches can increase learning motivation, student engagement, conceptual understanding, and creative problem-solving skills, while also helping to preserve local wisdom. Research on ethnomathematics has grown considerably in recent years (Noerhasmalina & Hidayatulloh, 2023), and studies linking it to creative thinking at the primary level have begun to appear (Indriani et al., 2025). The term ethnomathematics refers to the mathematics embedded in cultural practices (D'Ambrosio, 1985).

In this review, the constructs are defined operationally as follows. A contextual approach is learning that links mathematical content to situations students meet in everyday

life and asks them to apply it in problem solving. Local culture-based learning is a contextual approach in which those situations are drawn from the cultural practices of the students' own community. Ethnomathematics is the study of mathematics embedded in cultural practices and is treated here as a subset of local culture-based learning. These definitions were applied during screening to judge whether each study met criteria (3) and (4).

Nevertheless, existing studies remain scattered. Arion and Rosita (2024) focus on local culture-based learning in general, Aji et al (2024) review creative thinking in Indonesia without restriction to school level, and Astuti & Rozikin (2025) highlight the urgency of implementing local culture-based learning in elementary schools and the obstacles to doing so. Few reviews have specifically examined how elementary students' creative mathematical thinking is developed through a local culture-based contextual approach. This gap is the basis of the present study. Recent international studies have also addressed creative mathematical thinking among primary school students (Aldhafeeri & Alibraheim, 2026) providing a comparative reference for the present review.

The significance of this study lies in two areas. Theoretically, this review brings together three constructs that have often been discussed separately, namely creative mathematical thinking, the contextual approach, and local culture, specifically at the elementary school level. Previous studies generally addressed one or two of these constructs separately (Arion and Rosita, 2024). Practically, the review can serve as a reference for teachers, teaching-material developers, and researchers in designing mathematics tasks that are meaningful for elementary students while fostering their creative thinking.

Based on this discussion, this study addresses the following research questions. What are the characteristics of research on the creative mathematical thinking of elementary students taught through a local culture-based contextual approach? How is the creative mathematical thinking of elementary students reflected in local culture-based contextual learning, according to the reviewed studies? What factors support and hinder the development of elementary students' creative mathematical thinking through this approach?

METHODS

This study is a systematic literature review (*systematic literature review*) following the PRISMA 2020 guideline (Page et al., 2021). The review stages comprised formulating the research questions, searching the literature, selecting studies, extracting data, and synthesizing the results. The procedure is consistent with earlier systematic reviews in the ethnomathematics field (Iskandar et al., 2022).

The literature search was conducted in the Google Scholar, Garuda, Springer Link, and Scopus databases for publications from 2016 to 2026. The Scopus search used the same Boolean combination adapted to Scopus syntax on 8 November 2026. It returned no records within the scope of this review, so Scopus contributed no included studies. Springer Link was also searched. Records were retrieved on 8 November 2026 with the filters document type (journal articles) and subject area (Education) applied in the databases that offer them, in addition to the 2016–2026 date range; the total number of records identified across the four databases is reported in Figure 1. Because Google Scholar results cannot be fully reproduced, this limitation is discussed in the Limitations section. Keywords were formulated in Indonesian and English using the following Boolean combination: ("berpikir kreatif" OR "creative thinking") AND ("matematika" OR "mathematics") AND ("sekolah dasar" OR "elementary school") AND ("budaya lokal" OR "local culture" OR "kontekstual" OR "contextual").

The inclusion criteria were: (1) scientific journal articles published in 2016–2026; (2) research subjects were elementary school or madrasah ibtidaiyah students; (3) creative mathematical thinking was addressed explicitly; (4) learning or analysis used a local culture context or a contextual approach; and (5) full texts were available in Indonesian or English. Criteria (1) to (5) were required simultaneously: a study that addressed creative mathematical thinking without a local-culture or contextual learning component, or the reverse, was excluded. Exclusion criteria included duplicate publications, opinion articles without an analytical framework, and studies whose subjects were not elementary or madrasah ibtidaiyah students. Three review articles (Aji et al., 2024; Arion and Rosita, 2024; Astuti & Rozikin, 2025) were retained for conceptual mapping only and were not counted as empirical evidence, and are not among the six included empirical studies. Criterion (4) was applied to contextual approaches as well as to local-culture learning: Indriani et al. (2025) and Aldhafeeri and Alibraheim (2026) meet it through everyday or real-life contexts without a cultural component. Aji et al. (2024) and Arion and Rosita (2024) do not restrict their subjects to elementary school, which is why they are used only as background.

The selection process followed the four stages of the PRISMA 2020 flow, summarized in Figure 1. The identification stage collected all search results from the four databases, after which duplicates were removed. The screening stage involved reading titles and abstracts to assess the suitability of the topic and school level. The eligibility stage involved reading full texts to confirm the presence of empirical data or a clear analytical framework on creative mathematical thinking. The final stage, inclusion, determined the

studies to be analyzed in depth and recorded in the summary table. At each stage, the reasons for excluding studies were recorded so that the selection process could be audited by readers. The number of records at each stage and the reasons for full-text exclusion are reported in Figure 1. Screening and eligibility decisions were made by the author and checked by two lecturers of the course; formal independent double screening was not performed and inter-rater agreement was not calculated.

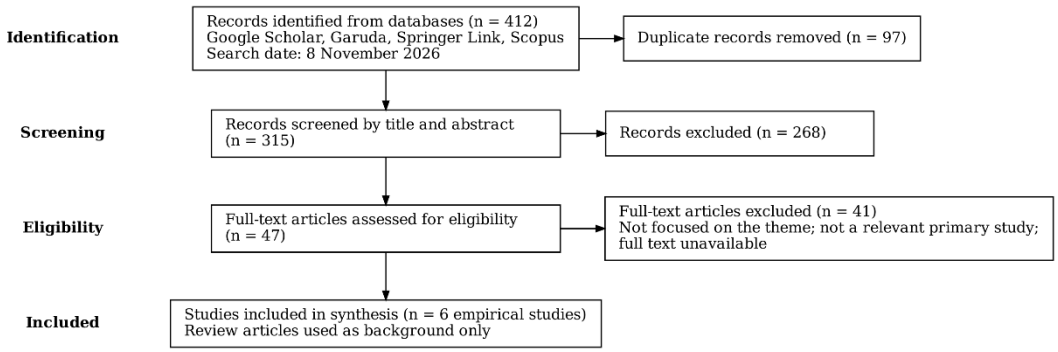


Figure 1. PRISMA 2020 flow diagram of the study selection process

Data extracted from each study included the author names and year, type of study, subjects and school level, cultural context or contextual approach, the creative thinking indicators used, and the main findings. Creative thinking indicators were grouped into four aspects: *fluency*, *flexibility*, *originality*, and *elaboration* (Torrance, 1974). The analysis was conducted narratively and thematically by comparing findings across studies to answer the three research questions.

Methodological quality was appraised with the JBI Critical Appraisal Checklist for quasi-experimental studies (nine items) for the five quantitative studies, and with the JBI Critical Appraisal Checklist for qualitative research for Pertiwi et al. (2021). Each item was rated Yes, No, Unclear, or not applicable (Table 3). The ratings describe the design and reporting of each study; they are not combined into a score and were made by a single reviewer (the author).

RESULT AND DISCUSSION

Table 1 summarizes the six empirical studies included in the synthesis (Pertiwi et al., 2021; Indriani et al., 2025; Syarifuddin et al., 2025; Dewi et al., 2026; Permata et al., 2023; Aldhafeeri & Alibraheim, 2026), Table 2 gives their characteristics, and the three review articles (Aji et al., 2024; Arion and Rosita, 2024; Astuti & Rozikin, 2025) were used as background only. Methodological quality is appraised in Table 3.

Table 1. Summary of the Six Included Empirical Studies

Author(s) and year	Type of study	Level/subjects	Focus and main findings
Pertiwi, Sugiaryo & Prihastari (2021)	Empirical, qualitative case study	Grade V, MIM Girimargo, Sragen (3 students, plus teacher and parents)	Ethnomathematics (batik) problems; high and medium ability reached creative level 3 (fluency and flexibility), low ability level 1 (fluency only).
Indriani, Rahmiati & Puspita (2025)	Empirical, quasi-experimental (control group, pretest–posttest)	Grade IV, SD Negeri 2 Surodakan, Trenggalek	Contextual approach in everyday situations (no explicit cultural component); experimental class 78 to 83, control class 76 to 78; $p < 0.05$.
Syarifuddin, Adiansha & Irfan (2025)	Empirical, quasi-experimental 2 × 2	Elementary school, Bima Regency (N = 80)	Ethnomathematics-based PjBL vs PBL, both with GeoGebra; PjBL higher overall and for students with high ethnomathematics understanding; no difference for low understanding.
Dewi, Suardipa & Winangun (2026)	Empirical, quasi-experimental, control group (pretest and posttest reported)	Grade V, SD Gugus I Buleleng (N = 60)	CTL with local wisdom; experimental class higher than control in creative thinking (N-gain 0.68 vs 0.31).
Permata, Trisiana & Sarafuddin (2023)	Empirical, pre-experimental (one-group pretest–posttest)	Grade V, SD Negeri Sambirejo Surakarta (N = 25)	Realistic mathematics with Gunungan local wisdom (triangle material); creative thinking rose from pretest to posttest ($t = -15.408$, significant); N-gain not reported.
Aldhafeeri & Alibraheim (2026)	Empirical, pre-experimental (one-group pre-/post-test)	Grade III, Dammam, Saudi Arabia (N = 22 female students)	Developed mathematics instructional unit on addition with real-life situations; significant gains in fluency, flexibility, originality, and overall score ($t = 16.316$, $p < .01$).

Table 2. Characteristics of the Six Included Studies

Study	Year	Design	Level / subjects	Cultural context	Instrument	Creative-thinking indicators
Pertiwi et al.	2021	Qualitative case study	Grade V, 3 students (high, medium, low ability)	Solo batik motifs (ethnomathematics)	Test, observation, interview, documentation	Fluency, flexibility, originality
Indriani et al.	2025	Quasi-experimental, control group, pretest–posttest	Grade IV, SD Negeri 2 Surodakan (classes IV-D and IV-B)	Contextual approach in everyday situations; no cultural component	Essay test (validated; reliability α = 0.854)	Fluency, flexibility, novelty
Syarifuddin et al.	2025	Quasi-experimental 2 × 2 (model × ethnomathematics level)	Elementary school, Bima Regency, N = 80 (40 per class)	Bima traditional houses (ethnomathematics)	30-item essay test	Original ideas, original works, original actions
Dewi et al.	2026	Quasi-experimental, control group (labelled posttest-only; pretest and N-gain reported)	Grade V, SD Gugus I Buleleng, N = 60	Local wisdom (Buleleng, Bali) in CTL	Essay test (validated, reliable)	Fluency, flexibility, originality, elaboration
Permata et al.	2023	Pre-experimental, one-group pretest–posttest	Grade V, SD Negeri Sambirejo Surakarta, N = 25 (test sections report 26)	Gunungan local wisdom (triangle material)	Creative thinking test, observation, documentation	Five general aspects: sensitivity, fluency, flexibility, originality, elaboration (indicators not itemized)
Aldhafeeri & Alibraheim	2026	Pre-experimental, one-group pre-/post-test	Grade III, 22 female students, Dammam, Saudi Arabia	Real-life situations in an addition unit; no cultural component	Creative thinking skills test in mathematics (validated; overall Cronbach's alpha 0.94)	Fluency, flexibility, originality

Table 3. Methodological Quality of the Five Quantitative Studies

Item	Dewi et al. (2026)	Indriani et al. (2025)	Syarifuddin et al. (2025)	Permata et al. (2023)	Aldhafeeri & Alibraheim (2026)
1. Cause and effect clear	Yes	Yes	Yes	Yes	Yes

Item	Dewi et al. (2026)	Indriani et al. (2025)	Syarifuddin et al. (2025)	Permata et al. (2023)	Aldhafeeri & Alibraheim (2026)
2. Comparison groups similar at baseline	Yes	Unclear	Unclear	N/A (one group)	N/A (one group)
3. Groups treated alike apart from intervention	Unclear	Unclear	Yes	N/A (one group)	N/A (one group)
4. Control or comparison group	Yes	Yes	Yes (PBL)	No	No
5. Pre- and posttest measurement	Yes	Yes	No (posttest only)	Yes	Yes
6. Follow-up complete or not applicable	N/A	N/A	N/A	N/A	N/A
7. Outcome measured in the same way	Yes	Yes	Yes	Yes	Yes
8. Outcome measured reliably (validity, reliability)	Yes	Yes	Unclear	No	Yes
9. Appropriate statistical analysis	Yes	Yes	Yes	Partly	Yes

Study Characteristics: Designs, School Levels, and Contexts

The six included studies differ in design, school level, and type of context. Pertiwi et al., (2021) used a qualitative case study with three Grade V students of high, medium, and low mathematical ability, together with their teacher and parents. Indriani et al., (2025) used a quasi-experimental design with a control group in two Grade IV classes. Syarifuddin et al., (2025) used a quasi-experimental 2 × 2 design comparing ethnomathematics-based PjBL with PBL, both supported by GeoGebra, with 80 elementary students in Bima Regency. Dewi et al., (2026) used a quasi-experimental control-group design with 60 Grade V students in Buleleng, Bali. The article labels its design posttest-only, but it reports pretest and posttest scores and N-gain for both classes, and this review reports those values. Permata et al., (2023) used a one-group pretest–posttest design with 25 Grade V students at SD Negeri Sambirejo Surakarta. Aldhafeeri and Alibraheim (2026) used a one-group pre-/post-test design with 22 third-grade female students in Dammam, Saudi Arabia, to test a developed instructional unit on addition. Mathematical topics are reported where the articles state them: geometry (Syarifuddin et al., 2025), triangles (Permata et al., 2023) and addition (Aldhafeeri and Alibraheim, 2026). The topic of the other studies is not stated explicitly in the articles.

Four studies draw on a local cultural context: Solo batik motifs as ethnomathematical problems (Pertiwi et al., 2021), the traditional houses of Bima (Syarifuddin et al., 2025), local wisdom in Buleleng within CTL (Dewi et al., 2026), and Gunungan local wisdom in realistic mathematics (Permata et al., 2023). Indriani et al. (2025) use a contextual approach

built on everyday situations, such as buying and selling and measuring classroom objects, without an explicit cultural component. Aldhafeeri and Alibraheim (2026) use real-life situations in an addition unit, also without a cultural component. Both are included under criterion (4) as contextual approaches rather than as local-culture contexts.

Methodological quality varied (Table 3). Baseline equivalence was reported only by Dewi et al., (2026), through an equivalence test. Instrument validity and reliability were reported by Dewi et al., (2026), Indriani et al. (2025) and Aldhafeeri and Alibraheim (2026), but not by Permata et al., (2023) and the article of Syarifuddin et al. (2025) does not report instrument validation. Permata et al., (2023) reported normality testing but not homogeneity testing. Pertiwi et al. (2021) a qualitative study, used source triangulation, but the article does not report researcher reflexivity or ethical approval.

Achievement of Creative Mathematical Thinking

Creative thinking was measured in different ways across studies, so the outcomes are not directly comparable. In the qualitative study, students with high and medium mathematical ability met two of the three indicators (fluency and flexibility) and reached level 3, creative, whereas the student with low ability met only fluency and reached level 1, less creative. None of the three students met the originality indicator (Pertiwi et al., 2021).

The quantitative studies favour the culture-based or contextual group. Indriani et al. (2025) report that the experimental class rose from a mean of 78 to 83 while the control class rose from 76 to 78, with significance below 0.05. Dewi et al., (2026) report a higher creative thinking score in the experimental class: pretest and posttest means rose from 65.47 to 89.03 (N-gain 0.68), against 61.39 to 73.86 (N-gain 0.31) in the control class. Syarifuddin et al. (2025) report that PjBL produced higher creative thinking than PBL overall ($F = 12.84$; means 85.75 and 78.40), and for students with high ethnomathematics understanding (88.50 against 80.20). For students with low understanding, the difference was not significant (78.30 against 77.90). Permata et al. (2023) report a pretest-to-posttest rise from 68.24 to 85.72 in the abstract and tables, although its results and conclusion sections give 64.48 to 83.52; the paired t-test gives $t = -15.408$ with $df = 24$, which is significant, and no N-gain is reported. Aldhafeeri and Alibraheim (2026) report significant gains on all three indicators: fluency rose from 2.27 to 5.73, flexibility from 2.32 to 6.00, and originality from 2.91 to 6.77, and the overall score rose from 7.50 to 18.50 ($t = 16.316$, $df = 21$, $p < .01$, effect size 3.47). Because both one-group studies lack a comparison group, their gains cannot be attributed to the culture-based or contextual component alone.

Supporting and Inhibiting Factors

The supporting factors reported in the sources centre on engagement. Arion and Rosita (2024) and Astuti & Rozikin (2025), both reviews, state that a familiar cultural context makes students more motivated and engaged. Among the empirical studies, Dewi et al. (2026) describe learning that connects material to students' real experiences, and Indriani et al. (2025) report greater enthusiasm when problems were linked to familiar situations. These are descriptive observations and were not measured as separate outcomes.

Inhibiting factors fall into two groups. At the student level, Pertiwi et al. (2021) identify laziness, low desire to learn, low motivation, poor communication, weak understanding of the material, limited freedom of thinking, and dependence on the teacher's examples; some parents could not accompany their children because they worked. At the level of the learning system, Astuti & Rozikin (2025), a review, identify teachers' limited ability to design culture-based materials, limited standard learning resources, and an examination-oriented system. Indriani et al. (2025) describe a similar baseline in their school: teacher-centred lessons, reliance on textbooks, and students' low confidence in expressing ideas. The authors' interpretation is that these obstacles are interrelated: without adequate task design, the cultural or everyday context can remain decorative and fail to encourage creative thinking.

Implications for Elementary Mathematics Learning

Taken together, the six studies suggest four design principles. First, choose contexts that are close to students' lives, whether cultural (Pertiwi et al., 2021; Syarifuddin et al., 2025; Dewi et al., 2026; Permata et al., 2023) or everyday and real-life (Indriani et al., 2025; Aldhafeeri & Alibraheim, 2026). Second, design tasks with several entry levels so that students with lower ability can still participate (Pertiwi et al., 2021). Third, provide structured space for students to explain and compare their methods, which addresses the communication barrier reported by Pertiwi et al. (2021). Fourth, involve teachers in designing culture-based tasks, in line with the teacher-readiness concern raised by Astuti & Rozikin (2025).

Limitations of The Review

This review has several limitations. First, the six included studies are small and heterogeneous: sample sizes range from three students in the qualitative study to 80 in the factorial study, and designs range from qualitative to quasi-experimental and pre-experimental. Two of the six studies (Permata et al, 2023; Aldhafeeri and Alibraheim, 2026) are one-group designs without a comparison group, so their gains cannot be attributed to the

contextual or culture-based component alone. Second, instruments and indicators differ across studies (fluency, flexibility, originality, novelty, elaboration, and original ideas, works, and actions), so no pooled effect size is estimated. Third, Indriani et al. (2025) and Aldhafeeri and Alibraheim (2026) use contextual approaches without a cultural component, so the local-culture criterion does not hold for every included study. Fourth, the search covered Google Scholar, Garuda, Springer Link, and Scopus; Google Scholar results cannot be fully reproduced, and ERIC and DOAJ were not searched. Fifth, Wang et al. (2025) examined flow experience and mathematical creativity without a contextual or local-culture learning component and is therefore excluded. Sixth, the sample size and the pretest and posttest means of Permata et al. (2023) are reported inconsistently within the article; the figures here follow its abstract and tables. Seventh, only Indonesian and English publications were considered, which may introduce language bias, and publication bias cannot be ruled out. Eighth, screening was performed by the author and checked by two lecturers, without formal independent double screening or inter-rater agreement, so the selection can be audited only through the criteria and counts reported. Ninth, the quality appraisal (Table 3) was performed by a single reviewer, is descriptive, and reflects the reporting in each article; it was not used to weight or exclude studies. Tenth, the abstract of Syarifuddin et al. (2025) claims improvement for both ethnomathematics groups, whereas its results section supports this only for students with high understanding; this review follows the results section. The findings should therefore be read as preliminary.

CONCLUSION

Based on the review results, this study draws the following conclusions:

Research on the creative mathematical thinking of elementary students through a local culture-based contextual approach remains limited and scattered. The literature is dominated by literature reviews and local culture-based approaches, while this review includes six empirical studies at the elementary level, a small evidence base, so these conclusions are preliminary.

The empirical studies report gains in creative mathematical thinking under culture-based or contextual learning, although the indicators differ across studies (fluency, flexibility, originality, novelty, and elaboration). The reviews report that such learning can increase motivation and engagement. In one qualitative study, students' initial mathematical ability shaped the level of creative thinking reached.

The supporting factors reported are engagement and familiar contexts, while the inhibiting factors include student-level obstacles (such as low motivation, weak understanding of the material, poor communication, and limited freedom of thinking) and system-level obstacles (such as limited teacher capacity, limited learning resources, and examination orientation).

Further research is recommended in the form of experimental studies or classroom action research with elementary students, using creative thinking test items in a local culture context that explicitly measure all four aspects. Teacher training in designing local culture-based mathematics tasks also deserves attention.

More operationally, further research can begin with instrument development. Creative mathematical thinking test items in a local culture context should be constructed by mapping each item to one of the aspects *fluency*, *flexibility*, *originality*, or *elaboration*, and then tested for content validity by experts and for readability by Grade V teachers. The next stage is implementation in classes taught with open local culture-based tasks and comparison classes using general contexts, so that differences in achievement can be observed more clearly.

In addition, further research needs to consider students' initial mathematical ability as a variable, as shown by Pertiwi et al (2021). By grouping students according to their initial ability, researchers can see whether the tasks reach low-ability students or only benefit students who are already accustomed to creative thinking. The involvement of parents and the community, which is also cited as an inhibiting factor, can be investigated through school family collaboration in gathering the cultural contexts used as task material.

Finally, this review shows that local culture holds great potential as a source of meaningful mathematics learning contexts in elementary schools. This potential can become real creative thinking ability only if the tasks are designed to be open and tiered, give students room to communicate, and are supported by trained teachers and an evaluation system that does not restrict students' space for thinking.

DECLARATIONS

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REFERENCES

Aji, S. U., et al. (2024). Kemampuan berpikir kreatif di Indonesia: Sebuah kajian literatur [Creative thinking ability in Indonesia: A literature review]. *Jurnal Riset Pendidikan Matematika Jakarta*, 6(1), 37–44. https://doi.org/10.21009/jrpmj.v6i1.43823.

Aldhafeeri, S. A., & Alibraheim, E. A. (2026). The effectiveness of developing a proposed educational unit in mathematics on developing creative thinking skills among third-grade primary school students. *Eurasia Journal of Mathematics, Science and Technology Education, 22*(6), Article em2843. https://doi.org/10.29333/ejmste/18637

Arion, K., & Rosita, N. T. (2024). Exploring local wisdom: Utilizing ethnomathematics to improve mathematical creative thinking skills. Jurnal Theorems (The Original Research of Mathematics), 9(1), 100–113. https://doi.org/10.31949/th.v9i1.9538

Astuti, A. D., & Rozikin, A. Z. (2025). Ethnomathematics: Urgency and challenges of implementation in elementary school mathematics learning. *Tunas: Jurnal Pendidikan Guru Sekolah Dasar*, 10(2), 115–119. https://doi.org/10.33084/tunas.v10i2.10006.

D'Ambrosio, U. (1985). Ethnomathematics and its place in the history and pedagogy of mathematics. *For the Learning of Mathematics*, 5(1), 44–48.

Dewi, L. C., Suardipa, I. P., & Winangun, I. M. A. (2026). Pengaruh model pembelajaran contextual teaching and learning bermuatan kearifan lokal terhadap kemampuan berpikir kreatif siswa kelas V pada mata pelajaran matematika di SD Gugus I Kecamatan Buleleng. Pendas: Jurnal Ilmiah Pendidikan Dasar, 11(1), 181–186. https://doi.org/10.23969/jp.v11i02.46915

Indriani, R., Rahmiati, D., & Puspita, A. M. I. (2025). The influence of contextual approaches on students' mathematical creative thinking skills in elementary school. Scaffolding: Jurnal Pendidikan Islam dan Multikulturalisme, 7(1), 989–1004. https://doi.org/10.37680/scaffolding.v7i1.9403

Iskandar, R. S. F., Karjanto, N., Kusumah, Y. S., & Ihsan, I. R. (2022). A systematic literature review: Ethnomathematics in geometry [Preprint]. arXiv. https://arxiv.org/abs/2212.11788

Kemendikbudristek. (2022). Peraturan Menteri Pendidikan, Kebudayaan, Riset, dan Teknologi Nomor 16 Tahun 2022 tentang Standar Proses Pendidikan Anak Usia Dini, Jenjang Pendidikan Dasar, dan Jenjang Pendidikan Menengah. Jakarta: Kemendikbudristek.

Lynch, R. L. (2006). Contextual teaching and learning. In *Encyclopedia of educational leadership and administration* (pp. 203–206). SAGE Publications.

Noerhasmalina, N., & Hidayatulloh, H. (2023). Mapping the landscape: Growth and trends in ethnomathematics research – A bibliometric review. *Al-Jabar: Jurnal Pendidikan Matematika, 14*(1), 216–224. https://doi.org/10.24042/ajpm.v14i1.18264

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, Article n71. https://doi.org/10.1136/bmj.n71

Permata, Y. I., Trisiana, A., & Sarafuddin, S. (2023). Pengaruh pendekatan realistik matematika materi segitiga berbasis kearifan lokal Gunungan terhadap kemampuan berpikir kreatif peserta didik kelas V SD Negeri Sambirejo Surakarta tahun ajaran 2022/2023. *Jurnal Pendidikan Tambusai*, 7(2), 16970–16977. https://doi.org/10.31004/jptam.v7i2.9061

Pertiwi, A. K., Sugiaryo, S., & Prihastari, E. B. (2021). Analisis kemampuan berpikir kreatif peserta didik kelas V dalam menyelesaikan soal etnomatematika di MIM Girimargo. *Sinektik*, 4(2), 98–106. https://doi.org/10.33061/js.v4i2.6657

Rosa, M., & Orey, D. C. (2011). Ethnomathematics: The cultural aspects of mathematics. *Revista Latinoamericana de Etnomatemática*, 4(2), 32–54.

Syarifuddin, S., Adiansha, A. A., & Irfan, I. (2025). Ethnomathematics-based project-based learning with GeoGebra application support to optimize students' mathematical creativity. International Journal of Information and Education Technology, 15(10), 2095–2104. https://doi.org/10.18178/ijiet.2025.15.10.2408

Torrance, E. P. (1974). *Torrance tests of creative thinking: Norms-technical manual*. Princeton, NJ: Personnel Press.

Utari, S. W. H., Dwijanto, D., & Dewi, N. R. (2023). Improving mathematical creative thinking ability in creative problem solving model with scaffolding strategy. *Mathline: Jurnal Matematika dan Pendidikan Matematika, 8*(1), 137–152. https://doi.org/10.31943/mathline.v8i1.363

Wang, X., Somasundram, P., & Zhang, J. (2025). The influence of flow experience on mathematical creativity among primary school students in China. *Frontiers in Education, 10*, Article 1580126. https://doi.org/10.3389/feduc.2025.1580126