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Traditional Banjar Cuisine as a Cultural Innovation for Numeracy Learning in Early Childhood Education

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Abstract:

Early numeracy learning in Indonesian early childhood education often lacks cultural and daily life connections. This study explores how *wadai lempeng pisang* (Banjar-style banana pancake) can be used as a culturally responsive medium for numeracy development. A qualitative descriptive approach was applied through classroom observation, teacher and parent interviews, and documentation in a kindergarten in South Kalimantan. Data were analyzed using Miles, Huberman, and Saldaña's interactive model with triangulation for validity. Findings show that the cooking activity naturally fostered counting, measuring, sequencing, comparing, and problem-solving. For example, children counted bananas, measured sugar with spoons, sequenced cooking steps, and adjusted dough consistency—developing both symbolic and practical mathematical skills. This activity also enhanced engagement, inclusivity, and cultural identity, as children related the experience to their home practices. The study concludes that integrating local culinary traditions into numeracy learning provides meaningful, hands-on experiences that support both cognitive and affective development. It offers an adaptive pedagogical model for early childhood education, especially in culturally rich regions.

Keywords: Early Numeracy; Banjar Culture; Adaptive Pedagogy; Traditional Food; Early Childhood Education

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Introduction

Numeracy development in early childhood is fundamental to preparing children not only for formal schooling but also for engaging meaningfully in daily life. Foundational concepts such as counting, comparing quantities, measuring, and recognizing patterns serve as building blocks for later mathematical reasoning. However, in many early childhood institutions across Indonesia, numeracy instruction tends to rely heavily on worksheets, rote memorization, and abstract symbols, often disconnected from the lived experiences of the children (Iasha et al., 2025). This instructional gap is particularly evident in regions like South Kalimantan, where the rich cultural heritage of the Banjar people—including their culinary traditions, communal practices, and oral storytelling—is rarely integrated into classroom learning.

Traditional Banjar knowledge, which includes practices around preparing and sharing food like cake, offers authentic opportunities to embed numeracy learning in daily routines. Yet, these local forms of knowledge remain underutilized due to a combination of rigid curricula, lack of culturally relevant materials, and limited teacher training in contextual pedagogy. As a result, many young learners struggle to connect abstract mathematical concepts with their tangible experiences at home or in their community. This disconnect can lead to low engagement and missed opportunities for deep learning. Bridging this gap requires adaptive pedagogical approaches that recognize the importance of culture in shaping how children understand and use numbers in their everyday lives.

Recognizing the urgency of developing numeracy skills through culturally relevant and meaningful experiences, early childhood educators are called to adopt pedagogical strategies that are both adaptive and context-sensitive (Rosita et al., 2025; Veliz et al., 2025). Children learn best when new knowledge is connected to what they already know and value—including their culture, family routines, and local environment. Studies in culturally responsive pedagogy have demonstrated that integrating local knowledge into learning can enhance engagement, comprehension, and retention (Franco et al., 2024; Gay, 2018; Kartini' et al., 2025). However, most research in Indonesian early childhood settings has focused on folklore, traditional games, or music, with limited attention to local cuisine as a medium for learning.

This study positions itself within that research gap by exploring how the process of cooking *wadai lempeng pisang*, a popular traditional Banjar snack, can be used as a vehicle for numeracy learning. The activity involves counting bananas, measuring ingredients, sequencing steps, comparing quantities, and dividing portions—each of which corresponds to core numeracy competencies for children aged 5–6. By grounding numeracy learning in a familiar and enjoyable activity, this research not only promotes cognitive development but also strengthens children's cultural identity (Sulfiah et al., 2025). The study thus contributes a novel perspective to early childhood numeracy education by integrating adaptive, culturally rooted pedagogical approaches in the context of Islamic and local values.

To explore the potential of traditional Banjar cuisine as a tool for numeracy development, the author employed a qualitative descriptive method involving classroom observation, interviews with educators, and documentation of learning processes in a Kuripan State Kindergarten, Barito Kuala Regency, South Kalimantan. The research focused specifically on the *wadai lempeng pisang* cooking activity as an authentic context to observe how numeracy concepts emerge naturally during the process. This study builds upon and extends previous research that has examined local culture in early childhood learning (Hendriana et al., 2025; Sakti et al., 2024), such as the use of folklore

or traditional games by introducing a new dimension: food-based numeracy learning rooted in local daily life.

Unlike earlier studies that often emphasized storytelling or symbolic cultural representations, this article presents an original contribution by highlighting hands-on, process-oriented learning through cooking. The research also aligns with adaptive pedagogy frameworks that emphasize learner-centered, experience-based education tailored to sociocultural contexts. In doing so, this study not only fills a gap in the literature on culturally grounded numeracy practices but also responds to national calls for contextualized learning in early childhood curricula that seek to integrate moral, spiritual, and cultural values into daily classroom activities.

Methods

This study employed a qualitative descriptive research design to explore how traditional Banjar cuisine—specifically the preparation of *wadai lempeng pisang*—can be used as a medium for developing early numeracy skills. The research was conducted at a Kuripan State Kindergarten, Barito Kuala Regency, South Kalimantan, where cultural-based learning is encouraged within the daily curriculum. Participants included one classroom teacher, 15 children aged 5–6 years, and two parents assisting in the cooking activity. The study took place over two weeks during scheduled learning sessions. Data were collected through participatory observation, semi-structured interviews with the teacher and parents, as well as documentation in the form of photos, video recordings, and lesson plans.

Data were analyzed using Miles, Huberman, and Saldaña's (2014) interactive model, which involves data condensation, data display, and conclusion drawing/verification. Thematic codes were developed based on observed numeracy concepts such as counting, measuring, comparing, sequencing, and estimating. To ensure data validity, the study applied triangulation by comparing data from different sources (observations, interviews, and documentation), conducted member checks with the teacher, and maintained detailed field notes. The analysis focused on identifying moments during the cooking activity where numeracy learning occurred naturally, as well as how cultural familiarity influenced children's engagement and understanding.

Results and Discussion

Findings

The research revealed that the process of making *wadai lempeng pisang* (figure 1), a traditional Banjar snack, became a powerful medium for introducing numeracy concepts to early childhood learners. Through this culturally-rooted activity, children engaged in real-life experiences that fostered meaningful learning in counting, measuring, sequencing, and problem-solving.



Figure 1. *Wadai Lempeng Pisang*

Source: @hanhanny

During the cooking session, children naturally encountered mathematical concepts without the pressure of formal instruction. As they peeled bananas, mashed them, and measured ingredients, the act of counting emerged spontaneously. For example, while preparing the bananas (figure 2), a group of children began counting together in rhythm: “One, two, three, four...” The teacher noted with delight how these young learners took the initiative to count without being prompted.



Figure 2. Children making *Wadai Lempeng Pisang*
Source: Author’s documentation, 2024

This spontaneous numeracy practice reflected their comfort and enthusiasm in a familiar setting. One teacher reflected during the interview:

“Usually, when learning numbers on paper, children get bored quickly. But when making the snack, they were excited to count and even competed to do it first.”

This comment underscores how numeracy, when embedded in a practical context, becomes more engaging and accessible for young children. Beyond counting, the activity also introduced concepts of quantity and measurement. Children measured spoons of sugar and flour, and in doing so, developed a sense of precision and proportion. During one session, a child proudly announced, “This is two spoons, I counted it myself!”. Such statements highlight a sense of accomplishment and agency—children weren’t just following instructions; they were actively constructing knowledge. Sequencing and logic were also strengthened through this activity. As children followed the steps of making the cake, they began to understand the importance of order in a process.

“First, peel the banana, then mash it, add sugar, pour it in, and then bake,”
one child said confidently.

To further illustrate these findings, the following table presents a summary of observed numeracy skills that emerged during the activity.

Table 1. Numeracy Learning through *Wadai Lempeng Pisang*

Aspect of Numeracy	Activity Observed	Children’s Expression / Behavior	Learning Outcome
Counting	Counting bananas, measuring sugar with spoons	“I put five bananas. If we add one more, it will be six.”	Improved ability to count objects sequentially
Comparison	Comparing spoonfuls of flour, dough sizes	“This spoon is too much. We need only two spoons, not three.”	Developed skill in comparing quantities
Sequencing	Following steps in mixing and baking	Children recalled steps: banana → flour → sugar → mix	Strengthened understanding of order and process
Problem-solving	Adjusting mixture consistency	Children added flour when dough was too wet	Applied reasoning to adjust outcomes

Aspect of Numeracy	Activity Observed	Children's Expression / Behavior	Learning Outcome
Symbolic understanding	Recognizing numbers on recipe cards	"This is number 2. It means two spoons of sugar."	Connected symbols with real quantities

As shown in Table 1, children's numeracy skills were naturally integrated into the cooking activity. Counting and comparison were the most frequently observed, indicating that children could easily connect numbers to tangible objects such as bananas and spoons. Sequencing was also reinforced as children followed the recipe steps, while problem-solving emerged when they adjusted the mixture. Moreover, symbolic understanding was evident when children recognized and linked written numbers to actual quantities. These results demonstrate that embedding numeracy into culturally familiar activities like cooking *wadai lempeng pisang* not only makes learning more engaging but also grounds abstract concepts in meaningful, lived experiences.

Many children recognized *wadai lempeng pisang* from their homes. A teacher observed:

"When they heard we were making wadai lempeng pisang, they got so excited. They said they had seen their grandmother make it."

The familiarity and emotional connection to the food created a deeper sense of relevance. Parents also reported that their children enthusiastically talked about the activity at home. One mother said:

"My child came home and immediately took a banana, saying, 'Mom, I want to make what we made at school. We used six bananas.' She even counted on her fingers."

This demonstrates not only knowledge retention but also a transfer of learning from school to home, showing the success of contextualized education.

Importantly, this cooking-based activity was inclusive, allowing all children to participate regardless of their academic readiness or verbal ability. The tactile, multisensory nature of the task enabled diverse learners to engage in meaningful ways. One teacher shared,

"A usually silent child participated actively this time. He enjoyed stirring the mixture and said, 'I can count too!'"

This showed that experiential learning can empower quieter or less confident students to participate more fully.

Overall, the integration of traditional Banjar cooking with early numeracy learning proved effective in supporting children's understanding of mathematical concepts while also reinforcing cultural identity and active participation. The activity became more than just a learning tool—it was a bridge between culture, home, and school.

Analysis

The findings of this study provide strong evidence that embedding numeracy learning within culturally grounded activities—specifically, the traditional Banjar practice of making *wadai lempeng pisang*—can enhance the relevance, engagement, and effectiveness of early childhood mathematics instruction. This approach supports the assertion by Baroody (2017) and NAEYC (2010) that young children learn mathematical concepts best when these are connected to meaningful, concrete experiences rather than abstract drills.

One of the most striking insights was the extent to which children spontaneously engaged with numeracy concepts during the cooking process. The act of counting bananas, measuring flour, sequencing steps, and estimating time required no formal

instruction; instead, it emerged naturally through play and purposeful activity (Pratiwi et al., 2017). This aligns with the constructivist perspective by Piaget and Vygotsky, which posits that children actively construct knowledge through experience and social interaction (Prakash Chand, 2023). The data confirms that when learning is rooted in familiar cultural practices, children are more motivated and confident in expressing mathematical thinking.

This study also demonstrates the value of culturally responsive pedagogy, which Gay (2002) defines as teaching that uses the cultural characteristics, experiences, and perspectives of ethnically diverse students as conduits for effective instruction. The use of cake not only honored local cultural identity but also created an emotionally rich context for learning. As observed, children often referenced their home experiences with cake, which strengthened their connection to the task and increased their willingness to participate. Teachers noted that children who were usually reserved became active and expressive during the activity, suggesting that cultural familiarity can serve as an entry point for inclusive participation.

Moreover, the integration of numeracy into traditional cooking encouraged holistic development. Beyond mathematical thinking, children practiced fine motor skills, turn-taking, communication, and collaboration. These outcomes support the National Association for the Education of Young Children (2019) guidelines, which advocate for integrated learning approaches that address multiple domains of development.

The findings also carry implications for teacher education and curriculum design. Many early childhood educators rely on commercial worksheets or isolated number drills, which may lack cultural relevance and meaningful context. This study offers a model for integrating local wisdom and everyday experiences into formal learning goals. It also highlights the potential for community and family engagement—particularly in cultures like Banjar, where food and tradition are deeply intertwined with identity.

Finally, the originality of this study lies in its focus on a single, culturally significant traditional food—not as a limitation, but as a strength. By examining the learning process through one focused activity, the research was able to capture the depth and richness of the children's experiences. This depth provides insight into how even small cultural practices can become powerful tools for educational transformation when thoughtfully applied.

Conclusion

This study concludes that integrating *wadai lempeng pisang* into early childhood learning provides an effective medium for numeracy development. Children engaged in five main aspects: counting, comparing, measuring, sequencing, and problem-solving. The activity was inclusive, enjoyable, and connected to children's daily experiences, reinforcing both academic learning and cultural identity. The findings suggest that local cultural practices can be strategically incorporated into early childhood pedagogy as a form of adaptive and culturally responsive teaching. For educators, this provides a practical model of lesson design that integrates numeracy with local traditions. Future research is recommended to explore other cultural practices, compare effectiveness across different contexts, and develop teaching modules that integrate food-based or cultural activities into the early childhood curriculum.

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