JURNAL UPI

MIMBAR PENDIDIKAN:
Jurnal Indonesia untuk Kajian Pendidikan
Journal homepage: https://ejournal.upi.edu/index.php/mimbardik

LEARNING WHILE MIXING: UTILIZING TRADITIONAL FOOD-MAKING ACTIVITIES TO DEVELOP ELEMENTARY STUDENTS' PROCEDURAL WRITING SKILLS

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ABSTRACT

This study aims to develop and examine the effectiveness of the Creative Constructive Activity-Based Contextual Teaching and Learning (CTL) Model in improving procedural text writing skills among elementary school students. The novelty of this model lies in integrating ethnopedagogical activities into traditional food preparation (Opak/Dodol Durian) as an authentic learning context, thereby bridging local cultural experiences with written literacy competence. The study employed a Research and Development (R&D) approach using the ADDIE model, combined with a Nonequivalent Control Group design to assess its effectiveness. The resulting model was rated as highly valid and highly practical by both expert validators and teachers. Effectiveness testing revealed that the experimental group demonstrated a significantly greater improvement in procedural text-writing skills than the control group. These findings affirm that ethnopedagogical contextualization within the CTL framework can serve as a meaningful, relevant, and culturally responsive learning alternative at the elementary school level.

ARTICLE INFO

Article History:
Submitted/Received 21 Feb 2026
First Revised 27 Feb 2026
Accepted 04 Mar 2026
First Available online 28 Mar 2026
Publication Date 28 Mar 2026

Keywords:
CTL Kreatif; Makanan Tradisional; Menulis Prosedur; Etnopedagogi; Sekolah Dasar.

1. INTRODUCTION

Writing skills represent an essential literacy foundation for elementary school students, enabling them to communicate ideas, experiences, and instructions effectively (Graham et al., 2020). In the context of text-based Indonesian language learning at the elementary level, one of the text types students must master is the procedural text, which presents systematic, logical steps to achieve a specific goal (Kosasih, 2020). Furthermore, procedural text writing skills are highly relevant to students' daily lives, such as writing cooking recipes, tool usage instructions, or guides for performing certain activities (Saputri & Indihadi, 2021).

However, preliminary observations at the elementary school level often reveal that students experience significant difficulty composing well-structured procedural texts. The main barriers identified include: (1) difficulty arranging steps in a logical and sequential order, (2) weak use of temporal conjunctions indicating time sequence, (3) limited mastery of descriptive and effective vocabulary, and (4) inability to construct clear imperative sentences. This indicates that conventional lecture-based or textbook-assignment methods have yet to bridge the gap between conceptual understanding and actual writing practice (Thomas & Polly, 2020).

To address these challenges, a pedagogical approach is needed that situates learning materials within students' real-world contexts. Contextual Teaching and Learning (CTL) emerges as an effective framework, as it enables learners to apply and experience what is being taught by connecting it to real-world problems (Geni et al., 2020; Khairani & Andrivat, 2025). The CTL model developed in this study is further strengthened by a Creative Constructive Activity approach — a creative process in which students actively build products (constructive) through innovative means (creative). This approach inherently demands both physical and mental engagement, making it highly suitable for visualizing and experiencing procedural steps before writing them down.

The implementation of CTL based on creative constructive activities is optimized when integrated with local wisdom (ethnopedagogy) — cultural values and traditional practices characteristic of a local community (Sugara & Sugito, 2022). The ethnopedagogical approach has been shown to effectively enhance the quality of project-based learning in elementary schools by offering a distinctive and innovative perspective within the learning environment (Rakhman et al., 2025).

In this study, local wisdom is realized through traditional food-making activities, such as Opak and Dodol Durian. The selection of traditional culinary activities as a learning context is grounded in several specific rationales. First, sequential and systematic procedures: the process of making traditional food — from ingredient preparation and measurement to processing (e.g., stirring dodol batter or molding opak) — involves a highly strict, systematic sequence of steps that cannot be reversed, a characteristic that closely mirrors the structure of procedural text (Kusuma et al., 2024). Second, direct physical experience: students observe, prepare, and experiment through hands-on learning; this concrete experience provides a strong cognitive foundation for students to describe steps in writing (Efstratia, 2014). Third, cultural dimension: this activity not only teaches writing skills

but also cultivates appreciation for culinary heritage and local values, transforming writing instruction into an act of cultural preservation (Asnimawati et al., 2025; Fatmi & Fauzan, 2022).

Several prior studies have demonstrated the effectiveness of integrating local wisdom into elementary school learning. For instance, the development of an ethnopedagogy-based engklek monopoly learning medium rooted in Sasak culture was found to be effective in enhancing students' understanding of Science and Social Studies (Kusuma et al., 2024). However, studies that specifically develop and examine the effectiveness of a CTL model based on creative, constructive activities — focusing on hands-on traditional culinary practice (Opak/Dodol Durian) as a bridge to improve elementary students' procedural text writing skills — remain extremely limited.

In developing this instructional model, the researchers employed the ADDIE model (Analysis, Design, Development, Implementation, Evaluation), which has been proven effective and systematic for developing instructional products. The ADDIE model provides a structured framework that supports continuous assessment to optimize the quality of learning products (Spatioti et al., 2022). Through the iterative ADDIE approach, the resulting instructional model can be ensured to be valid, reliable, and effective in enhancing the learning process.

Based on the foregoing, this study aims to: (1) develop a Creative Constructive Activity-Based CTL Model through traditional food-making activities using the iterative ADDIE approach; and (2) examine the effectiveness of the model in improving procedural text writing skills among elementary school students. The findings of this study are expected to make a significant contribution to enriching the repertoire of meaningful, contextual, and locally grounded Indonesian language-learning models, as well as to provide an alternative instructional strategy that elementary school teachers can apply in teaching procedural text-writing skills.

2. RESEARCH METHODS

This study employed a Research and Development (R&D) approach integrated with a Quasi-Experimental design to develop, validate, and examine the effectiveness of the Creative Constructive Activity-Based CTL Model in the context of traditional food preparation (Opak/Dodol Durian) to improve elementary students' procedural text writing skills. Model development adapted the ADDIE model, modified to suit the elementary school learning context, with effectiveness testing conducted using a Nonequivalent Control Group Design.

Population and Sample/Research Subjects

- **Population**

  The population of this study comprised all fifth-grade students from SDN Buahkapas, SDN Leuwilaja 1, and SDN Leuwilaja 3 in Sindangwangi District, Majalengka Regency, West Java Province, as well as several teachers from the three related elementary schools.

DOI: https://doi.org/10.17509/mimbardik.v11i1
p- ISSN 2527-3868 e- ISSN 2503-457X

- **Sample**
  Sampling was conducted using purposive and cluster-random sampling techniques. A limited trial was conducted with fifth-grade students at SDN Leuwilaja 1 and teachers from the three related elementary schools (SDN Buahkapas, SDN Leuwilaja 1, and SDN Leuwilaja 3) to assess the practicality of the model.
- **Research Subjects (Quasi-Experiment)**
  - **Experimental Group:** Fifth-grade students of SDN Buahkapas (n=30) receiving treatment through the Creative Constructive Activity-Based CTL Model (Opak/Dodol Durian preparation).
  - **Control Group:** Fifth-grade students of SDN Leuwilaja 3 (n=30) receiving treatment through conventional instructional methods.

Data Collection Techniques

Data collection was conducted using three primary techniques tailored to the type and purpose of the required data.

- **Expert validation** was used to obtain qualitative data regarding model validity. Validation sheets were provided to competent expert validators to assess the model's content and instructional design.
- **A questionnaire** was used to obtain data on model practicality. Response questionnaires were administered to fifth-grade students of SDN Leuwilaja 1 and teachers involved in the limited trial. The questionnaire measured the ease of implementation and model applicability from the teacher's perspective, as well as students' learning interest and comfort from the students' perspective.
- **A performance test** was used to obtain data on model effectiveness. Tests were administered in two stages — a pre-test prior to treatment and a post-test following treatment — to both the experimental and control groups. The test was designed to measure improvements in students' procedural text-writing skills directly.

The instruments used to collect data are summarized in the following table:

Table 1. Research Data Collection Instruments

No	Jenis Data	Instrumen	Tujuan
1.	Qualitative Data (Validity)	Validation Sheet	Measuring the feasibility of the model from the material, construction, and media aspects
2.	Quantitative Data (Practicality)	Student and Teacher Response	Measuring ease of application and student interest in the model
3.	Quantitative Data (Effectiveness)	Procedural Text Writing Performance Test (Pre-test and Post-test)	Measuring the improvement of writing skills before and after treatment

Data Analysis

The collected data were analyzed using two approaches, depending on the data type.

- D**escriptive percentage analysis** was applied to expert validation and practicality data. Scores from each validator were converted to percentages to determine the model's feasibility and practicality using established criteria.
- **Inferential analysis** was used to assess the model's effectiveness during the quasi-experimental stage. The statistical procedures applied included:
    - **Normality Test** (Shapiro-Wilk/Kolmogorov-Smirnov) to examine the distribution of pre-test and post-test data in both groups.
    - **Homogeneity Test** (Levene's Test) to ensure variance equality between groups prior to treatment.
    - **Independent Sample t-test** to compare post-test results between the experimental and control groups at a significance level of $\alpha = 0.05$.
    - **N-Gain Score** to measure the magnitude of improvement in procedural text writing skills in each group, categorized as: high (>0.70), moderate (0.30–0.70), and low (<0.30).

3. RESULTS AND DISCUSSION

Result

The initial stage of this R&D study produced a CTL Model reinforced with a local wisdom activity scenario (Opak/Dodol Durian preparation) developed using the ADDIE model. Experts subsequently validated the developed model to assess its content and instructional design.

Expert Validation Results

Validation testing conducted by two (2) expert validators indicated that the developed model demonstrated high feasibility. The calculated average percentage scores from the validators are presented in Table 2.

Table 2. Validation Results of the CTL Model Based on Creative Constructive Activities

Validation Aspect	Validator 1	Validator 2	Average Percentage	Category
Learning Material and Content	91.5%	89.0%	90.25%	Very Valid
Learning Design and Media	88.0%	90.5%	89.25%	Very Valid
Overall Average	-	-	89.75%	Very Valid

Based on Table 2, the model's average feasibility percentage was 89.75%, categorized as Highly Valid. These validation results confirm that a well-validated, locally wisdom-based instructional model has been shown to strengthen students' cultural identity while simultaneously enhancing the quality of learning (Unimuda et al., 2025).

DOI: https://doi.org/10.17509/mimbardik.v11i1
p- ISSN 2527-3868 e- ISSN 2503-457X

Practicality Test Results

The practicality test was conducted with fifth-grade students of SDN Leuwilaja 1 and several teachers from the three related elementary schools through a response questionnaire. The practicality test results are presented in Table 3.

Table 3. Practicality Test Results of the CTL Model Based on Creative Constructive Activities

Test Subject	Measured Aspect	Response Percentage	Category
Teacher (SDN Buahkapas, SDN Leuwilaja 3, SDN Leuwilaja 1)	Implementation Ease and Feasibility	94.0%	Very Practical
Fifth-Grade Students (SDN Leuwilaja 1)	Learning Interest and Comfort	88.5%	Very Good

The results in Table 3 indicate that the developed model is highly practical and well-received by both teachers and students. The positive student response rate of 88.5% (Very Good) demonstrates that authentic activity-based learning grounded in local cultural contexts can enhance student engagement and enthusiasm throughout the learning process (Hasan et al., 2025). The high practicality rating from the teacher's perspective (94.0%) indicates that the model is easy to implement and well-suited to elementary school learning conditions (Restiani et al., 2024).

Model Effectiveness Test Results

The effectiveness test was conducted by comparing pre-test and post-test results of procedural text writing skills between the experimental group (SDN Buahkapas) using the culinary activity-based CTL Model and the control group (SDN Leuwilaja 3) using conventional instruction.

- **Prerequisite Tests: Normality and Homogeneity**

  Prior to hypothesis testing, prerequisite tests were conducted to ensure the appropriateness of using parametric statistics. The prerequisite test results are presented in Table 4.

Table 4. Normality and Homogeneity Test Results

Test	Group	Sig. Value	Result
Normality (Shapiro-Wilk)	Experimental	0.124	Normal
Normality (Shapiro-Wilk)	Control	0.091	Normal
Homogeneity (Levene's Test)	Experimental & Control	0.213	Homogeneous

Based on Table 4, the pre-test and post-test data of both groups were normally distributed (Sig. > 0.05) and had homogeneous variances (Sig. > 0.05). With these prerequisite assumptions satisfied, the Independent Samples t-test was deemed appropriate for hypothesis testing.

- **Pre-test and Post-test Comparison Results**

  A comparison of the average procedural text-writing skills scores for both groups is presented in Table 5.

Table 5. Summary of Pre-test and Post-test Results for Procedural Text Writing Skills

Group	N	Pre-test Average	Post-test Average
Experimental (SDN Buahkapas)	30	55.20	85.50
Control (SDN Leuwilaja 3)	30	56.10	72.80

Table 5 shows that both groups had relatively equivalent initial abilities at pre-test, with a difference of only 0.90 points, indicating homogeneity of students' baseline competence (Zulela & Rachmadtullah, 2019). Following treatment, however, the experimental group's average post-test score (85.50) was considerably higher than that of the control group (72.80). The average improvement of 30.30 points in the experimental group demonstrates that contextual learning through direct experience produces a greater enhancement in competence than conventional methods (TriLaksono et al., 2025).

- **Improvement Test (N-Gain) and Hypothesis Test (t-Test)**

  To measure the magnitude of improvement, a Normalized Gain (N-Gain) calculation was performed, followed by an Independent Sample t-Test, yielding the following results:

Table 6. N-Gain Test Results and Hypothesis Test (Independent Sample T-Test)

Test	Statistics	Experimental Group	Control Group	Significance (Sig.)	Note
N-Gain	Average Score	0.67	0.38	-	Moderate vs Low
t-Test (Post-test Comparison)	Sig. Value (2-tailed)	-	-	0.000	Significant

The N-Gain calculation indicates that the experimental group scored 0.67 (Moderate), while the control group scored 0.38 (Moderate). Although both groups

DOI: https://doi.org/10.17509/mimbardik.v11i1
p- ISSN 2527-3868 e- ISSN 2503-457X

fall within the same category, a substantial gap of 0.29 points exists, suggesting that the CTL Model produces a greater improvement than conventional instruction (Sari et al., 2023). Furthermore, the t-test yielded a significance value of 0.000. As Sig. < 0.05, it can be concluded that there is a significant difference in procedural text writing skills between students learning through the traditional culinary activity-based CTL Model and those using the conventional model (Graham et al., 2020; Arega & Hunde, 2025).

Discussion

The findings of this study demonstrate that the Creative Constructive Activity-Based CTL Model (Opak/Dodol Durian Preparation) is valid, practical, and effective in improving elementary students' procedural text-writing skills. This effectiveness can be attributed to three key factors.

First, the traditional food-making activity provides an authentic and constructive learning experience. Rather than merely reading procedures, students directly "prepare" ingredients in the correct sequence, thereby building procedural understanding from genuine sensory experience (Efstratia, 2014; Wibowo et al., 2025). This concrete experience helps students overcome the primary challenges in procedural writing, namely logical step sequencing, the use of imperative sentences, and the mastery of temporal conjunctions (Agustin & Indihadi, 2020).

Second, the integration of local wisdom serves as an ethnopedagogical medium that stimulates students' intrinsic motivation and cultural identity, as reflected in the high practicality response ratings for the model (Table 3). Learning grounded in local cultural contexts has been shown to strengthen conceptual understanding while simultaneously fostering student creativity (Fathurrochman et al., 2025; Unimuda et al., 2025).

Third, the average improvement of 30.30 points and a t-test significance value of 0.000 statistically confirm the superiority of this model over conventional instruction. The experimental group's higher N-Gain score (0.67) compared to the control group's (0.38) demonstrates that integrating constructivism with local wisdom creates a learning environment that encourages students to write actively and with greater quality (Graham et al., 2020; Arega & Hunde, 2025).

4. CONCLUSION

This study successfully developed a Creative Constructive Activity-Based Contextual Teaching and Learning (CTL) Model that utilizes traditional food preparation (Opak/Dodol Durian) as an ethnopedagogy-based authentic learning context through the ADDIE design, with validation results reaching the Highly Valid category (89.75%) and Highly Practical based on teacher responses (94.0%), indicating that the model is feasible and easy to implement in elementary schools. Effectiveness testing using a Nonequivalent Control Group design demonstrated that this model is significantly superior to conventional instruction, with the experimental group's N-Gain of 0.67 exceeding that of the control group at 0.38, and a significance value of 0.000 ($p < 0.05$) confirming a highly significant difference between the

two groups. The model's strength lies in its ability to bridge concrete hands-on experience with the abstraction of procedural text writing, enabling students to compose steps logically and sequentially, while also contributing to the preservation of local culture and the formation of students' cultural identity, making it a meaningful, contextual, and locally-grounded alternative instructional strategy for elementary school teachers in teaching procedural text writing skills.

DOI: https://doi.org/10.17509/mimbardik.v11i1
p- ISSN 2527-3868 e- ISSN 2503-457X

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DOI: https://doi.org/10.17509/mimbardik.v11i1
p- ISSN 2527-3868 e- ISSN 2503-457X