

Optimization of the Museum-Based Field Trip Method as an Experiential Learning Strategy for National Cultural Diversity Material in Elementary Schools

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Abstract. This study examined the effectiveness of a museum-based field trip method in improving elementary school students' understanding of national cultural diversity. A quantitative approach was employed using a quasi-experimental one-group pretest–posttest design. The participants were 25 fifth-grade students at SD Negeri Naikoten 1 Kupang. Data were collected through concept understanding tests, observations, and documentation. Pretest and posttest assessments were administered to measure students' understanding before and after the implementation of the museum-based field trip. Data were analyzed using descriptive statistics and inferential tests, including the Shapiro–Wilk normality test, Levene's homogeneity test, and paired sample t-test. The descriptive results showed that the mean pretest score was 62.24, while the mean posttest score increased to 83.52, with a mean difference of 21.28. The Shapiro–Wilk test indicated that both pretest and posttest data were normally distributed, and Levene's test showed that the data were homogeneous. The paired sample t-test yielded a significance value of 0.000 ($p < 0.05$), indicating a statistically significant improvement in students' understanding after the intervention. These findings suggest that museum-based field trips can provide meaningful direct learning experiences that strengthen students' conceptual understanding of national cultural diversity. Therefore, this method can be considered an effective instructional strategy for teaching cultural diversity in elementary education.

Keywords: Cultural Diversity; Elementary Education; Experiential Learning; Field Trip Method; Museum-Based Learning

1. Introduction

Cultural diversity is one of the essential identities of the Indonesian nation that needs to be introduced from the elementary education level. Through learning about national cultural diversity, students can understand various traditions, customs, regional languages, and social values that develop across different regions of Indonesia. Cultural education is not only aimed at increasing students' knowledge but also at fostering attitudes of tolerance and respect for diversity. Learning experiences that involve direct interaction with social and cultural environments are considered effective in strengthening students' understanding of cultural values (Campbell and Gedat, 2021). In addition, learning activities that provide direct experiences are reported to enhance students' social awareness and their ability to understand cultural diversity within society (Lynch, McCormack, and Hennessy, 2025).

In practice, learning about cultural diversity in elementary schools is still often conducted through lecture methods and the use of textbooks as the primary source of instruction. Such conditions tend to make students less active in the learning process and make it difficult for them to understand cultural concepts in a concrete manner. Teacher-centered learning is widely associated with passive student participation and less optimal conceptual understanding (Onyebuchi and Yinka, 2024). Furthermore, learning activities that do not provide direct experiences are often perceived as less engaging and make the material more difficult for students to understand deeply (Widyaningtyas et al., 2025).

One learning strategy that can provide students with direct learning experiences is the field

trip method. The field trip method refers to learning activities conducted outside the classroom with the aim of allowing students to observe learning objects directly. Through this activity, students can connect the theories learned in the classroom with real conditions found in the surrounding environment. Field trips are recognized as having significant educational value because they enable students to learn through direct experience (Behrendt and Franklin, 2014). In addition, the implementation of the field trip method has been shown to increase students' activeness and understanding of learning materials (Aini and Wairisal, 2024). Similarly, field trip activities are found to enhance student engagement through more contextual learning experiences (Srianturi and Setyoningsih, 2023).

The field trip method is also closely related to the experiential learning approach, which emphasizes direct experience as the primary source of the learning process. This approach allows students to gain knowledge through observation, reflection, and interaction with real learning environments. Experiential learning is known to provide opportunities for students to develop conceptual understanding through direct experiences encountered during the learning process (Stern and Powell, 2020). Moreover, experience-based learning can increase student engagement and support the construction of knowledge in a more meaningful way (Radović, Hummel, and Vermeulen, 2021). It is also reported that experiential learning helps students connect learning concepts with real-life experiences (Rugaiyah, 2022).

In learning about national cultural diversity, museums can serve as highly relevant learning resources for field trip activities. Museums preserve various collections related to history, art, and regional culture, which can help students understand cultural diversity more concretely. Museum visits are considered effective academic activities because they allow students to directly interact with cultural artifacts (Sahani and Prakasha, 2025). In addition, museum-based learning is found to provide deep educational experiences and increase students' interest in learning about history and culture (Varman et al., 2025). Experiential learning activities such as field visits are also associated with increased student engagement in the learning process (Nimri et al., 2024).

Besides providing authentic learning experiences, field trip activities to museums can also help students develop critical thinking skills and a deeper understanding of social phenomena. Outdoor learning activities are reported to improve students' critical thinking skills because they involve direct observation of learning objects (Turasih, Surkanti, and Riandi, 2024). Furthermore, culture-based learning experiences through direct interaction with learning environments are considered effective in helping students understand cultural values more deeply (Wang, 2024).

Based on the various studies mentioned above, the implementation of a museum-based field trip method can be considered an effective learning strategy for improving students' understanding of national cultural diversity. This method provides authentic and meaningful learning experiences, enabling students to understand cultural concepts more concretely compared to purely theoretical learning. Therefore, the implementation of a museum-based field trip method is expected to improve the understanding of fifth-grade students at SD Negeri Naikoten 1 Kupang regarding national cultural diversity.

1.1. Problem Statement

Ideally, elementary school students are expected to understand learning materials deeply so that they can relate the knowledge they acquire to their daily lives. In the context of learning about national cultural diversity, students are not only expected to recognize various forms of culture that exist in Indonesia, but also to appreciate such diversity as an integral part of the nation's identity. This understanding is important because elementary education represents the initial stage in shaping students' attitudes of tolerance and social awareness toward a pluralistic society. Learning experiences that involve direct interaction with social and cultural environments are considered effective in strengthening students' understanding of cultural values and social awareness (Campbell and Gedat, 2021; Lynch, McCormack, and Hennessy, 2025). However, in practice, students' understanding of national cultural diversity is still relatively low, as many students tend to memorize cultural information without fully

understanding the underlying meanings and values, resulting in superficial comprehension of cultural concepts (Widyaningtyas et al., 2025).

If this condition continues, students may experience difficulties in understanding the concept of social diversity in society. A lack of understanding can contribute to low levels of tolerance, limited appreciation for cultural differences, and insufficient awareness of the importance of preserving cultural heritage. Learning conditions that do not provide meaningful experiences are associated with weaker conceptual understanding and lower student engagement (Onyebuchi and Yinka, 2024; Widyaningtyas et al., 2025). One of the contributing factors is the continued use of conventional teaching methods, such as lectures and reliance on textbooks as the primary learning resource. Teacher-centered approaches are often linked to passive learning behaviors and limited conceptual understanding among students (Onyebuchi and Yinka, 2024). As a result, cultural learning materials, which are often abstract, become difficult for students to understand in a concrete and meaningful way.

To address this problem, it is necessary to implement learning strategies that provide more authentic learning experiences for students. One method that can be applied is the field trip method, which involves learning activities conducted outside the classroom and allows students to directly observe learning objects. Learning through direct experience is widely recognized as effective in improving conceptual understanding and student engagement (Behrendt and Franklin, 2014; Stern and Powell, 2020). In the context of learning about national cultural diversity, museums can serve as relevant learning resources because they preserve collections related to history and culture. Museum-based learning is considered capable of providing meaningful educational experiences and increasing students' interest in learning (Sahani and Prakasha, 2025; Varman et al., 2025). Through field trip activities, students can directly observe cultural artifacts such as traditional clothing, musical instruments, and historical objects, which helps them understand cultural diversity more concretely and meaningfully (Nimri et al., 2024). Therefore, research on the implementation of a museum-based field trip method is important to determine its effectiveness in improving elementary school students' understanding of national cultural diversity.

1.2. Related Research

Research on experience-based learning in elementary education has continued to develop in recent years. This approach emphasizes that students tend to understand learning materials more easily when they are directly involved in learning activities related to the objects being studied. In the context of outdoor learning, field trip activities can provide more authentic learning experiences for students because they are able to observe phenomena directly. Research conducted by Saefudin and Permana (2020) shows that the implementation of the field trip method in learning can increase student engagement and encourage the development of critical thinking skills through direct learning experiences in real environments. In addition, research by Hamdi et al. (2021) explains that the use of the field trip method in elementary school learning can improve students' learning outcomes because students gain concrete experiences that help them understand learning concepts more contextually.

In addition to outdoor learning activities, museums have increasingly been utilized as effective learning resources in cultural and historical education. Museums provide various collections of artifacts that can help students understand learning materials more concretely. Research conducted by Purnomo (2023) shows that the use of museums as locations for outdoor learning activities can improve students' responses and engagement in the learning process because students are able to directly observe various historical and cultural objects being studied. Furthermore, research by Sitanggang et al. (2024) explains that field trip activities to museums can provide more meaningful learning experiences for students and enhance their understanding of learning materials through direct observation and interaction with museum collections.

Although various studies indicate that experience-based learning and the utilization of museums can increase student engagement, research that specifically examines the implementation of museum-based field trip methods in teaching cultural diversity at the

elementary school level remains relatively limited. Research conducted by Saputro (2024) shows that experiential learning through the field trip method can help students understand social and cultural concepts through direct observation of the learning environment. Therefore, the novelty of this research lies in the implementation of a museum-based field trip method in teaching national cultural diversity in elementary schools, emphasizing direct learning experiences through the observation of cultural artifacts and students' reflection on the cultural values being studied. Through this approach, learning not only improves students' learning outcomes but also strengthens their understanding of cultural diversity as an essential part of Indonesia's national identity.

1.3. Research Objectives

Based on previous research studies, most investigations on cultural learning have primarily focused on students' learning outcomes rather than on their deep understanding of the learning material. In fact, in learning about national cultural diversity, deep understanding is essential because it is closely related to the development of students' attitudes of tolerance, appreciation for cultural differences, and awareness of the importance of preserving the nation's cultural heritage. Therefore, this study seeks to provide a new perspective by emphasizing the improvement of students' understanding of national cultural diversity through more authentic learning experiences.

This study aims to analyze the effectiveness of implementing a museum-based field trip method in improving elementary school students' understanding of national cultural diversity. In addition, the research also aims to examine how outdoor learning activities through museum visits can help students connect the learning material with cultural objects that they observe directly.

Through this experience-based learning approach, students are expected not only to gain theoretical knowledge about cultural diversity but also to understand the cultural values embedded within it. Thus, this research is expected to contribute to the development of more effective and meaningful instructional strategies in elementary education, particularly in teaching national cultural diversity.

2. Theoretical Framework

2.1. Field Trip Method

The field trip method is a learning approach in which students are invited to learn outside the classroom by visiting locations that are relevant to the learning material. This activity provides students with the opportunity to gain direct learning experiences through observation of real objects, allowing them to connect the concepts learned in the classroom with real conditions in their surrounding environment. Through such activities, students not only acquire theoretical knowledge but also develop a more concrete understanding through direct learning experiences (Fajarudin, Khasanah, & Astuti, 2024; Turasih, Surkanti, & Riandi, 2024).

In elementary school learning, the field trip method can increase students' learning motivation and engagement in the learning process because they are directly involved in contextual and exploratory learning activities. Educational visits to learning sites such as museums allow students to observe objects directly, enabling them to gain deeper and more meaningful understanding of the subject matter. Research indicates that the implementation of the field trip method can enhance students' learning participation as well as their learning outcomes because the learning process occurs through real experiences and direct interaction with learning objects (Aini & Wairisal, 2024; Rahayu et al., 2023).

2.2. Experiential Learning

Experiential learning is a learning approach that emphasizes the process of learning through direct experience, involving students' active participation in learning activities. In this approach, students do not merely receive information from the teacher; instead, they actively engage in the learning process through activities that allow them to experience, observe, reflect, and

understand concepts more deeply. This approach is widely known as experience-based learning, which provides students with opportunities to construct knowledge through the process of "learning by doing," or learning through real actions (Hossain, Manzoor, & Hashmi, 2023).

The implementation of experiential learning in the classroom can enhance student engagement, critical thinking skills, and social abilities because students are actively involved in the learning process. Research indicates that experience-based learning can improve both learning outcomes and critical thinking skills among elementary school students, as the learning process focuses not only on theoretical knowledge but also on direct experiences that allow students to relate their knowledge to real-life situations (Erawati & Hastuti, 2025; Christian, Tarihoran, & Sapriati, 2024).

Therefore, experiential learning becomes one of the most relevant learning approaches to be applied in elementary education because it is capable of creating active, meaningful, and contextual learning experiences for students.

2.3. National Cultural Diversity

National cultural diversity is one of Indonesia's greatest assets, reflecting the richness of its ethnic groups, languages, customs, arts, and traditions that have developed across various regions. This diversity forms part of the national identity that needs to be preserved and introduced to younger generations from an early age through school education. Introducing cultural diversity to elementary school students aims to foster attitudes of mutual respect, tolerance, and love for the nation's culture (Saputra et al., 2024).

In the context of elementary education, learning about national cultural diversity can help students understand the values of pluralism and strengthen their sense of national character. Learning that integrates cultural elements can also increase students' awareness of the importance of preserving and maintaining local cultures amidst the forces of globalization. Therefore, the integration of cultural content into the learning process becomes an important strategy for instilling character values and strengthening cultural identity in students from an early age (Juliani et al., 2024; Sa'diyah, Dewi, & Furnamasari, 2021).

3. Method

3.1. Research Design

This study employed a quantitative approach using a quasi-experimental method with a one-group pretest–posttest design. This design aimed to determine changes in students' understanding before and after the implementation of the museum-based field trip method in learning national cultural diversity. The one-group pretest–posttest design involves a single group that is given a pretest prior to the treatment and a posttest after the treatment to measure the effect of the intervention (Creswell & Creswell, 2023; Sugiyono, 2022).

In this study, students were first given a pretest to assess their initial understanding of national cultural diversity. They then participated in learning activities using the museum-based field trip method as the treatment. After the learning process, a posttest was administered to determine changes in students' understanding. The comparison between pretest and posttest scores was used to evaluate the effectiveness of the applied method (Ary et al., 2021).

3.2. Research Participants

The population of this study comprised all fifth-grade students at SD Negeri Naikoten 1 Kupang. From this population, 25 students were selected as research participants using purposive sampling, based on criteria relevant to the research objectives (Table 1).

Fifth-grade students were selected because the topic of national cultural diversity aligns with the curriculum at this level and because students are considered capable of participating in outdoor learning activities such as museum-based field trips.

Table 1. Participant Characteristics

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	12	48%
	Female	13	52%
Age	10 years	11	44%
	11 years	14	56%
Total		25	100%

3.3. Data Collection

3.3.1. Concept Understanding Test

The concept understanding test was used to measure students' understanding of national cultural diversity before and after the implementation of the museum-based field trip method. The test consisted of 10 multiple-choice questions developed based on learning indicators.

The indicators of the test included:

- a. Identifying forms of cultural diversity in Indonesia
- b. Explaining the meaning of cultural diversity
- c. Classifying cultural elements (traditional clothing, houses, arts)
- d. Analyzing the importance of cultural diversity
- e. Demonstrating attitudes of appreciation toward cultural diversity

3.3.2. Observation

Observations were conducted during learning activities, particularly during the museum field trip, to assess students' engagement. The observation guidelines were based on the following indicators:

- a. Attention to learning activities
- b. Participation in group discussions
- c. Responsiveness to teacher questions
- d. Interaction with learning objects

The observation used a checklist with a 4-point Likert scale (1 = very low to 4 = very high).

3.3.3. Documentation

Documentation was used to collect supporting data such as photographs, field notes, and other relevant records during the learning activities.

3.3.4. Instrument Validity and Reliability

The validity of the instruments was established through expert judgment and empirical testing using Pearson product-moment correlation. All test items were declared valid as the correlation coefficients exceeded the critical value at a significance level of 0.05.

The reliability of the test instrument was measured using Cronbach's Alpha, while the observation instrument reliability was tested using inter-rater reliability, showing consistent results between observers.

3.4 Data Analysis

The collected data were analyzed using statistical analysis with the assistance of IBM SPSS Statistics version 25.

3.4.1. Normality Test

The normality test was conducted using the Shapiro–Wilk test, as the sample size was less than 50. Data were considered normally distributed if the significance value was greater than 0.05.

3.4.2. Homogeneity Test

The homogeneity test was conducted using Levene's Test to determine whether the data variances were equal. Data were considered homogeneous if the significance value was greater than 0.05.

3.4.3. Hypothesis Testing (Paired Sample t-test)

The paired sample t-test was used to determine whether there was a significant difference between pretest and posttest scores. If the significance value (Sig.) was less than 0.05, it indicated a significant effect of the museum-based field trip method on students' understanding of national cultural diversity.

4. Findings

4.1. Posttest Instrument Validity and Reliability

The validity and reliability of the research instruments were established to ensure that the data collected were accurate, consistent, and suitable for analysis. The primary instrument used in this study was a concept understanding test consisting of 10 items developed based on predetermined learning indicators related to national cultural diversity and aligned with the curriculum standards for fifth-grade students. The validity of the test items was assessed through both content and empirical validity. Content validity was evaluated through expert judgment, where educational experts examined the relevance, clarity, and representativeness of each item. Meanwhile, empirical validity was tested using the Pearson product-moment correlation, which showed that all 10 items had correlation coefficients (r -count) greater than the critical value (r -table) at a significance level of 0.05, indicating that all items were valid and suitable for measuring the intended construct.

The reliability of the test instrument was analyzed using Cronbach's Alpha, resulting in a coefficient of 0.82, which exceeds the acceptable threshold of 0.70 and indicates a high level of internal consistency. In addition to the test instrument, an observation checklist was used to assess students' engagement during the learning activities. The validity of the observation instrument was established through expert judgment, ensuring that all indicators such as attention, participation, responsiveness, and interaction accurately reflected students' observable behaviors. The reliability of the observation checklist was determined using inter-rater reliability, involving two observers, and the results showed a high level of agreement between them. Overall, these findings confirm that both the test and observation instruments used in this study were valid and reliable for measuring students' understanding and engagement in learning about national cultural diversity.

4.2. Descriptive Statistics of Pretest and Posttest

The data in this study were obtained through a concept understanding test administered to students before and after the implementation of the museum-based field trip method on the topic of national cultural diversity. The pretest was given prior to the learning activities to assess students' initial ability and understanding of the material. Meanwhile, the posttest was conducted after students participated in the field trip-based learning to measure changes or improvements in their understanding following the treatment.

The pretest and posttest were administered to all 25 fifth-grade students of SD Negeri Naikoten 1 Kupang. The obtained data were analyzed using descriptive statistics to provide an overview of students' learning outcomes before and after the application of the teaching method. Descriptive statistical analysis included the minimum score, maximum score, mean, and standard deviation for both pretest and posttest scores. The results are presented in Table 2.

Table 2. Descriptive Statistics of Pretest and Posttest Scores

Statistic	Pretest	Posttest
N	25	25
Minimum	50	74
Maximum	72	93

Mean	62.24	83.52
Std. Deviation	5.64	5.41

Based on Table 2, the mean pretest score was 62.24, with a minimum score of 50 and a maximum score of 72. This indicates that students' initial understanding of national cultural diversity was at a moderate level. The pretest standard deviation of 5.64 suggests that the distribution of scores was relatively close to the mean.

After participating in the learning activities using the museum-based field trip method, the posttest results showed a significant improvement. The mean posttest score increased to 83.52, with a minimum score of 74 and a maximum score of 93. The posttest standard deviation of 5.41 indicates that the distribution of students' scores remained relatively stable after the learning process.

The increase in the mean score from 62.24 in the pretest to 83.52 in the posttest demonstrates that the implementation of the museum-based field trip method had a positive effect on students' understanding of national cultural diversity. This result indicates that learning activities involving direct experiences through museum visits can help students comprehend cultural concepts more concretely and meaningfully.

Furthermore, to provide a visual illustration of the comparison between students' learning outcomes before and after the treatment, the pretest and posttest data were also presented in the form of graphs and histograms of score distribution.

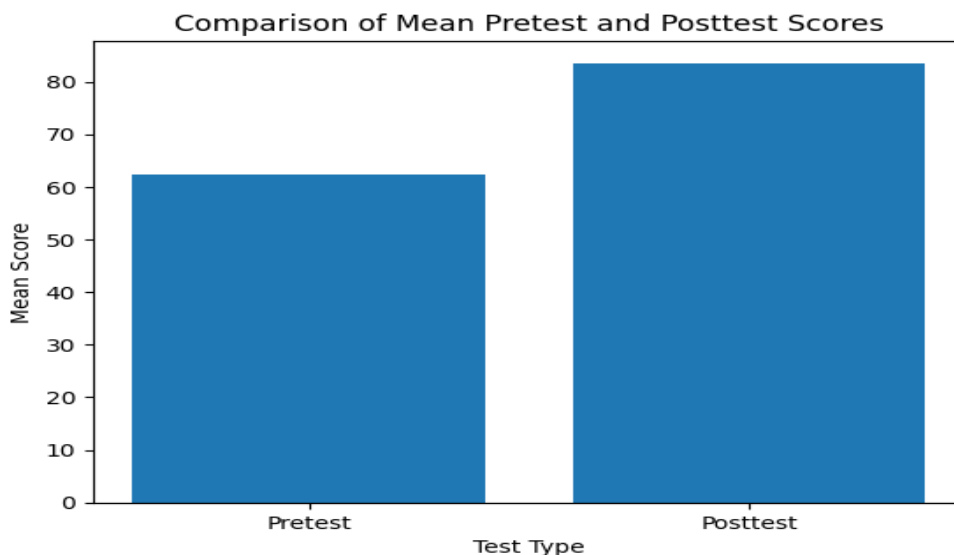


Figure 1. Comparison of Mean Pretest and Posttest Scores

The graph in Figure 1 illustrates the comparison of students' mean scores before and after the implementation of the museum-based field trip method on the topic of national cultural diversity. As shown in the graph, the mean posttest score is higher than the mean pretest score. The mean pretest score was 62.24, while the mean posttest score increased to 83.52 after students participated in the learning activities.

This increase in mean scores indicates that learning through the museum-based field trip method provided students with a more concrete and meaningful learning experience. During museum visits, students were able to directly observe various cultural objects, such as traditional clothing, musical instruments, and historical artifacts related to national cultural diversity. These direct learning experiences helped students understand the subject matter more effectively compared to learning conducted solely in the classroom.

Therefore, the graph comparing pretest and posttest scores demonstrates that the implementation of the museum-based field trip method contributed to improving students' understanding of national cultural diversity, as evidenced by the significant increase in their mean scores following the learning process.

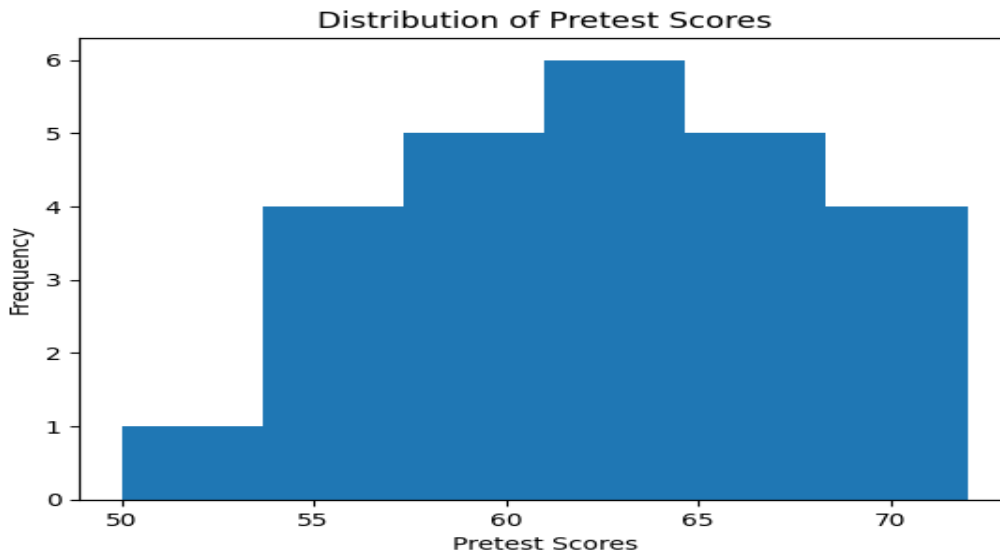


Figure 2. Histogram of Pretest Score Distribution

The histogram in Figure 2 illustrates the distribution of students' pretest scores before the implementation of the museum-based field trip method in teaching national cultural diversity. Based on the histogram, most students scored in the 55–70 range, indicating that their initial understanding of national cultural diversity was at a moderate level.

The score distribution also shows that only a small number of students achieved scores near the maximum, while the majority remained in the mid-range. This condition reflects that prior to the intervention, students did not yet have an optimal understanding of the material. Therefore, a more contextual and engaging learning strategy is needed to enhance students' comprehension of national cultural diversity.

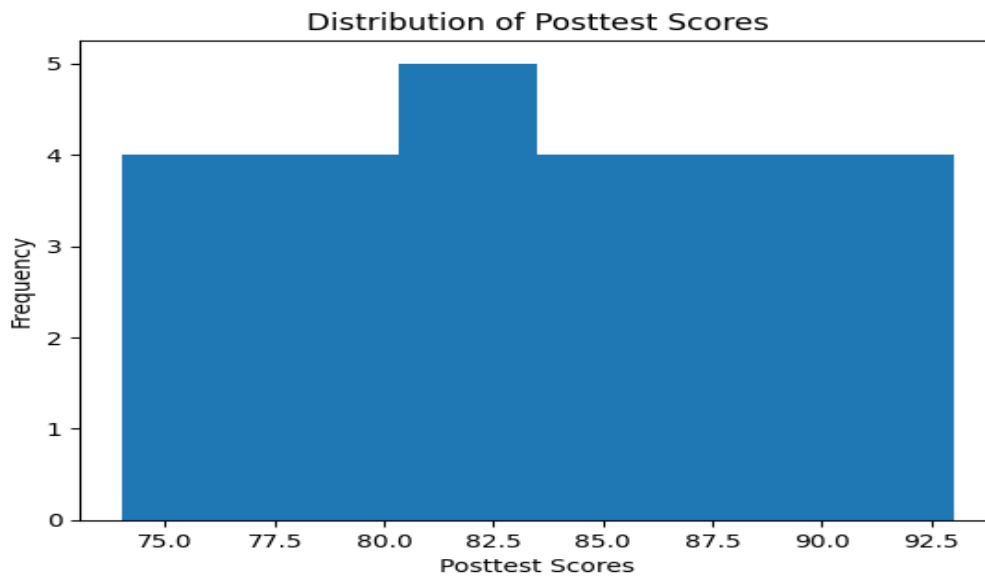


Figure 3. Histogram of Posttest Score Distribution

The histogram in Figure 3 shows the distribution of students' posttest scores after participating in the museum-based field trip learning activities. Based on the histogram, the score distribution shifted toward higher values, primarily in the 80–90 range, indicating that most students achieved better results after the learning process.

This shift in score distribution demonstrates an improvement in students' understanding of national cultural diversity following the implementation of the museum-based field trip method. Learning

activities that involve direct experience through museum visits enable students to observe cultural objects firsthand, helping them grasp the concepts of cultural diversity more concretely and meaningfully.

Thus, the posttest score distribution histogram shows that the museum-based field trip method positively contributes to improving students' learning outcomes in the topic of national cultural diversity.

4.3. Inferential Analysis

The inferential analysis in this study was conducted to determine whether the improvement in students' scores after the implementation of the museum-based field trip method on the topic of national cultural diversity was statistically significant. This analysis aimed to test the research hypothesis and ensure that the difference between pretest and posttest scores was not due to chance, but a result of the applied teaching method.

Before performing the paired sample t-test, several statistical assumptions were examined. These included the normality test and the homogeneity test. The normality test was conducted to determine whether the pretest and posttest score data were normally distributed. Normal data distribution is an important requirement for using parametric statistical analyses, including the t-test. The homogeneity test, on the other hand, was conducted to check whether the variance of the data was similar (homogeneous).

Once both assumptions were satisfied, the analysis proceeded with the paired sample t-test. This test compares two related groups, in this case, the pretest and posttest scores from the same group of students. The test allows researchers to determine whether there is a significant difference between students' scores before and after the implementation of the museum-based field trip method in learning about national cultural diversity.

In summary, the inferential analysis in this study consisted of three main stages: the normality test, the homogeneity test, and hypothesis testing using the paired sample t-test. The results from these analyses provide a clearer understanding of the effectiveness of the museum-based field trip method in enhancing students' understanding of national cultural diversity.

4.3.1. Normality Test

The normality test was conducted to determine whether the data obtained in this study were normally distributed. Normality testing is an important step in statistical analysis, especially before performing parametric tests such as the paired sample t-test. Data that are normally distributed indicate that the values are symmetrically spread around the mean, which satisfies one of the basic assumptions required for parametric statistical analysis.

In this study, the normality test was performed on both pretest and posttest data to ensure that these datasets met the assumption of normal distribution. The Shapiro–Wilk test was used because the sample size in this study was less than 50 respondents. The Shapiro–Wilk test is widely used in educational research for testing normality in relatively small samples. Data are considered normally distributed if the significance value (Sig.) is greater than 0.05.

The results of the normality test for the pretest and posttest data are presented in Table 3.

Table 3. Normality Test Results

Variable	Statistic	Sig
Pretest	0.987	0.980
Posttest	0.976	0.808

Based on Table 3, the significance value for the pretest data was 0.980, and the significance value for the posttest data was 0.808. Both values are greater than 0.05, indicating that the pretest and posttest data in this study are normally distributed.

Therefore, the data meet one of the essential assumptions for parametric statistical analysis, allowing the study to proceed to the next steps, namely the homogeneity test and hypothesis

testing using the paired sample t-test.

4.3.2. Homogeneity Test

The homogeneity test was conducted to determine whether the variances of the data in this study were similar, or homogeneous. Homogeneity testing is an important step in inferential statistical analysis because it ensures that the data being analyzed have a relatively consistent spread. Homogeneous variances indicate that differences in values are not caused by unequal variability between data groups, allowing statistical analyses to produce more accurate results.

In this study, the homogeneity test was performed on both pretest and posttest data to determine whether the two datasets had equal variances. The test was conducted using Levene's Test, a commonly used method in statistical analysis to assess variance equality. Data are considered homogeneous if the significance value (Sig.) is greater than 0.05.

The results of the homogeneity test are presented in Table 4.

Table 4. Homogeneity Test Results (Levene's Test)

Test	Statistic	Sig
Levene	0.019	0.892

Based on Table 4, the significance value obtained from Levene's Test was 0.892, which is greater than 0.05. This indicates that the variances of the pretest and posttest data in this study are homogeneous.

Therefore, the data meet the assumption of homogeneity, allowing the analysis to proceed to the next stage: hypothesis testing using the paired sample t-test to determine whether there is a significant difference between students' pretest and posttest scores.

4.3.3. Hypothesis Testing (Paired Sample t-test)

The hypothesis testing in this study was conducted to determine whether there was a significant difference between students' pretest and posttest scores after the implementation of the museum-based field trip method in learning about national cultural diversity. The paired sample t-test was used because the data being compared came from the same group of students, with pretest scores obtained before the treatment and posttest scores obtained after the treatment.

The paired sample t-test compares the means of two related datasets to determine whether the difference is statistically significant. In this study, the test aimed to examine whether the application of the museum-based field trip method had a positive effect on students' understanding of national cultural diversity.

The criteria for hypothesis testing in this study are as follows:

If the significance value (Sig.) is less than 0.05, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted, indicating a significant difference between the pretest and posttest scores.

If the significance value is greater than 0.05, H_0 is accepted, indicating no significant difference between the two sets of scores.

The results of the paired sample t-test are presented in Table 5.

Table 5. Paired Sample t-test Results

Comparison	t	Sig (2-tailed)	Mean Difference
Posttest – Pretest	72.96	0.000	21.28

Based on Table 5, the significance value (Sig. 2-tailed) is 0.000, which is less than 0.05. This indicates that H_0 is rejected and H_1 is accepted, meaning there is a significant difference between students' pretest and posttest scores.

Furthermore, the mean difference of 21.28 indicates that the average score of students increased

after participating in the museum-based field trip learning. This improvement demonstrates that the implementation of the field trip method has a positive effect on students' understanding of national cultural diversity.

In conclusion, the hypothesis test results show that the museum-based field trip method is effective in enhancing students' comprehension of national cultural diversity among Grade V students at SD Negeri Naikoten 1 Kupang.

5. Discussion

The results of this study indicate that the implementation of the museum-based field trip method has a significant effect on improving students' understanding of national cultural diversity, as evidenced by the increase in posttest scores compared to pretest scores. This finding suggests that learning through direct experience provides a more concrete and meaningful understanding of abstract concepts. In the context of cultural diversity learning, the effectiveness of this method can be explained by the nature of the subject matter itself, which involves values, symbols, and social practices that are often difficult to grasp through textual explanations alone. By directly observing cultural artifacts such as traditional clothing, musical instruments, and historical objects, students are able to connect abstract cultural concepts with tangible representations. This process allows students to construct meaning through observation and interpretation, making learning more contextual and cognitively engaging (Widyaningtyas et al., 2025).

Furthermore, the museum-based field trip method is particularly effective for cultural diversity learning because it facilitates experiential and interpretive learning processes. Unlike subjects that rely heavily on procedural knowledge, cultural learning requires students to understand meaning, context, and diversity from multiple perspectives. When students interact with museum collections, they do not merely receive information but actively interpret the cultural significance of each artifact. This interpretive process encourages deeper cognitive processing and helps students develop a more comprehensive understanding of cultural diversity. In this sense, the effectiveness of field trips is not only due to increased engagement but also because the learning environment aligns closely with the characteristics of the subject matter itself (Fitriansyah & Kasmin, 2022).

In addition, field trip activities contribute to increased student engagement and motivation by providing a learning environment that differs from conventional classroom settings. Students are more actively involved in observing, asking questions, and discussing their findings, which supports active learning processes. However, it is important to note that the observed improvement cannot be solely attributed to the field trip method without considering the study design. Since this study employed a one-group pretest–posttest design without a control group, it is not possible to fully compare the effectiveness of this method with traditional instructional approaches. The improvement in students' scores may also be influenced by other factors, such as increased attention during the intervention, novelty effects, or repeated exposure to the material.

Moreover, while the results indicate that the museum-based field trip method enhances students' understanding, the absence of a comparison group limits the ability to generalize the findings as being superior to other teaching methods. Future research is recommended to include a control group or use a true experimental design to provide a more robust comparison between field trip-based learning and conventional classroom instruction. Such an approach would allow researchers to better isolate the specific contribution of the field trip method to students' learning outcomes.

Overall, the findings suggest that the museum-based field trip method is an effective strategy for improving students' understanding of national cultural diversity, particularly because it enables direct interaction with cultural artifacts and supports contextual and meaningful learning. However, the interpretation of these results should be considered with caution due to the methodological limitations of the study. Despite these limitations, the study provides

valuable insights into how experiential learning environments, such as museums, can be utilized to enhance cultural education in elementary schools.

6. Conclusion

The findings of this study indicate that the museum-based field trip method enhances students' understanding of national cultural diversity by transforming abstract cultural concepts into concrete and meaningful learning experiences. Through direct interaction with cultural artifacts, students are able to interpret, relate, and internalize cultural values more effectively than through classroom-based instruction alone. This suggests that the effectiveness of the method lies not only in improving test scores but also in aligning the learning process with the contextual and experiential nature of cultural education. However, the absence of a control group limits the ability to attribute these improvements solely to the intervention, and future studies are recommended to employ more rigorous experimental designs. Overall, the study highlights the pedagogical potential of museum-based experiential learning as a strategy for fostering deeper conceptual understanding and engagement in elementary cultural education.

Limitation

This study has several limitations that should be considered when interpreting the findings. First, the research was conducted with a relatively small sample size consisting of only 25 students from a single elementary school. This limitation may affect the generalizability of the findings to a broader population of students. Second, the research used a one-group pretest–posttest design without a control group, which makes it difficult to compare the effectiveness of the museum-based field trip method with other instructional methods. Third, the duration of the study was relatively short and focused only on a single learning topic, namely national cultural diversity. Therefore, the long-term impact of the field trip method on students' learning outcomes and attitudes toward cultural diversity could not be fully examined.

Recommendation

Based on the findings of this study, several recommendations can be proposed. First, teachers are encouraged to utilize museum visits and other forms of outdoor learning as alternative learning strategies to create more engaging and meaningful learning experiences for students. Second, schools should support the implementation of experiential learning activities such as field trips by providing adequate resources and facilitating collaboration with educational institutions such as museums. Third, future researchers are recommended to conduct studies with larger sample sizes and include control groups in order to obtain more comprehensive and generalizable findings. In addition, future studies may explore the long-term impact of field trip-based learning on students' attitudes, cultural awareness, and critical thinking skills.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this research. The study was conducted independently without any financial or commercial relationships that could be interpreted as potential conflicts of interest.

Declaration of Generative AI and AI-assisted Technologies

The authors declare that generative artificial intelligence (AI) and AI-assisted technologies were used in a limited capacity during the preparation of this manuscript, particularly for language editing and improving grammatical clarity. The authors take full responsibility for the content of the manuscript, including the accuracy of the data, interpretation of the results, and the originality of the research findings.

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