

The Effect of the Mind Mapping Learning Model Assisted by Limas Traditional House Media on the Learning Outcomes of Fourth Grade Students

Rizki Ramadhan^{1*}, Kiki Aryaningrum¹, Budi Utomo²

^{1,2,3} Universitas PGRI Palembang, Indonesia

*Correspondence email: rizkirama1103@gmail.com

ARTICLE INFO

Keywords:

Mind Mapping
Limas Traditional House
Learning Outcomes
Science and Science

Article history:

Received 2026-05-14

Revised 2026-06-12

Accepted 2026-07-20

ABSTRACT

Science learning in elementary schools requires innovative and engaging instructional approaches. Integrating local cultural media into learning can enhance students' understanding and learning outcomes. This study aims to determine the effect of the Mind Mapping learning model assisted by the Limas Traditional House media on the science learning outcomes of fourth-grade students at SD Negeri 81 Palembang. This research employed a quantitative approach using a quasi-experimental method with a Nonequivalent Control Group Design. The sample consisted of Class IV B as the experimental group and Class IV D as the control group. Data were collected through pretests and posttests and analyzed using the Shapiro-Wilk normality test, Levene's homogeneity test, and the Independent Sample t-test. The findings revealed a significance value of 0.000 ($p < 0.05$), indicating a statistically significant difference between the experimental and control groups. Students taught using the Mind Mapping model assisted by the Limas Traditional House media achieved higher learning outcomes than those who received conventional instruction. In conclusion, integrating the Mind Mapping learning model with local culture-based media creates more active, contextual, and meaningful learning experiences, thereby improving students' understanding of science concepts and enhancing their learning outcomes in elementary schools.

This is an open access article under the CC BY SA license.



Corresponding Author:

Rizki Ramadhan

Universitas PGRI Palembang, Indonesia; rizkirama1103@gmail.com

1. INTRODUCTION

Learning outcomes are descriptions that indicate the extent to which students are able to understand and master the material delivered by teachers. Through learning outcomes, it can be identified whether students are capable of reinterpreting learning materials, applying knowledge in various situations, and demonstrating positive changes in attitudes, skills, and understanding.

Therefore, learning outcomes serve as an important indicator in assessing the success of the learning process and the overall development of students' abilities (Firdaus, 2023).

The indicators of student learning outcomes at SDN 81 Palembang have not yet shown optimal achievement. Based on observations conducted in Grade IV, it was found that students' learning outcomes are still varied. Some students have demonstrated good understanding of the material, while others still lack focus and require guidance in completing assignments. This condition indicates that differences in students' understanding, attitudes, and learning habits influence their learning outcomes, particularly in the topic of cultural diversity.

The material on cultural diversity requires learning media that can help students understand the concepts more easily. In this regard, the use of instructional media becomes essential. Learning media are tools used to convey information to students so that the learning process becomes more directed, effective, and meaningful (Tri & Adam, 2022). One of the instructional media that can be utilized is a miniature of the Limas traditional house. The Limas House is a traditional house originating from South Sumatra and can be found at the Balaputera Dewa Museum. This miniature can be used as a concrete learning medium in elementary schools, particularly in Social Science (IPAS) learning (Maharani et al., 2024).

The use of the Limas traditional house miniature can create an interesting and enjoyable learning atmosphere. Through this media, learning becomes more engaging and meaningful for students. Moreover, the miniature is designed to attract students' attention and provide direct learning experiences. Consequently, students are expected to understand concepts related to local culture and Indonesian cultural diversity more easily. The use of traditional house miniatures is also expected to deepen students' understanding of cultural heritage, which in turn can improve their learning outcomes (Image et al., 2021).

Improving student learning outcomes can also be supported by the application of appropriate learning models, one of which is the **Mind Mapping** learning model. Mind Mapping is a visual note-taking method that helps students organize information more systematically and makes it easier to understand concepts. This method uses keywords as the center of information and connects various related concepts. Through this approach, students can develop broader thinking patterns and capture ideas from multiple perspectives (Nuroniah et al., 2024).

To facilitate students in understanding information, teachers need to implement learning models that are aligned with students' learning needs. A learning model is a framework that includes approaches, strategies, methods, techniques, and tactics used in the learning process. It describes how learning activities are organized from beginning to end and guides teachers in presenting learning materials effectively (Chaliq et al., 2024).

Various studies have proven that the Mind Mapping learning model provides positive impacts on elementary school students' learning outcomes. Research conducted by Ruhama and Erwin (2021) showed that the implementation of the Mind Mapping model significantly affects students' learning outcomes, especially when supported by concrete learning media. Similarly, Nisak et al. (2024) found that the application of Mind Mapping assisted by instructional media can improve learning outcomes in IPAS subjects. Therefore, it can be concluded that the Mind Mapping learning model has a significant positive effect on students' learning outcomes, particularly when combined with concrete learning media.

However, based on previous studies, there has been limited research discussing the effectiveness of combining the Mind Mapping learning model with miniature traditional house media in IPAS learning. Therefore, this study aims to examine the effect of the Mind Mapping learning model assisted by the miniature of the Limas traditional house on the learning outcomes of Grade IV students at SDN 81 Palembang.

2. METHODS

This study employed a quantitative approach using a quasi-experimental method with a Nonequivalent Control Group Design. In this design, the researcher could not randomly assign subjects into experimental and control groups because the existing classes had already been formed (Scott, 2022). Both groups were administered a pretest to determine students' initial abilities before the treatment and a posttest after the learning process to measure changes in students' learning outcomes.

The research was conducted during the second semester of the 2025/2026 academic year at SD Negeri 81 Palembang on June 17–19, 2026. The population consisted of all fourth-grade students of SD Negeri 81 Palembang, totaling 199 students. The sample was selected using the cluster random sampling technique, resulting in Class IV-B as the experimental class and Class IV-D as the control class. Each class consisted of more than 30 students.

The experimental class was taught using the Mind Mapping learning model assisted by miniature media of the Limas Traditional House, whereas the control class received conventional instruction through lectures, question-and-answer sessions, and assignments.

The procedures of the study included: (1) administering a pretest to both groups to identify students' initial abilities; (2) providing treatment through the implementation of the Mind Mapping learning model assisted by the Limas Traditional House miniature media in the experimental class, while the control class received conventional learning; (3) administering a posttest to both groups to measure students' learning outcomes after the treatment; and (4) analyzing the data using normality tests, homogeneity tests, and an Independent Sample t-test to determine the effect of the treatment on students' learning outcomes (Sugiyono, 2022).

3. RESULTS AND DISCUSSION

This study aimed to determine the effect of the Mind Mapping learning model assisted by the Limas Traditional House media on the IPAS learning outcomes of fourth-grade students at SD Negeri 81 Palembang on the topic of cultural diversity. The research involved two groups, namely Class IV-B as the experimental group and Class IV-D as the control group. Before the treatment was administered, both groups were given a pretest to identify students' initial abilities. After the learning process was completed, both groups received a posttest to determine changes in learning outcomes after the treatment.

3.1 Student Learning Outcomes

The results of the analysis indicated that the initial abilities of students in both classes were relatively similar, as evidenced by the pretest scores, which did not differ significantly. After the implementation of the learning process, an improvement in learning outcomes occurred in both groups. However, the increase in learning outcomes in the experimental class was higher than that in the control class.

These findings indicate that the implementation of the Mind Mapping learning model assisted by the Limas Traditional House media had a positive effect on students' understanding of the cultural diversity material. The use of visual and concrete media enabled students to understand concepts more easily, organize information systematically, and actively participate in the learning process. Consequently, students in the experimental class achieved better learning outcomes compared to those who participated in conventional learning.

Table 1. Pretest and Posttest Results of the Experimental and Control Classes

No	Control		Eksperimen	
	<i>Pretest</i>	<i>Posttest</i>	<i>Pretest</i>	<i>Posttest</i>
1	58	72	59	86
2	61	74	62	90
3	64	78	56	85
4	56	71	65	92

5	53	68	61	89
6	65	79	57	86
7	60	75	60	88
8	57	70	64	91
9	59	73	58	87
10	67	81	68	95
11	55	69	57	86
12	58	72	61	89
13	63	77	65	93
14	66	80	63	90
15	54	68	55	84
16	62	76	69	96
17	57	71	58	87
18	64	78	62	90
19	59	73	57	85
20	70	85	70	97
21	58	72	60	88
22	65	79	64	91
23	60	74	58	87
24	67	82	62	89
25	61	76	66	94
26	56	70	56	85
27	64	78	68	95
28	69	84	63	90
29	60	75	71	98
30	72	87	65	92
Average	61,07	75,53	61,87	89,97

Sumber: Processed Results Data Penelitian, 2026

Based on Table 1, the average posttest score of students in the experimental class after participating in learning using the Mind Mapping model assisted by the Limas Traditional House media reached 89.83, while the average score of students in the control class was 75.57. The difference in the mean scores of 14.26 points indicates that students who were taught using the Mind Mapping model achieved better learning outcomes than those who received conventional instruction.

This improvement demonstrates that presenting the material through mind maps combined with concrete learning media can help students understand the relationships among concepts more systematically. Furthermore, the use of the Limas Traditional House media provided students with more contextual and meaningful learning experiences, making the topic of cultural diversity easier to comprehend. Through visual representations and direct illustrations of local cultural heritage, students became more actively involved in the learning process, which ultimately contributed to improved learning outcomes.

3.2 Normality Test

Before conducting the hypothesis testing, the research data were first examined for normality using the Shapiro–Wilk test. The results showed that the significance values of both the pretest and posttest scores were greater than 0.05, indicating that the data were normally distributed. Therefore, it can be concluded that the assumption of normality was fulfilled.

Since the data met the normality requirement, parametric statistical analyses could be applied in this study. The fulfillment of this assumption indicates that the data distribution did not significantly deviate from a normal distribution, thereby allowing further analysis using parametric tests,

particularly the Independent Sample t-test, to determine the effect of the Mind Mapping learning model assisted by the Limas Traditional House media on students' learning outcomes.

Table 2. Normality Test Results

You left		Shapiro-Wilk		
		Statistic	df	Sig
Results	Pretest A (control)	.975	30	.696
	Posttest A(Control	.964	30	.401
	Pretest B(eksperimen)	.960	30	.306
	Posttest	.953	30	.200
	B(eksperhymen)			

Sumber: Results of Peprocessing SPSS Data Versi 25 Year 2026.

Based on Table 2, it is known that the Shapiro–Wilk significance values for the pretest and posttest data were all greater than 0.05. The significance value of the pretest in the control class was 0.696, while the posttest significance value was 0.401. In the experimental class, the significance values of the pretest and posttest were 0.306 and 0.200, respectively.

Since all significance values exceeded the criterion of 0.05, it can be concluded that the pretest and posttest data in both the experimental and control classes were normally distributed. Therefore, the research data fulfilled one of the assumptions required for conducting parametric statistical analyses.

3.3 Homogeneity Test

The homogeneity test was conducted using Levene's Test to determine whether the variances of the two research groups were equal. The results of the analysis indicated that the significance value obtained was greater than 0.05, suggesting that the variances of the experimental and control groups were homogeneous.

This condition demonstrates that both groups had relatively similar characteristics in terms of data variability before the hypothesis testing was conducted. The fulfillment of the homogeneity assumption indicates that the data met the requirements for further analysis using parametric statistical tests, particularly the Independent Sample t-test, to examine the effect of the Mind Mapping learning model assisted by the Limas Traditional House media on students' learning outcomes.

Table 3. Results of the homoge testnitas

You left		Statistics	df1	df2	itself.
Results	Based on Mean	1.027	3	116	.383
	Based on Median	.878	3	116	.455
	Based on Median and with adjusted df	.878	3	111.245	.455
	Based on trimmed mean	.988	3	116	.401

Sumber: Results of SPSS Data Processing Versi 25 Year 2026.

ased on Table 3, the significance value obtained from the homogeneity test was **0.383**. Since the significance value is greater than **0.05** ($0.383 > 0.05$), it can be concluded that the research data have **homogeneous variances**. Therefore, the assumption of homogeneity has been fulfilled, and the data meet the requirements for conducting hypothesis testing using the **Independent Sample t-test**.

3.4 Hypothesis Testing

Hypothesis testing was carried out using the **Independent Sample t-test** to determine whether there was a significant difference in learning outcomes between the experimental class and the control class after the treatment had been administered.

The Independent Sample t-test was selected because the data had met the prerequisite assumptions, namely normal distribution and homogeneous variances. Through this test, the

researcher aimed to examine the effect of implementing the Mind Mapping learning model assisted by the Limas Traditional House media on students' learning outcomes in the topic of cultural diversity.

Table 4. Results of the Independent Sample t-Test

						Sig. (2- tailed)	Mean Differenc e	Std.rror Differenc e	95% Confidence Interval of the Difference	
		F	Sa y.	T	df				Low er	Up per
Value	Andvarian ces assumes d Equal variances not assumed	2.52 1	.11 8	- 12.28 4	58 4	.000 .000	-14.267 -14.267	1.161 1.161	- 16.59 1	- 11.94 2

Sumber: Results of SPSS Data Processing Versi 25 Year 2026.

The results of the analysis showed that the significance value (2-tailed) was **0.000**, lebih kecil rather than the significance level of **0.05**. Dengan demikian, **H₀ rejected and H_a accepted**, which berarti tercapai can have a significant impact from penerapan model pembelajaran *Mind Mapping* lessons berbantuan media Limas Traditional House terhadap hasil belajar IPAS students kelas IV SD Negeri 81 Palembang.

3.5. Discussion

The results of this study indicate that the Mind Mapping learning model assisted by the Limas Traditional House media had a significant effect on the IPAS learning outcomes of fourth-grade students at SD Negeri 81 Palembang. This effect can be seen from the differences in posttest results between the experimental and control classes. Students in the experimental class obtained higher learning outcomes than those in the control class who received conventional instruction. These findings suggest that the use of innovative learning models supported by concrete media is able to improve students' understanding of the material, particularly on the topic of cultural diversity.

The findings of this study are consistent with previous research conducted by Sapphire et al. (2025), which revealed that the Mind Mapping learning model significantly influences elementary students' learning outcomes. The similarity of these findings indicates that Mind Mapping helps students organize concepts, understand relationships among ideas, and remember learning materials more effectively. In the present study, learning effectiveness increased because Mind Mapping was integrated with the Limas Traditional House media, providing students with contextual learning experiences based on local culture.

These findings are also supported by **constructivist theory**, which emphasizes that knowledge is actively constructed through meaningful learning experiences. Through the process of creating mind maps and observing the miniature of the Limas Traditional House, students actively constructed their own understanding of cultural diversity concepts. Consequently, learning became more meaningful and had a positive impact on students' learning outcomes.

Furthermore, the results of this study are in line with the findings of Triyana et al. (2024), who reported that student-centered learning models can improve learning outcomes through students' active involvement during the learning process. Students are no longer passive recipients of

information but become actively engaged in organizing knowledge and developing their own understanding of the subject matter.

The positive influence of Mind Mapping on learning outcomes can also be explained by its ability to assist students in organizing information systematically and visually. Nurrachmawati and Istaryatiningtias (2022) found that the use of Mind Mapping significantly improves students' learning outcomes because it facilitates understanding and retention of information. In this study, students actively organized concepts related to cultural diversity while connecting them with concrete examples represented by the Limas Traditional House media. Such activities enabled students to link abstract concepts with real-life experiences, thereby making learning more meaningful.

The use of the Limas Traditional House media also provided students with direct experiences in understanding local cultural heritage, particularly the traditional culture of South Sumatra. Concrete media allowed students to observe and understand cultural characteristics directly, which helped them comprehend the learning material more easily. This finding supports the study of Priyanata et al. (2025), which stated that Mind Mapping improves students' learning outcomes by helping them organize information visually and systematically.

In addition to improving conceptual understanding, Mind Mapping also contributes to the development of students' creativity, memory, and thinking skills. Saputra et al. (2021) reported that the implementation of Mind Mapping encourages students to actively construct knowledge and connect new information with their prior understanding. Likewise, Riswanti et al. (2023) found that Mind Mapping significantly improves creative thinking skills and learning achievement. Sari et al. (2023) further emphasized that collaborative learning assisted by digital mind mapping enhances student engagement, communication, and collaboration during the learning process.

The success of the Mind Mapping learning model assisted by the Limas Traditional House media can therefore be explained through constructivist principles. Students actively constructed knowledge through direct experiences, organized information independently, and related new concepts to existing knowledge. As a result, students were better able to understand, remember, and apply the concepts learned. Therefore, it can be concluded that the implementation of the Mind Mapping learning model assisted by the Limas Traditional House media on the topic of cultural diversity significantly improved the IPAS learning outcomes of fourth-grade students at SD Negeri 81 Palembang.

Despite these positive findings, this study still has several limitations. First, the study was conducted in only one school with a limited number of participants; therefore, the findings cannot be generalized broadly. Second, this research only focused on cognitive learning outcomes and did not examine the effects of the learning model on affective aspects, psychomotor skills, or higher-order thinking skills. Future studies are therefore recommended to involve larger samples from various schools, measure more diverse learning outcomes, and develop local wisdom-based learning media in different educational contexts to obtain a more comprehensive understanding of the effectiveness of the model.

4. CONCLUSION

Based on the findings of this study conducted at SD Negeri 81 Palembang, it can be concluded that the Mind Mapping learning model assisted by the Limas Traditional House media significantly affects students' IPAS learning outcomes on the topic of cultural diversity.

This conclusion is supported by the higher average posttest score achieved by the experimental class (89.83) compared with the control class (75.57), resulting in a mean difference of 14.26 points. Furthermore, the results of the Independent Sample t-test showed a significance value of $0.000 < 0.05$, indicating that the null hypothesis (H_0) was rejected and the alternative hypothesis (H_1) was accepted.

Therefore, it can be concluded that the implementation of the Mind Mapping learning model assisted by the Limas Traditional House media provides a significant positive effect on students' learning outcomes. The model helps students understand the material through structured concept mapping, while the Limas Traditional House media makes learning more concrete, interesting,

contextual, and easier to understand. Consequently, this learning model can be considered an effective alternative strategy for improving elementary school students' learning outcomes in IPAS subjects.

REFERENCES

- Andri, Y., Anya Nathania, K. P., & Yumna Syaza, K. P. (2023). Faktor-Faktor Yang Meimpeingarui Hasil Belajar Peiseirta Didik (Liteiraturei Reiview). *Jurnal Peindidikan Sibeir Nusantara*, 1(1), 13–24. <https://doi.org/10.38035/Ipsn.V1i1>
- Chaliq Alwafi, M., & Deirta, S. (2024). Peingaruh Modeil Peimbeilajaran Mind Mapping Teirhadap Hasil Belajar Siswa Di Smpn 4 Bukittinggi. *Journal Of Eiducational Manageimeint And Strateigy*, 3(01), 17–31. <https://doi.org/10.57255/Ieimast.V3i01.357>
- Imawati, I., Rusmawati, R. D., & Nurjati, N. (2021). Meidia Miniatur Rumah Adat Deingan Paneil Surya Untuk Meiningkatkan Hasil Belajar Siswa Seikolah Dasar. *Jurnal Imiah Peindidikan Dan Peimbeilajaran*, 5(2), 272. <https://doi.org/10.23887/Iipp.V5i2.34356>
- Latieif, J. A., Iskandar, Misnah, Jayanti, I. N., Fikri, M., Kurniati, W., & Adam, A. M. (2024). Thei Utilization Of Museums As A Conteixtual Leiarning Tool For History Eiducation For Studeints Of Sma Labschool Palu. *Indoneisian Journal Of Socieity Deiveilopmeint*, 3(5), 297–304. <https://doi.org/10.55927/Ijsd.V3i5.11828>
- Maharani, S. D., Putri, R. I. I., Syawaliyah, A. F., & Safitri, M. L. O. (2024). Inteiractivei Leiarning Meidia: Liteiracy And Numeiracy Limas Housei Balaputeira Deiva Museum In Phasei B. Reiseiarch And Deiveilopmeint In Eiducation (Radein), 4(1), 617–629. <https://doi.org/10.22219/Radein.V4i1.32832>
- Nisak, H., Masfuah, S., & Hilyana, F. S. (2024). Meiningkatkan Hasil Belajar Ipas Siswa Keilas Iv Sd Meilalui Modeil Peimbeilajaran Mind Mapping Beirbantuan Meidia Vintami. *Jurnal Ilmiah Profeisi Peindidikan*, 9(3), 1758–1767. <https://doi.org/10.29303/Iipp.V9i3.2545>
- Nuroniah, N., Sari, Ei. A., Putra, S., Ciamis, G., & Barat, J. (2024). Peingaruh Modeil Peimbeilajaran Mind Mapping Peimahaman Siswa Teintang Konseip Geirak Beinda. 1(May), 35–43. <https://doi.org/10.61580/Ieieisica.V1i1.34>
- Nurrachmawati, R., & Istaryatiningtias, I. (2022). Peingaruh Modeil Peimbeilajaran Mind Mapping teirhadap Hasil Belajar PPKn Siswa Seikolah Dasar. *Jurnal Basiceidu*, 6(5), 8026–8032.
- Priyanata, A. B., Nasution, N., Subroto, W. T., & Zakariyah, M. F. (2025). Analisis Modeil Peimbeilajaran Mind Mapping untuk Meiningkat Hasil Belajar Siswa di Seikolah Dasar. *MODEiLING: Jurnal Program Studi PGMI*, 12(1), 256–288.
- Riswanti, N., Preihadini, T., & Eirviana, VY (2023). Peingaruh Mind Mapping teirhadap Beirpikir Kreiatif dan Hasil Belajar Guru Pra-Layanan Seikolah Dasar. *Jurnal Peindidikan Progreisif*, 13 (3), 1435–1444. <https://doi.org/10.23960/jpp.v13i3.202340>
- Ruhama, I. A., & Eirwin, Ei. (2021). Peingaruh Peineirapan Modeil Peimbeilajaran Mind Mapping Teirhadap Hasil Belajar Ipa Siswa Seikolah Dasar Di Masa Pandeimi Covid-19. *Jurnal Basiceidu*, 5(5), 3841–3849. <https://doi.org/10.31004/Basiceidu.V5i5.1422>
- Safitri, N. H. I., Dewi, I. Y. M., & Hardiansyah. (2025). Pengaruh Model Pembelajaran Mind Mapping terhadap Hasil Belajar IPAS pada Siswa Kelas V SDN Sapeken 1. *Journal of Education Research*, 6(3), 494–503. <https://doi.org/10.37985/jer.v6i3.2460>
- Saputra, J., Triyogo, A., & Frima, A. (2021). *Jurnal Basiceidu*. 5(6), 5133–5141. <https://doi.org/10.31004/Basiceidu.V5i6.1563>
- Sari, N., Liskinasi, A., & Jansz, M. I. (2023). Studeintsâ€™ eingageimeint in digital mind mapping-supporteid collaborativedi leiarning during thei post-pandeimic eira. *Jurnal Inspirasi Peindidikan*, 13(1), 59–68. <https://doi.org/10.21067/jip.v13i1.8207>
- Sugiyono. (2022). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- Tri, W., & Adam, M. (2022). Eifeiktivitas Peinggunaan Aplikasi Canva Seibagai Meidia Peimbeilajaran Ipa Mi/Sd. *Jurnal Riseit Madrasah Ibtidaiyah (Jurmia)*, 2(1), 102–118. <https://doi.org/10.32665/Jurmia.V2i1.245>
- Triyana, M. B., Syamsiyah, N., & Utomo, B. (2024). Meiningkatkan hasil belajar siswa keilas V SDN

Margomulyo 1 Ngawi pada materi kubus dan balok melalui penerapan model discovery learning menggunakan media pop up book. *Jurnal Kolutus*, 7(2).
<https://ejournal.kahuripan.ac.id/index.php/kolutus/article/view/1279>