

The Application of the Contextual Teaching and Learning (CTL) Learning Model Assisted by Mind Mapping Media to the Science Learning Outcomes of Grade V Students

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Abstract

Basic education is an important foundation in shaping students' knowledge, skills, attitudes, and character as a provision to continue education to a higher level. This study aimed to determine the effect of the Contextual Teaching and Learning (CTL) model assisted by Mind Mapping media on the IPAS learning outcomes of fifth-grade students at SD Negeri 25 Lubuklinggau. This study employed a Pre-Experimental Design using the One-Group Pre-test-Post-test Design. The population and sample consisted of 23 fifth-grade students of SD Negeri 25 Lubuklinggau selected using simple random sampling. Data were collected through learning achievement tests in the form of pre-tests and post-tests. The data were analyzed using the normality test and hypothesis testing with the Z-test. The results showed that the mean pre-test score was 41.17, while the mean post-test score increased to 79.26, indicating an improvement in students' learning outcomes after the implementation of the Contextual Teaching and Learning (CTL) model assisted by Mind Mapping media. The percentage of students achieving learning mastery increased from 13.04% in the pre-test to 82.61% in the post-test. The hypothesis testing revealed that the calculated Z value ($Z_{count} = 4.68$) was higher than the critical Z value ($Z_{table} = 1.64$), indicating that $Z_{count} > Z_{table}$ ($4.68 > 1.64$). Therefore, the null hypothesis (H_0) was rejected, and the alternative hypothesis (H_a) was accepted. It can be concluded that the Contextual Teaching and Learning (CTL) model assisted by Mind Mapping media had a significant positive effect on the IPAS learning outcomes of fifth-grade students at SD Negeri 25 Lubuklinggau.

Keywords

Contextual Teaching and Learning (CTL), Learning Outcomes, IPAS, Mind Mapping.



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INTRODUCTION

Basic education is an important foundation in shaping students' knowledge, skills, attitudes, and character as a provision to continue education to a higher level. One of the efforts to achieve this goal is realized through learning Natural and Social Sciences (IPAS). Social Science subjects not only equip students with knowledge of natural and social phenomena, but also develop critical thinking skills, problem-solving, and the ability to

connect concepts with daily life. According to the Center for Curriculum and Books (2022), IPAS learning aims to develop science and social literacy and form a Pancasila Student Profile. In line with that, Subiyakto (2023) stated that IPAS helps students understand the relationship between the natural environment, human life, and technological developments. In the implementation of the Independent Curriculum, teachers are required to be able to implement a learning model that encourages students to actively build their own knowledge through contextual learning experiences.

Based on the results of observations at SD Negeri 25 Lubuklinggau, it was found that the IPAS learning process is still dominated by teachers so that the activeness of students is not optimal. The learning material is not widely associated with real life so that students have difficulty understanding the concepts learned. This condition has an impact on the low learning outcomes of students. The results of interviews with homeroom teachers of grade V of SD Negeri 25 Lubuklinggau show that the use of less varied learning models causes students to be less active in participating in learning. In addition, based on the results of daily tests, it is known that out of 23 students, only 47.83% have achieved the Learning Goal Achievement Criteria (KKTP), while 52.17% of students have not reached completeness. The data shows that the learning outcomes of social studies students still need to be improved.

One of the alternatives that can be applied to overcome these problems is the Contextual Teaching and Learning (CTL) learning model assisted by Mind Mapping media. The CTL model emphasizes the relationship of learning materials with students' real experiences so that learning becomes more meaningful. Through this model, students are encouraged to actively discover the concepts they learn and apply them in their daily lives. According to Najib (2017), the application of the CTL model assisted by Mind Mapping media is able to improve students' learning outcomes in science learning in elementary schools.

Mind Mapping media functions as a visual media that helps students organize learning concepts in the form of mind maps so that the material becomes easier to understand and remember. Daryanto (2023) explained that Mind Mapping is able to help students understand the relationship between concepts through the use of pictures, symbols, colors, and branches of ideas that are arranged systematically.

Based on this description, it can be concluded that this study aims to determine the completeness of the learning outcomes of IPAS students in grade V of SD Negeri 25 Lubuklinggau after applying the Contextual Teaching and Learning (CTL) learning model assisted by Mind Mapping media.

METHODS

This study uses a quantitative approach with a type of pre-experimental research designed by One Group Pre-test Post-test Design. This design was chosen to describe the

application of the Contextual Teaching and Learning (CTL) learning model assisted by Mind Mapping media and to measure the improvement of students' social studies learning outcomes by comparing student scores before and after being treated in the same group. The purpose of this approach is to find out whether the application of the learning model can significantly improve student learning outcomes. The population in this study is all grade V students of SD Negeri 25 Lubuklinggau, while the sample is 23 students who were selected using the cluster random sampling technique with the consideration that the class has low student scores and many students have not reached learning completion.

The data collection technique used was a learning outcome test in the form of a pre-test and post-test. The two tests consisted of 16 multiple-choice questions arranged based on the learning objectives of social science class V. Pre-test was given before the application of the Mind Mapping-assisted CTL model to determine students' initial abilities, while the post-test was given after the treatment to measure the improvement of learning outcomes. Data analysis was carried out in two stages. The first stage was a normality test using the Shapiro-Wilk test to find out whether the data was normally distributed. The second stage was a hypothesis test using a one-party Z-test with a significance level of 5% to test whether the application of the CTL learning model assisted by Mind Mapping media could significantly improve students' social studies learning outcomes. The hypothesis was accepted if $Z_{count} > Z_{table}$.

FINDINGS AND DISCUSSION

Findings

This study aims to determine the application of the Contextual Teaching and Learning (CTL) learning model assisted by Mind Mapping media to the Social Science Learning Outcomes of Grade V Students of SD Negeri 25 Lubuklinggau. The research was carried out on 23 students using One Group Pre-test and Post-test Design designs. Before being given treatment, students took a pre-test to find out their initial abilities. After learning using the CTL model assisted by Mind Mapping media, students were given a post-test to find out the learning results after treatment.

The results showed that the average score was 41.17 with a standard deviation of 19.17, while the average score of the post-test increased to 79.26 with a standard deviation of 9.53. In addition, the number of students who achieved learning completeness increased from 3 students (13.04%) in the pre-test to 19 students (82.61%) in the post-test. This shows an increase in learning outcomes after the implementation of the CTL learning model assisted by mind mapping media.

Table 1. Pre-test Results Recapitulation Table

No	Category	Remarks
1	Highest Score	86
2	Lowest Score	25
3	Grade Point Average	41,17
5	Baku Junction	17,19
6	Number of Students Completed	3

Table 2. Post-test Results Recapitulation Table

No	Category	Remarks
1	Highest Score	94
2	Lowest Score	56
3	Grade Point Average	79,26
5	Baku Junction	9,53
6	Number of Students Completed	19

Next, a normality test was carried out using chi-square to find out whether the research data was normally distributed. The test results showed that the pre-test data was abnormally distributed, while the post-test data was distributed normally, so it was suitable for use in hypothesis testing.

Table 3. Recapitulation of Normality Test Results

Classes	X2Count	X2table	Conclusion
Pre-test	50,50	11,07	Abnormal
Post-test	3,04	3,84	Normal

Hypothesis testing was carried out using a one-party Z test. The results of the analysis showed that the value of $Z_{cal} = 4.68$, while the $Z_{of\ the\ table} = 1.64$ at a significant level of 0.05. Because $Z_{cal} > Z_{table}$ ($4.68 > 1.64$), H_0 was rejected and H_a was accepted. These results show that the application of the CTL learning model assisted by mind mapping media provides complete learning outcomes in the science subject of grade V students of Lubuklinggau State Elementary School.

Table 4. Recapitulation of Post-test Hypothesis Results

Classes	Zhitung	Ztable	Remarks
Post-test	4,68	1,64	Zhitung > Ztabel H_a accepted

Discussion

The results of the study showed that the application of the Contextual Teaching and Learning (CTL) learning model assisted by Mind Mapping media had a positive influence on the learning outcomes of IPAS students in grade V of SD Negeri 25 Lubuklinggau. This can be seen from the increase in the average score of students, namely from 41.17 in the pre-test to 79.26 in the post-test. In addition, the percentage of learning completeness also increased from 13.04% to 82.61% after the application of the learning model. The results of the hypothesis test showed that Z_{hitung} (4.68) was greater than Z_{tabel} (1.64) so that H_0 was rejected and H_a was accepted. Thus, it can be stated that the CTL learning model assisted by Mind Mapping media has a significant effect on students' social studies learning outcomes.

The improvement in learning outcomes occurs because the CTL model relates learning materials to real situations that are close to students' lives. Through contextual learning, students not only receive information from teachers, but also actively discover concepts through meaningful learning experiences. Meanwhile, the use of Mind Mapping media helps students organize and connect important concepts visually so that the material is easier to understand, remember, and relearn.

The results of this study are in line with the theory of Contextual Teaching and Learning which states that learning will be more meaningful if students connect the material with real experiences and are actively involved in the learning process. In addition, Mind Mapping media is able to improve students' ability to organize information, clarify the relationship between concepts, and help improve memory of the material learned.

The findings of this study are also supported by several previous studies that show that the application of the CTL model and Mind Mapping media is able to improve learning outcomes, activeness, and understanding of student concepts at the elementary school level. The similarity of these results shows that the combination of the CTL model with Mind Mapping media is an effective learning alternative to improve the quality of the learning process and student learning outcomes, especially in science subjects.

CONCLUSION

Based on the results of the study, it can be concluded that the application of the Contextual Teaching and Learning (CTL) learning model assisted by Mind Mapping media has a significant effect on the learning outcomes of IPAS students in grade V of SD Negeri 25 Lubuklinggau. The application of the model is able to improve student learning outcomes, which is shown by the increase in the average score from 41.17 in the pre-test to 79.26 in the post-test. The results of the hypothesis test also show that $Z_{hitung} (4.68) > Z_{tabel} (1.64)$, so that an alternative hypothesis is accepted. These findings show that CTL learning assisted by Mind Mapping media can be one of the effective learning alternatives in improving the learning outcomes of IPAS in elementary schools. Further research is suggested to test the application of this model to subjects, educational levels, or a wider number of samples in order to obtain more comprehensive findings and can strengthen the results of this study.

REFERENCES

- Arikunto, S. (2018). *The Basics of Educational Evaluation*. Jakarta: Bumi Aksara.
- Arikunto, S. (2018). *Dasar-Dasar Evaluasi Pendidikan*. Jakarta: Bumi Aksara.
- Arikunto, S. (2013). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.
- Adim, M., Others, 'Pengaruh Model Pembelajaran Contextual Teaching and Learning (CTL) Menggunakan Media Kartu Terhadap Minat Belajar IPA Kelas IV SD', *Jurnal Pendidikan Fisika Dan Sains (JPFS)*, 3.1 (2020): 6–12.
- Briggs, L. J. (1970). *Instructional media: A procedure for the design of instruction*. Pittsburgh: American Institutes for Research.
- Chiappetta, E. L., & Koballa, T. R. (2018). *Science instruction in the middle and secondary schools*. New York: Pearson Education.
- Efendy, T. (2023) *Dewantara Kosep sistem among dalam pendidikan menurut Ki Hadjar Jurnal multidisiplin indonesia*, 2(6), 1231-1242
- Faturrohman, (2023). *Model-model pembelajaran inovatif*. Bandung: Alfabeta.
- Hidayat, R, & Abdillah, A. (2019). *Ilmu pendidikan: konsep, teori dan aplikasinya*. Medan: LPPPI
- Jakni. (2016). *Metodologi Penelitian Eksperimen Bidang Pendidikan*. Bandung: ALFABETA.
- Johnson, E. B,. (2007). *Contextual Teaching and Learning: Menjadikan Kegiatan Belajar-Mengajar Mengasyikkan dan Bermakna*. Bandung: MLC. (Contextual Teaching and Learning: What It

- Is and Why It's Here to Stay*).
- Jamal, M. (2020). *Model pembelajaran dalam proses pendidikan*. Yogyakarta: Deepublish.
- Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. (2021). *Panduan pembelajaran Ilmu Pengetahuan Alam*. Jakarta: Kemendikbudristek.
- Lestari, N. A. P., Kurniawati, K. L., Dewi, M. S. A., Hita, I. P. A. D., Or, M., Astuti, N. M. I. P., & Fatmawan, A. R. (2023). *Model-model pembelajaran untuk kurikulum merdeka di era society 5.0*. Nilacakra.
- Marganesa. (2020). *Hasil belajar dalam proses pembelajaran*. Yogyakarta: Deepublish.
- Norkholizah, S., Mardiyana, I.I, 'Pengaruh Pendekatan Contextual Teaching and Learning (CTL) Terhadap Hasil Belajar IPAS Siswa Kelas V SDN Majungan, Jurnal Pendidikan Dan Ilmu Sosial, Vol 2.No2(2024),252–60.
- Purwanti, E. (2022). *Pembelajaran kontekstual media objek langsung dalam menulis puisi*. Penerbit P4I.
- Pane, A., & Dasopang, M. D. (2017). *Belajar dan pembelajaran*. Jurnal Kajian Ilmu-ilmu Keislaman, 3(2), 333–352.
- Purwanti. (2022). *Contextual Teaching and Learning dalam pembelajaran*. Yogyakarta: Deepublish.
- Putri, R. (2013). *Penerapan model pembelajaran Contextual Teaching and Learning (CTL) dalam proses pembelajaran*. Yogyakarta: Pustaka Pelajar.
- Rahman, S.(2022) *Pentingnya motivasi belajar dalam meningkatkan hasil belajar in prosiding seminar nasional pendidikan dasar*.
- Riduwan. (2013). *Dasar-dasar Statistika*. Bandung: Alfabeta
- Susilowati, D. (2023). *Peningkatan keaktifan belajar peserta didik melalui implementasi metode eksperimen pada mata pelajaran ipas*. Khazanah Pendidikan, 17(1), 186-196.
- Suharno, (2023). *Penerapan model role- playing untuk meningkatkan hasil belajar IPS pada materi peran para tokoh dan pejuang kemerdekaan inonesia di kelas V UPTD SDN Sejati 5 camolong kabupaten sampang tahun pelajaran 2019-2020*. Journal on Education, 5(2).
- Sakinah, (2022). *Hasil belajar siswa dalam proses pembelajaran*. Jakarta: Bumi Aksara.
- Shilphy, A. O. (2020). *Model-model pembelajaran*. Yogyakarta: Deepublish
- Sunarsih, (2021). *Pembelajaran CTL (Contextual Teach and Learning), Belajar Menulis Berita Lebih Mudah* Penerbit Adab 21
- Sugiyono. (2017). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabet.
- Trianto. (2010). *Model Pembelajaran Terpadu: Konsep, Strategi, dan Implementasinya dalam Kurikulum Tingkat Satuan Pendidikan (KTSP)*. Jakarta: Bumi Aksara.
- Uno, H. B. (2019). *Model pembelajaran: Menciptakan proses belajar mengajar yang kreatif dan efektif*. Jakarta: Bumi Aksara.
- Wikipedia. (2025). *Mind Mapping*. Diakses dari https://en.wikipedia.org/wiki/Mind_map
- Wulandari, S. (2019). *Penggunaan media peta pikiran (mind mapping) dalam meningkatkan aktivitas dan hasil belajar siswa kelas V SD*. Jurnal Ilmiah Pendidikan Guru Sekolah Dasar, 4(3), 210–218.