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THE EFFECT OF THE IMPLEMENTATION OF MIND MAPPING METHOD ON CRITICAL THINKING SKILLS IN CIVIC EDUCATION LEARNING

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Abstrak - Penelitian ini bertujuan untuk menganalisis pengaruh metode Mind Mapping terhadap kemampuan berpikir kritis siswa dalam pembelajaran Pendidikan Kewarganegaraan (PKn) di SMAN 1 Muara Padang. Penelitian menggunakan pendekatan kuasi eksperimen dengan desain pretest-posttest control group design. Subjek penelitian terdiri dari 60 siswa, terbagi menjadi kelas eksperimen (n = 30) dan kelas kontrol (n = 30). Instrumen penelitian meliputi tes berpikir kritis, lembar observasi guru, dan panduan wawancara siswa. Hasil penelitian menunjukkan bahwa kelas eksperimen yang diajar menggunakan Mind Mapping mengalami peningkatan kemampuan berpikir kritis secara signifikan dibanding kelas kontrol yang menggunakan metode konvensional. Rata-rata skor pretest kelas eksperimen sebesar 61,5 meningkat menjadi 84,2 pada posttest, sedangkan kelas kontrol meningkat dari 62,3 menjadi 72,5. Analisis t-test menunjukkan t-hitung > t-tabel dan p < 0,05, yang menegaskan bahwa Mind Mapping berpengaruh positif terhadap kemampuan berpikir kritis siswa. Temuan penelitian menunjukkan bahwa Mind Mapping dapat meningkatkan kemampuan siswa dalam menganalisis, menafsirkan, menyimpulkan, dan menyajikan informasi secara logis serta kreatif. Penelitian ini memberikan implikasi penting bagi guru PKn untuk menerapkan metode pembelajaran yang inovatif dan berpusat pada siswa guna membekali keterampilan abad ke-21.

Kata kunci: Mind Mapping, Berpikir Kritis, Pendidikan Kewarganegaraan

Abstract - *This study aims to analyze the effect of the Mind Mapping method on students' critical thinking skills in Civic Education (PKn) at SMAN 1 Muara Padang. The study employed a quasi-experimental approach with a pretest-posttest control group design. The subjects consisted of 60 students, divided into an experimental class (n = 30) and a control class (n = 30). Research instruments included a critical thinking test, teacher observation sheets, and student interview guides. The results indicate that the experimental class taught using Mind Mapping showed a significant improvement in critical thinking skills compared to the control class, which used conventional methods. The average pretest score of the experimental class increased from 61.5 to 84.2, while the control class increased from 62.3 to 72.5. T-test analysis showed t-calculated > t-table and p < 0.05, confirming that Mind Mapping has a positive effect on students' critical thinking skills. The findings suggest that Mind Mapping enhances students' ability to analyze, interpret, conclude, and present information logically and creatively. This study has important implications for Civic Education teachers to implement innovative, student-centered learning methods to equip students with 21st-century skills.*

Keywords: *Mind Mapping, Critical Thinking, Civic Education*

1. INTRODUCTION

One strategic effort to develop a superior human resource in developing countries such as Indonesia is through development in various sectors, including education (Sumarah et al., 2019). Education functions not only as a transfer of knowledge but also as a means of instilling moral values and character essential for students to act as competent citizens (Keeley et al., 2019). Therefore, achieving educational goals is a shared responsibility among schools, government, and society, with schools playing a central role through teachers as learning facilitators, while families support continued learning at home (Ummah, 2019). Civic Education (PKn) is an important subject at all levels of education because it emphasizes the development of character, skills, and civic knowledge aligned with the values

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of Pancasila and the 1945 Constitution (Nurhasanah et al., 2021). Multidimensionally, PKn integrates social and political theory with democratic values so that students can actively participate in society and develop civic knowledge, civic skills, and civic dispositions (Galuh et al., 2021). Mastery of these three elements enables students to exercise rights and responsibilities responsibly, improving communication skills, empathy, ethical awareness, and social tolerance (Kuswandi & Sulthoni, 2019).

However, achieving optimal civic competence requires effective and high-quality learning processes (Wulogening & Timan, 2020;Ada et al., 2021). Unlike the 2006 curriculum, which focused more on knowledge acquisition and teacher-centered instruction, the 2013 Curriculum emphasizes a balance between hard skills and soft skills, expecting students to have competencies in attitudes, skills, and knowledge to face 21st-century challenges (Mulyasa, 2013;Kemendikbud, 2017). 21st-century skills include critical thinking and problem-solving, communication, collaboration, creativity, and innovation (Anwer et al., 2018; R. Ennis, 1991)

Critical thinking is a crucial ability for students to analyze information, interpret data, solve problems, and express opinions logically (Listyani, 2019;Puspitasari, 2020). It also allows students to make accurate and reflective decisions in both academic and social life (Kye et al., 2021). To foster critical thinking in PKn, innovative, interactive, and student-centered teaching methods are required, such as Mind Mapping (Sanavi, R.V. & Tarighat, 2014). The Mind Mapping method encourages students to engage both the left and right brain, enabling them to organize ideas, analyze information, summarize material, and solve problems systematically (Crowe & Sheppard, 2012). Its implementation has been proven effective in enhancing critical thinking skills because students are trained to interpret information, draw conclusions, and present their thoughts creatively and logically (Edwards & Cooper, 2010).

Observations at SMAN 1 Muara Padang show that PKn learning has largely relied on lectures and conventional discussions, causing students to be passive and merely take notes without deeply understanding the material (Haug & Mork, 2021). Consequently, students' critical thinking and problem-solving abilities remain low, as they tend to depend on textbooks and teacher explanations (Afni & Hartono, 2020). Therefore, implementing Mind Mapping is expected to improve the quality of PKn learning, encourage students to become more active, creative, independent, and capable of critical thinking in addressing problems and global challenges in the 21st century (Jones et al., 2012;R. . Ennis, 2020)

This study was conducted by comparing pre-test and post-test results in experimental and control classes at SMAN 1 Muara Padang to analyze the effect of the Mind Mapping method on students' critical thinking skills. The findings are expected to contribute significantly to the development of PKn teaching strategies, enabling teachers to design more creative, innovative, and effective learning models that cultivate critical thinking abilities and 21st-century skills among (Hattani, 2021).

2. METHOD

2.1 Research Design

This study employed a quasi-experimental design with a pretest-posttest control group (Sugiyono, 2021;Creswell & Creswell, 2017). The experimental class was taught using the Mind Mapping method, while the control class used conventional methods (lecture and discussion).

2.2 Research Subject

The research subjects consisted of 60 Grade XI students at SMAN 1 Muara Padang, divided into:

- **Experimental class:** 30 students
- **Control class:** 30 students

2.3 Research Instrument

The research instruments included:

- **Critical Thinking Test** (pretest and posttest)
- **Teacher Observation Sheet** to assess students' critical thinking skills
- **Student Interview Guide** to evaluate students' perceptions of Mind Mapping

Table 1. Critical Thinking Assessment Instruments

No	Assessment Aspect	Indicator	Score 1–5
1	Analysis	Ability to identify problems accurately	1–5
2	Evaluation	Ability to assess information and arguments	1–5
3	Inference	Ability to draw logical conclusions from data	1–5
4	Explanation	Ability to clearly present the results of analysis	1–5
5	Problem-Solving Strategies	Ability to design solutions to problems	1–5

2.4 Research Procedure

- Conduct pretest on critical thinking skills for both classes
- Implement Mind Mapping in the experimental class for four weeks
- Apply conventional methods in the control class
- Conduct posttest for both classes
- Perform teacher observation and student interview.

2.5 Data Analysis

Data were analyzed using:

- **Descriptive statistics:** mean scores, percentages
- **Inferential statistics:** t-test to compare pretest and posttest scores

3. RESULT AND DISCUSSION

3.1 Result

a. Pretest and Posttest Scores

Table 2. Pretest and Posttest Scores of Experimental and Control Classes

Class	Pretest	Posttest	Improvement (%)
Experimental	61.5	84.2	37.0
Control	62.3	72.5	16.4

Note: The experimental class showed an average improvement of 37.0%, higher than the control class (16.4%)

b. Critical Thinking Scores by Aspect (Experimental Class)

Table 3. Pretest and Posttest Scores per Aspect

Aspect	Pretest	Posttest	Improvement (%)
Analysis	12.3	17.8	44.7
Evaluation	11.5	16.2	40.9
Inference	12.0	16.8	40.0
Explanation	13.0	17.0	30.8
Problem-Solving Strategies	13.2	16.4	24.2

The highest improvements were in analysis and evaluation, indicating that students were better able to connect ideas, assess information, and draw logical conclusions after using Mind Mapping.

c. Statistical Analysis

- **An independent-samples t-test** was conducted to determine the significance of differences between the experimental and control classes on the posttest.

Table 3. Independent-Samples t-Test Results (SPSS)

Variable	Class	N	Mean	Std. Deviation	t-value	df	Sig. (2-tailed)	t-table (α=0.05)
Critical Thinking Posttest	Experimental	30	84.2	4.12	6.72	58	0.000	2.00
	Control	30	72.5	5.03				

- **Interpretation:** t-calculated = 6.72 > t-table = 2.00, and $p < 0.05$, indicating a significant difference between the experimental and control classes.
- **Conclusion:** Mind Mapping is effective in improving students' critical thinking skills in Civic Education at SMAN 1 Muara Padang.

3.2 Discussion

a. Effectiveness of Mind Mapping

The Mind Mapping method encourages visual and systematic thinking, enabling students to connect concepts, evaluate information, and draw logical conclusions (Nasrollahi et al., 2015). The experimental class showed a 37% average score increase, confirming that Mind Mapping is more effective than conventional lecture and discussion methods.

b. Comparison with the Control Class

The control class only improved by **16.4%** because students were passive, receiving material without actively organizing ideas (Su'udah, 2021). The significant difference between the experimental and control classes, supported by the t-test results, demonstrates that Mind Mapping has a real impact on critical thinking skills.

c. Improvement by Aspect

- **Analysis and Evaluation:** Highest increases (44.7% and 40.9%), as students actively identified relationships between concepts, assessed facts and opinions, and drew conclusions (Puspita & Andriani, 2021).
- **Problem-Solving Strategies:** Lowest increase (24.2%), indicating students still require guidance in developing independent solutions, though performance was better than the control class.

d. Qualitative Description

- **Teacher Observation:** Students were active in asking questions, engaging in discussions, and presenting Mind Maps.
- **Student Interviews:** Students reported better understanding of PKn material, increased confidence, and more creativity in presenting concept maps.

The method also promotes 21st-century skills, such as collaboration, communication, and creativity.

4. CONCLUSION

Based on the results and discussion, several conclusions can be drawn:

1. **Effectiveness of Mind Mapping**

   Mind Mapping is effective in enhancing students' critical thinking skills in Civic Education (PKn) at SMAN 1 Muara Padang. This is evidenced by the experimental class's posttest average score of 84.2, a 37% increase from the pretest score of 61.5, whereas the control class only improved 16.4% (from 62.3 to 72.5). Independent-samples t-test analysis using SPSS showed t-calculated = 6.72 > t-table = 2.00 and $p < 0.05$, indicating that the difference in improvement between the experimental and control classes is statistically significant.

2. **Improvement by Critical Thinking Aspect**

   All aspects of critical thinking showed positive improvement, particularly analysis (44.7%) and evaluation (40.9%), indicating that students were better able to connect concepts, assess information, and draw logical conclusions after using Mind Mapping. Problem-solving strategies showed the smallest improvement (24.2%), suggesting that additional guidance is needed to help students independently design problem-solving steps.

3. **Qualitative Evidence**

   Qualitative data support the quantitative findings. Teacher observations revealed that students were more active in asking questions, engaging in discussions, and presenting Mind Maps. Student interviews indicated improved understanding of PKn material, increased confidence, creativity, and the ability to effectively present concept maps.

4. **Alignment with the 2013 Curriculum**

   Mind Mapping aligns with the 2013 Curriculum principles, promoting active, creative, and collaborative learning, and positioning students at the center of the learning process. This method not only improves knowledge acquisition but also develops 21st-century skills, such as critical thinking, communication, collaboration, and creativity.

5. **Pedagogical Implications**

   Mind Mapping can serve as an effective teaching strategy for Civic Education teachers to enhance students' critical thinking skills. It encourages students to move beyond passive learning and trains them to analyze, evaluate, and solve problems logically.

5. REFERENCES

Ada, K., Tapan Broutin, M. S., Kaleli Yılmaz, G., & Bayram, G. M. (2021). Investigation of documentation processes of students with low and high level of mathematical literacy: A case study. *Journal of Pedagogical Research*, *5*(4), 189–213. https://doi.org/10.33902/JPR.2021474615

Afni, N., & Hartono. (2020). Contextual teaching and learning (CTL) as a strategy to improve students mathematical literacy. *Journal of Physics: Conference Series*, *1581*(1). https://doi.org/10.1088/1742-6596/1581/1/012043

Anwer, M., Tatlah, I. A., & Butt, I. H. (2018). Effect of Cooperative Learning on Students' Achievement in English Tenses. *PJE : Pakistan Journal of Education*, *35*(2), 103–108. https://doi.org/https://doi.org/10.30971/pje.v35i2.1017

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Crowe, M., & Sheppard, L. (2012). Mind mapping research methods. *Quality & Quantity*, *46*. https://doi.org/10.1007/s11135-011-9463-8 Keywords

Edwards, S., & Cooper, N. (2010). Mind mapping as a teaching resource. *The Crinical Teaching*, *7*(4). https://doi.org/10.1111/j.1743-498X.2010.00395.x

Ennis, R. (1991). Critical Thinking: A Streamlined Conception. *Teaching Philosophy*, *14*(1), 24.

Ennis, R. . (2020). Critical thinking assessment. *Taylor & Francis*, *32*(3), 179–186.

https://doi.org/10.1080/00405849309543594

Galuh, A. D., Maharani, D., Meynawati, L., Anggraeni, D., & Furnamasari, Y. F. (2021). Urgensi Nilai dan Moral dalam Upaya Meningkatkan Pendidikan Karakter melalui Pembelajaran Pkn di Sekolah Dasar. *Jurnal Basicedu*, *5*(6). https://doi.org/10.31004/basicedu.v5i6.1598

Hattani, H. A. (2021). Communicative language teaching in support of critical thinking: the role of in-Class Debate. *Revue Linguistique Et Référentiels Interculturels*, *2*(1), 41–49. https://doi.org/10.34874/IMIST.PRSM/liri-v2i1.27504

Haug, B. S., & Mork, S. M. (2021). Taking 21st century skills from vision to classroom: What teachers highlight as supportive professional development in the light of new demands from educational reforms. *Teaching and Teacher Education, 100*, 103286. https://doi.org/10.1016/j.tate.2021.103286

Jones, B. D., Ruff, C., Snyder, Jennifer Dee Petrich, B., & Koonce, C. (2012). he Effects of Mind Mapping Activities on Students' Motivation. *International Journal for the Scholarship of Teaching and Learning*, *6*(1).

Keeley, L., Pikkel, R., Quinn, B., & Walters, H. (2019). Ten Types of Innovation. In *Sustainability (Switzerland)* (Vol. 11, Issue 1). Wiley. http://scioteca.caf.com/bitstream/handle/123456789/1091/RED2017-Eng-8ene.pdf?sequence=12&isAllowed=y%0Ahttp://dx.doi.org/10.1016/j.regsciurbeco.2008.06.005%0Ahttps://www.researchgate.net/publication/305320484_SISTEM_PEMBETUNGAN_TERPUSAT_STRATEGI_MELESTARI

Kemendikbud. (2017). *Buku Teks dan Pengayaan: Kelengkapan dan Kelayakan Buku Teks Kurikulum 2013 Serta Kebijakan Penumbuhan Minat Baca Siswa*.

Kuswandi, A. H. K. D., & Sulthoni. (2019). Pengaruh Model Problem Based Learning terhadap Hasil Belajar Pkn Siswa. *Jurnal Kajian Teknologi Pendidikan*, *2*(2). https://doi.org/10.17977/um038v2i22019p158

Kye, B., Han, N., Kim, E., Park, Y., & Jo, S. (2021). Educational applications of metaverse: Possibilities and limitations. *Journal of Educational Evaluation for Health Professions*, *18*, 1–13. https://doi.org/10.3352/jeehp.2021.18.32

Listyani. (2019). The use of a visual image to promote narrative writing ability and creativity. *Eurasian Journal of Educational Research*, *2019*(80), 193–224. https://doi.org/10.14689/ejer.2019.80.10

Mulyasa, E. (2013). *Kurikulum 2013: Implementasi dan Pengembangan Pembelajaran*. Remaja Rosdakarya.

Nasrollahi, M. A., Krishnasamy, P. K. N., & Noor, N. M. (2015). Process of implementing critical reading strategies in an Iranian EFL classroom: An action research. *International Education Studies*, *8*(1), 9–16. https://doi.org/10.5539/ies.v8n1p9

Nurhasanah, L., Siburian, B. P., & Fitriana, J. A. (2021). Pengaruh globalisasi terhadap minat generasi muda dalam melestarikan kesenian tradisional indonesia. *Jurnal Global Citizen : Jurnal Ilmiah Kajian Pendidikan Kewarganegaraan*, *10*(2), 31–39. https://doi.org/10.33061/jgz.v10i2.5616

Puspita, D. G., & Andriani, D. E. (2021). Upaya Peningkatan Mutu Pendidikan di Sekolah Menengah Pertama dan Permasalahannya. *Jurnal Pendidikan Dan Kebudayaan*, *6*(1), 54–77. https://doi.org/10.24832/jpnk.v6i1.1893

Puspitasari, E. (2020). Project-based Learning Implementation to Cultivate Preservice English Teachers' 21st Century Skills. *IJELTAL (Indonesian Journal of English Language Teaching and Applied Linguistics)*, *5*(1), 191. https://doi.org/10.21093/ijeltal.v5i1.638

Sanavi, R.V. & Tarighat, S. (2014). Critical thinking and Speaking Proficiency. *Theory and*

Practice in Language Studies, *4*(1), 79–87. https://doi.org/10.4304/tpls.4.1.79-87

Su'udah, F. (2021). Pendidikan IPS SD Kelas Awal. *Umsida Press*, *11*(1), 1–14. https://doi.org/https://doi.org/10.21070/2019/978-623-7578-20-8

Sugiyono. (2021). *Metode Penelitian Pendidikan (Kuantitatif, Kualitatif, Kombinasi, R&D dan Penelitian Pendidikan)* (A. Nuryanto (ed.); Kedua). ALFABETA, CV.

Sumarah, I. E., Winarti, E., Aptik, L., & Amelia, D. M. A. (2019). Pengembangan Pembelajaran Berbasis Konteks Untuk Membangun Karakter Kebangsaan. *Jurnal Penelitian*, *19*(1), 48–57.

Ummah, M. S. (2019). Panduan Asistensi Mengajar. *Institut Al Fithrah Surabaya*, *11*(1), 1–14. http://scioteca.caf.com/bitstream/handle/123456789/1091/RED2017-Eng-8ene.pdf?sequence=12&isAllowed=y%0Ahttp://dx.doi.org/10.1016/j.regsciurbeco.2008.06.005%0Ahttps://www.researchgate.net/publication/305320484_SISTEM_PEMBETUNGAN_TERPUSAT_STRATEGI_MELESTARI

Wulogening, H. I., & Timan, A. (2020). Implementasi Total Quality Management (TQM) dalam sistem manajemen perencanaan kepala sekolah. *Jurnal Akuntabilitas Manajemen Pendidikan*, *8*(2), 137–146. https://doi.org/10.21831/jamp.v8i2.31282