Jurnal Bimbingan Konseling
9 (1) (2020) : 8 – 13
https://journal.unnes.ac.id/sju/index.php/jubk/article/view/28751

Group Guidance of Mind Mapping to Improve Critical Thinking Skills

Rahayu Lestari[1]✉, Mungin Eddy Wibowo[2] & Awalya[2]

[1] IKIP PGRI Pontianak, Kalimantan Barat, Indonesia
[2] Universitas Negeri Semarang, Indonesia

Article Info

History Articles
Received:
January 2019
Accepted:
February 2019
Published:
June 2020

Keywords:
critical thinking, group guidance, mind mapping

DOI
https://doi.org/10.15294/jubk.v9i1.28751s

Abstract

This study attempted to examine the effectiveness group guidance of mind mapping to improve critical thingking skills. The study used pre-test and multiple post test method. The subjects in this study were eight students of grade tenth from Vocational Public High School (SMK, Sekolah Menengah Kejuruan) Negeri 2 Semarang. The data collection process utilized critical thinking scale targeting on six aspects, they are: interpretation, analysis, evaluation, conclusion, explanation, and self-regulation. The analysis used repeated measure ANOVA. The results showed the significant increase in critical thinking ($F_{2.14}$ = 74.66 p < 0.01). The finding of this study confirmed that the group guidance of mind mapping is effective in improving critical thinking skills of students in SMK Negeri 2 Semarang.

✉ Correspondence address:
Ampera No.88, Sungai Jawi, Pontianak, Kalimantan Barat, 78116
E-mail: ay_kipkons07@ymail.com

p-ISSN 2252-6889
e-ISSN 2502-4450

INTRODUCTION

Critical thinking is a process which individual is required to interpret and evaluate the received information to make an assessment or decision based on the ability, applied knowledge, and previous experience (Fisher, 2001). According to Ennis (2011), critical thinking is logical, and reflective thinking is focusing on concluding later believed or implemented. An individual is expected to analyze the complex problems, to review related information while developing, evaluating and implementing solutions (Casserly, 2012).

Chukwuyenum (2013) explains that critical thinking is one aspect that individuals use every day to face challenges on a daily basis. Individuals often face the decision-making process that requires reason, understanding, analysis, and evaluation of received information. Therefore, critical thinking allows one to make valid decisions.

Vieira, Tenreiro-Vieira, and Martins (2011) also mention that critical thinking competence is part of the cognitive aspects in conjunction with the affective aspect. The thinking design determines the individual surviving rate in society. Although the study is not an easy topic, it must be developed and implemented to develop further critical thinking skills (Fisher, 2009).

It is essential for high school students, especially the vocational high school students to begin the training skills in critical thinking. It is highly useful to help students in strengthening their planning and decision making capability in the future, for their future life, higher education, and career as the vocational education is one type of education program that preparing their students to obtain employment right after the graduation (unlikely favorable to continue the college degree).

Unfortunately, the results of direct observations conducted by researchers towards the students of SMK N 2 Semarang showed different phenomena. There are students having low critical thinking competency. The indicator shows that many of the students enrolled in vocational school as the parents choice without their personal sharing decision. Further, some others considered continuing their high school education to vocational school as the part of peer-pressure. Few others kept in mind that vocational high school provides the opportunity to penetrate the labor market right after the graduation despite the absence of their future career or long-term compassion.

Rochmatin, and Christiana (2016) in their supporting research studies wrote about the level of the unemployment rate, explaining that the vocational school graduates are not ready to enter the labor market and the success rate of the education curriculum that leads the vocational high school students to get jobs matching their skills are still questionable.

Group guidance could be an option to assist the students. During the group guidance session, the students can discuss topics about the meaning of critical thinking related to their career projection, discussing the idea together with the teacher or mentor, and engaging in creative activities afterward. Group guidance is a type of group which focuses on cognitive development through a series of structured procedures through a group meeting (Corey, 2013). In line with Wibowo (2005), his research stated that counseling group is a group activity where the group leaders provide information and direct discussion so that the members could be more social and help the group to achieve the common goals.

Wahyuni (2013) in the research journal also said that group guidance with the technique of mind mapping could be an option since it considered the nature of the students, they are interested in new and fascinating things that can encourage them to think critically and creatively. The research earlier also supported by Femi (2010) explaining that mind mapping learning models are useful for learning, speed, ability to think in structural flow, encouraging the creation of creativities and ideas, solutions to problem-solving, and many more possible ways to motivate themselves and others.

Mind mapping is one of the ways to implement the group guidance activities as it

helps develop the student's creativity by activating their critical thinking skills, focusing on the subjects, making plans, compiling and explaining their thoughts into a map. Also, mind mapping does not have the right or wrong answers, and at the same time it does encourages students to be open, bold, and consistent. These valuable and technique usually help to increase a person's ability to do the critical thinking.

Therefore, this research is expected to reinforce the effectiveness of mind mapping in increasing students critical thinking competency. Through guided activities and mind mapping group, they are predicted to improve students critical thinking competencies.

METHODS

The subjects in this study were eight students of the tenth grade at SMK Negeri 2 Semarang. The instruments are the instrument scale of critical thinking, and the scale measurement is personally designed based on the aspects of critical thinking.

This inventory has 22 items and uses the Likert scale with five different choices, namely: SS (Very Appropriate), S (Appropriate), KS (Less Appropriate), TS (Not Appropriate), STS (Very Incompatible). The indicators of this instrument consist of six interpretations, analysis, evaluations, conclusions, explanations, and self-regulation. This instrument has the reliability of the coefficient of 0.910.

This study used the repeated measure experimental design model with a pre-test and multiple post-test designs, with a repeated trial of post-test design. The critical thinking measurement was performed three times: (1) pre-test (T_1), providing the instrument of the data collection to the experimental critical thinking group before the treatment in the form of group guidance with mind mapping approach, (2) post-test (T_2) the process included conducting the data collection instruments to the experimental group. The post-test in the experimental group was performed after the treatment was given in the form of group guidance with mind mapping approach, and (3) follow-up (T_3) was conducted two weeks after the of post-test (repeated measurements) and the treatment was performed to the previous critical thinking experimental group.

Sessions of the group guidance on mind mapping in improving the critical thinking skills were conducted for four times. Each group guidance session on mind mapping techniques was conducted for 90 minutes. Further, the researcher conducted a pre-test assessment by distributing critical thinking inventory to eight students of the tenth-grade students at SMK Negeri 2 Semarang to determine the experimental group. The description of the four counseling sessions is presented in Table 1.

Table 1. Systematics of Group Guidance Activities on Mind Mapping

Session	Activity outcomes
1	Build the collaborative cohesiveness and cooperation
2	Providing a brief explanation of the topics at the meeting and how the problems are related to critical thinking in making decisions for the future career plan.
3	Group leaders explain how to solve problems by changing mindset and describing the form of mind mapping, reminding the outline of the stages of making the mind mapping.
4	The group leader asks group members to review the results of a positive mindset in overcoming the problems being experienced, reinforces group members to maintain, develop, and account for the results of mind mapping approach.

RESULTS AND DISCUSSION

Group guidance on mind mapping uses data analysis repeated measure ANOVA in which the analysis compares repeated measures on the same subject in order to find out the increase in students' critical thinking skills when doing the pre-test (T_1), post-test (T_2) and follow-up (T_3).

Table 2. Analysis of Repeated Measure ANOVA About Mind Mapping

	M	SD	$F_{(2.14)}$
T_1	55.25	15.42	
T_2	77.25	7.32	74.66
T_3	99.75	2.92	

*p < 0.01

Based on Table 2 shows the results that the mean of critical thinking of students given mind mapping tends to increase (pre-test: M = 55.25, SD = 15.42; post-test: M= 77.25, SD= 7.32; follow-up, M = 99.75, SD= 2.92).

The result showed that there are significant differences in each process of the test (pre-test, post-test, and follow-up) through analyzing the mind mapping techniques. Based on the repeated measures ANOVA test results on the test of within-subjects effects with the mind mapping technique, there was a significant effect ($F_{2.14}$ = 74.66, $p < 0.01$). From the average results, it can be concluded that effective mind mapping techniques are associated with the increase in students' critical thinking capability.

Table 3. Pairwise Comparison

Comparition	MD	SE
T1-T2	-22.00*	3.46
T1-T3	-44.50*	4.82
T2-T3	-22.50*	2.11

*p < 0.01

Based on the results of the time effect comparison test in Table 3, we can see the significant elevation in critical thinking capability between the pre-test and post-test assessment (MD = -22.00, $p < 0.01$), pre-test to follow-up (MD = -44.50, $p < 0.01$) and post-test to follow-up (MD= -22.50, $p < 0.01$). Based on the results of the time effect comparison test in Table 3, we can see the significant elevation in critical thinking capability between the pre-test and post-test assessment.

The results of this study confirm that the group guidance on mind mapping approach is associated with a positive change to students' critical thinking capability. Through participating in the group guidance activities for four counseling sessions, the eight students often grade from SMK Negeri 2 Semarang; they experienced a positive impact on personal transformation about critical thinking.

The result of this research strengthen the previous findings, Suryani, Harahap, and Sinulingga (2017) revealed that learning models using mind mapping are better than the conventional learning methods. Furthermore, research conducted by Ristiasari, Priyono, and Sukaesih (2012) also showed that the application of mind mapping learning models influences critical thinking skills. Previous research analyzed the application of mind mapping in learning, in general, to see the impact on critical thinking while the findings of this study emphasize the impact of mind mapping in its application to group guidance in improving the ability of critical thinking for students with an extensive and repetitive counseling session.

Previous research investigated the application of mind mapping in learning in general to see the impact on critical thinking. While the findings of this study further emphasize the impact of mind mapping in its application to group guidance on improving the ability of critical thinking.

Conducting the mind mapping in group guidance is one of the alternatives to improve critical thinking, where students can activate all their abilities in thinking critically, focus on the subject, make plans, compile and explain their thoughts into the mind map. Also, mind mapping does not have the right or wrong answers and even encourages students to be open in expressing their critical thoughts. The skill of critical thinking is essential for individuals to be productive in the employment realm, while it supports the individual in making a strategic decision (Lombardi, Kowitt, and Staples, 2015). The similar finding supported by Kashaninia, Yusliani, Hosseini, and Soltani (2015) emphasizing that everyone must have the ability to analyze, assess, and evaluate their living conditions to make essential decisions.

Based on the findings and the previous research, it can be concluded that the efforts to improve the personal critical thinking capability can be supported through the group guidance using the mind mapping technique. It is still essential for individuals to recognize that critical thinking groups are not a measurement on how well group activities do and make an impact, even though students have high critical thinking and hold a higher tendency to engage in complex behaviors in future group guidance. The session could be conducted to facilitate and evaluate the attitudes and abilities of students' self-

actualization in real behavior with personal responsibility traits.

The implication in group guidance and counseling session as a preventive action seeks to could anticipate various problems that may occur. It also will help the counselor understand the clients in mapping their character, potential and supporting background and environment (especially in education and work).

School counselors or teachers are required to understand the character of students in a problem solving with vary of personal situation occurred in the school and the upcoming working or professional environment. According to this study, the vocational school students can achieve the critical thinking capability to overcome and manage various problems, while the counselors or teachers at school can add skills by using one of the learning techniques, especially the mind mapping techniques.

The findings of this study have proven that group guidance on mind mapping is effective in improving the ability of critical thinking for the students in vocational school. However, this finding still has limitations: as the subjects of this study were majority female students and conducted the experiment to one experimental group. Therefore, this study has not found a gender effect, and there is no comparison group from another group guidance of the mind mapping approach to support the ability of critical thinking.

CONCLUSION

The research has examined the effects of the implementation of the mind mapping technique in the group guidance to improve the ability of critical thinking for students. The results of the pre-test, post-test, and follow-up analyzed using repeated measures ANOVA showed statistically significant changes in the number to the experimental group. Therefore, the critical thinking capability can be influenced by conducting the group guidance using the mapping approach for the students in SMK Negeri 2 Semarang.

Based on the findings, this study recommends the counseling teachers or counselors to use group guidance on mind mapping in improving students' critical thinking skills at school. As for further research, it is necessary to conduct gender-diversity research and add additional groups to analyze gender effects and compare group guidance on mind mapping to the ability of critical thinking.

REFERENCES

Casserly, M. (2012). *The 10 Skills That Will Get You Hired in 2013*. Forbes. Retrieved from http://www.forbes.com/sites/megancasserly/2012/12/10/the-10-skills-that-will-getyou-a-job-in-2013

Chukwuyenum, A N. (2013). Impact of Critical Thinking on Performance in Mathematics among Senior Secondary School Students in Lagos State. *IOSR Journal of Research & Method in Education*, 3(5), 18-25. Retrieved from http://www.iosrjournals.org/iosr-jrme/papers/Vol-3%20Issue-5/D0351825.pdf

Corey, G. (2013). *Theory and Practice of Counseling and Psychotherapy* (*Ninth Edition*). California: Brooks/Cole.

Ennis, R. H. (2011). *The Nature of Critical Thinking: An Outline of Critical Thinking Dispositions and Abilities.* Chicago*:* University of Illinois.

Femi, O. (2010). *Visual Mapping.* Jakarta: PT. Elex Media Komputindo.

Fisher, A. (2001). *Critical Thinking An Introduction*. New York. Cambridge University Press.

Fisher, A. (2009). *Berpikir Kritis: Sebuah Pengantar*. Jakarta: Erlangga

Kashaninia, Z., Yusliani, F., Hosseini, M. A., & Soltani, P. R. (2015). The Effect of Teaching Critical Thinking Skills On the Decision Making Style of Nursing Managers. *Journal of Client-Centered Nursing Care*, 1(4), 197-204. Retrieved from http://jccnc.iums.ac.ir/article-1-66-en.pdf

Lombardi, A. R., Kowitt, J. S., & Staples, F. E. (2015). Correlates of Critical Thinking and College and Career Readiness for Students With and Without Disabilities. *Career Development and Transition for Exceptional Individuals,* 38(3), 142-151. Retrieved from https://journals.sagepub.com/doi/10.1177/2165143414534888

Ristiasari, T., Priyono, B., & Sukaesih, S. (2012). Model Pembelajaran Problem Solving dengan Mind Mapping terhadap Kemampuan Berpikir Kritis Siswa. *Journal of Biology Education*, 1(3), 34-41. Retrieved from https://journal.unnes.ac.id/sju/index.php/ujbe/article/view/1498

Rochmatin, E., & Christiana, E. (2016). Pengembangan Ensiklopedia Pekerjaan untuk Layanan Informasi Karir Siswa SMK di Kabupaten Ngawi. *Jurnal BK UNESA*, 6(1), 1-7. Retrieved from http://jurnalmahasiswa.unesa.ac.id/index.php/jurnal-bk-unesa/article/view/13350

Suryani, W., Harahap, M. B., & Sinulingga, K. (2017). The Effect of Scientific Inquiry Learning Model Using Mind Mapping and Critical Thinking Ability Toward Student's Science Process Skills in Senior High School. *Jurnal Pendidikan Fisika*, 7(5), 21-26. Retrieved from http://www.iosrjournals.org/iosr-jrme/papers/Vol-7%20Issue-5/Version-7/D0705072126.pdf https://jurnal.unimed.ac.id/2012/index.php/jpf/article/view/8126

Vieira, R. M., Tenreiro-Vieira, C., Martins, I. P. (2011). Critical Thinking: Conceptual Clarification and Its Importance in Science Education. *Science Education International*, 22(1), 43-54. Retrieved from https://eric.ed.gov/?id=EJ941655

Wahyuni, F. (2013). Pengembangan Model Bimbingan Kelompok dengan Teknik Mind Mapping untuk Mengembangkan Kreativitas Siswa. *Jurnal Bimbingan Konseling*, 2(2). Retrieved from https://journal.unnes.ac.id/sju/index.php/jubk/article/view/2723

Wibowo, M. E. (2005). *Konseling Kelompok Perkembangan.* Semarang: UNNES Press.