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Group Guidance with Problem Solving Technique to Improve Critical Thinking in Utilizing Online Information

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Abstract

This study aimed at examining and analyzing group guidance with problem solving technique to improve critical thinking in utilizing online information. The study used pre-test and multiple post-test design. For more, purposive sampling technique was employed to divide 14 experimental subjects into two groups randomly with each consisted of seven students. Meanwhile, the researchers used critical thinking scale to collect the data. The results of mixed repeated measures ANOVA showed that the group guidance with problem solving technique was effective to improve students' critical thinking by having the value of ($F_{(1,12)}$ = 125.99, $p < 0.05$), including when viewed from the time effect ($F_{(2,24)}$ = 96.81, $p < 0.05$) and the interaction effect between time and group ($F_{(2,24)}$ = 107.22, $p < 0.05$). This study confirms that the group guidance with problem solving technique is effective to improve students' critical thinking in utilizing online information.

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INTRODUCTION

The rapid development of information technology is realized by the global dynamics of the internet (Sheikh, Sood, and Bates, 2015; Prestin, Vieux, and Chou, 2015). On the one hand, changes caused by the internet development are also felt by Indonesian because the internet can be accessed by various circles, especially in the community lives. In addition, adolescents are the biggest users of it (Hapsari and Ariana 2015; Husni and Agus, 2016).

The widespread use of the internet somehow forces its users to be smart since the internet also contains negative contents, and unreliable information. Therefore, individuals are expected to have abilities to protect themselves from negative influences. One of the abilities is critical thinking. Petrucco and Cinzia (2017) argue that an effective way to deal with digital era is to educate students to have critical thinking skills.

Critical thinking is one of aspects that is useful for everyday life. It is because individuals often face decision making situation which requires reasoning, understanding, analysis, and evaluation of the information received. In this way, critical thinking allows them to make valid decisions (Chukwuyenum, 2013). Someone who has critical thinking ability will be able to evaluate critically any information he obtains. Meanwhile, one who has low critical thinking ability will easily believe to information he obtains without evaluation in advance (Graham and Panagiotis 2003). As a result, critical thinking needs to be mastered by individuals in order to face digital era in terms of selecting beneficial and reliable information.

Based on the above description, there is a need for a proper intervention to deal with information reliability. The intervention can be done by providing guidance and counseling service, particularly group guidance. Group guidance is a type of group which focuses on cognitive development through a series of procedure in the meetings of the group (Corey, 2013)

Rusmana (2009) mentions that group guidance will help group members jointly utilize group dynamics to discuss any problems to gain understandings and finally can make decision and do correct actions. This statement is supported by Lestari, Mungin, and Awalya's study (2019) that group guidance with mind mapping is effective to improve students' critical thinking.

The technique implemented in the group guidance in this study was problem solving technique. Problem solving technique is a process of searching and finding solution for problems or difficulties faced within oneself (Suharman, 2005). This technique was used because Piaget (in Santrock, 2003) mentions that adolescents age 1/12 – 15 years old have already been able to imagine situation and try to process it through logical thinking, so they can solve their own problems without depending on others. This technique was aimed at guiding students in the process of critical thinking, analytical thinking, reflective thinking, developing reasoning power in the process of ways of solving problems, and making right decisions for themselves.

The above statement is similar to the findings of Nurzakiah, Dewi, and Dede's study (2015) which shows that group guidance with problems solving technique is effective to develop students' critical thinking.

According to the above explanation, this study attempted to examine the effectiveness of group guidance with problem solving technique to improve students' critical thinking. Besides, the study was also inspired by the gaps exist in the previous studies, so the novelty in this study was expected to fill and develop as well as renew them.

It was known that the previous studies examined the effectiveness of critical thinking in general. However, this study focused critical thinking on the utilization of online information. Thus, this study could complement and strengthen the previous studies as well as can be used as a basis for the future researchers.

METHODS

The subjects in this study were all students of class VIII of SMP Negeri 3 Semarang, namely 287 students. They were sampled using purposive sampling technique based on low level of critical thinking (x < 91). The subjects were divided in random assignment into two groups, namely experimental group and control group containing 7 students for each.

The instruments used in this study was an instrument made by the researchers based on Facione, Facione, and Giancarlo's theory (1994) consisting of 39 statement items. According to the validity test, it was found that the item of the critical thinking instrument passed the test by having r_{xy} value ranged from 0.354 – 0.942, and alpha coefficient of 0.76.

This study was quantitative, and employed experimental design. The experimental design used was pretest and multiple posttest design by involving two groups, namely experimental and control groups.

There were several procedures carried out in this study. First, the provision of pretest to determine the level of students' critical thinking prior to receiving intervention. Second, the provision of intervention to the experimental group in form of group guidance with problem solving technique, and control group in form of conventional method. Each group did five meetings of service with time allotment of 2 x 40 minutes for each. Third, the researchers gave posttest to the subjects to observe the improvement of critical thinking. Then, the researchers did follow up to each group within 2 weeks after the posttest. The collected data from pretest, posttest, and follow up were analyzed using repeared measure ANOVA to see the improvement of students' critical thinking.

RESULTS AND DISCUSSION

The description of the analysis showed that the level of critical thinking on the experimental group experienced average improvement, namely the results of the experimental group pre-test (M = 84.57; SD = 3.82) to post-test (M = 137.42; SD = 14.16) and follow-up (M = 141.14; SD = 11.12) were higher than the control group pre-test (M = 83.14; SD = 4.74) to post-test (M = 83.00; SD = 4.28) and follow-up (M = 80.71; SD = 2.87).

Tabel 1. Data Description

		Experimental	Control
Pre-test	M	84.57	83.14
	SD	3.82	4.74
Post-test	M	137.42	83.00
	SD	14.16	4.28
Follow-up	M	141.14	80.71
	SD	11.12	2.87

The data analysis in this study was carried out using mixed ANOVA. This aimed at examining the effectiveness of group guidance with problem solving technique to improve critical thinking during the provisions of pre-test, post-test, and follow-up.

Table 2. The Analysis Results of Mixed Anova on Critical Thinking

Effects	F	df	p
Time	96.81	2.24	< 0.05
Group	125.99	1.12	< 0.05
Time*Group	107.22	2.24	< 0.05

Based on Table 2, the analysis of mixed ANOVA showed that there was effects of time on the improvement of critical thinking ($F_{(2,24)}$ = 96.81, $p < 0.05$). Another result indicated that there was an effect of group on the improvement of critical thinking proved by a significant difference ($F_{(1,12)} = 125.99$, $p < 0.05$). This showed that group guidance with problem solving technique was effective to improve critical thinking. Additionally, there was also an effect of time interaction and group on the improvement of critical thinking ($F_{(2,24)} = 107.22$, $p < 0.05$).

By referring to Figure 1, it was known that the subjects in the experimental group gained higher critical thinking than the control group.

Table 3. The Results of Critical Thinking Pairwise Comparison

Time	MD	SE	p
T1-T2	-26.35	2.70	< 0.05
T1-T3	-27.07	2.35	< 0.05
T2-T3	-0.714	1.37	> 0.05

Table 3 showed an improvement based on the comparison of the time effects from (T1 - T2),

(T1 - T3) and (T2 - T3). This could be interpreted that there was an improvement in critical thinking that occurred in each phase of measurement.

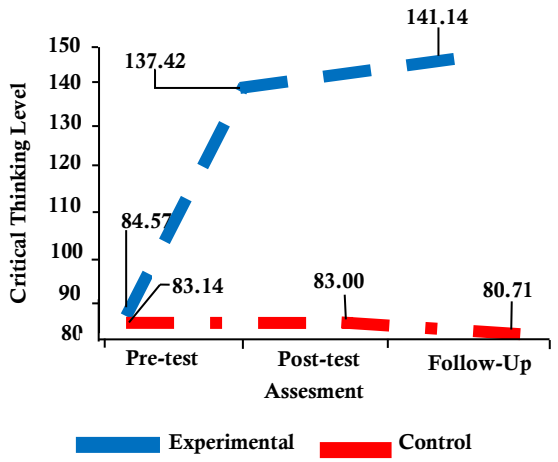

Figure 1. Critical Thinking Graph

Figure 1 described that the experimental group which received problem solving technique experienced improvement in the critical thinking. It was showed by the difference in the scores of pretest and posttest, as well as the follow up. On the other hand, the control group experienced no improvement. It was known from the stable results (settling at the low level) in the phase of pretest and posttest. Similarly, this also happened in the follow up.

These findings are in line with Nurzakiah, Dewi and Dede's study (2015) that proves group guidance with problem solving techniques effective to develop students' critical thinking. Thus, this study was successful since it could solve students' problems, and see the problems from many perspectives in which these further led to the problem solving on the selection of internet information.

The implementation of problem solving technique in helping students select good and beneficial information required reasoning, understanding, analysis, and evaluation on the information. Through these aspects, this technique enabled people to obtain good and beneficial information as well as distinguish hoax and facts.

The group guidance with problem solving technique was applied by giving students tasks and examples of problems that should be overcome taken from viral news. Then, they were asked to analyze the news to prove that the news was fact or hoax. Through these steps, they would comprehend understanding on how to distinguish hoax or facts on the internet. Besides, the students were also trained to find out good news or check the clarity of the news from trusted news sources. Once this was done, the students would know the consequences of sharing hoax news before checking the truth.

In this service, the students were also divided into several groups, and trained to improve their reasoning as an effort to problem solving. In details, the students were given different news, covering true information, hoax, and opinion. Each of them was asked to deliver their opinions based on their knowledge. Various perspectives, ideas and concepts were delivered during the group guidance process, so the students would try to learn how to accept other's ideas which might have different perspectives. As a results, they would willingly receive information or opinions from various credible or trustworthy sources on the internet.

The students were also trained to browse information based on the context needed, and encouraged to objectively ask in searching for information. Further, the information received by the students on the online media was not entirely trustworthy, so they needed to equip themselves with enough literacy in order to consider the truth of the online media. This is in harmony with the aim of problem solving technique, namely as an active and thorough consideration in filtering any information received. After the students were able to consider various information they received, it was proven that they could decide the truth of the information in online media.

Systematic is one of important indicators in critical thinking. Therefore, in the implementation of the treatment, the students were asked to mention and write news they have got from online media. Then, they categorized the news based on viral information, fact, deception, or educational information. After the treatment, the students tended to organize, arrange, focus, and continuously extract

information. The tendencies were in form of formulating something in an orderly and logical manner with the aim of findings out right conclusion.

In the implementation of problem solving technique, people should define objectives, think many possible solutions for a problem, make decision, implement the solutions, and evaluate consequences of the actions.

Critical thinking is obtained through training, and familiarization which are supposed to be regularly done by the students. It is because critical thinking cannot be automatically obtained if it is not developed through activities which enable critical thinking. It also needs time for optimum development, particularly in utilizing the internet to obtain useful information.

The implication of this study for Guidance and Counseling teachers is that BK teachers can improve critical thinking in utilizing online information using group guidance with problem solving techniques. They can also collaborate with students to implement problem solving technique for group guidance services so that the BK services can be more optimal. Unfortunately, this study was limited to only one school in junior high school education with a limited number of groups.

CONCLUSION

By referring to the findings of the study, it can be concluded that the group guidance with problem solving technique is effective to improve critical thinking in utilizing online information by the students of SMP Negeri 3 Semarang.

This study can be used by related parties, such as BK teachers can design programs in the implementation of BK for students' active participation, the future researchers can use this study as a basic understanding to advance studies regarding group counseling with problem solving technique to solve students' problem, especially the improvement of critical thinking as well as expand the subjects to be more representative. Then, this study only provided follow up to the subjects for two weeks. Therefore, the future studies can give follow up more than two weeks to find out the extent to which changes in behavior will be consistent.

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