

# Guided Group Investigation, Scaffolding Task Questions and Self-Efficacy in Learning to Solve Social Problems in Inclusive Schools

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## Abstract

This study aims to examine the effect of guided investigation group scaffolding questions and assignments on improving learning outcomes in solving social problems in Indonesian inclusive schools. It used a quasi-experimental design and took inclusive junior high school students in Surabaya Indonesia. It used test results and inventory self-efficacy. Data were analyzed using two-way ANOVA. The results showed that the learning outcomes of social problem solving students who studied with guided investigation group scaffolding questions and assignments increased more than students who studied with un guided investigation groups, self efficacy significantly affected the increase in social problem solving learning outcomes, students with high self efficacy learning outcomes are higher than students with low self efficacy, there is an interaction between learning strategies with self efficacy in improving the results of learning social problem solving.

**Keywords:** *Guided group investigation, task question scaffolding, self efficacy, social problem solving.*

## Introduction

Currently, most teachers still rely on textbooks in learning and utilize it as the main source material that must be taught, although sometimes the material presented in the book is not appropriate, it is also not in accordance with the environment of students, some teachers also rarely use problems that exist in everyday social life as a source of learning, students are not given the opportunity to construct knowledge so that learning more often memorizes and the results are less meaningful including learning to solve social problems in social science subject matter.

The success of a learning goal is to train students to use their abilities and intellectual skills to solve problems

in life, including social problems in social science subject matter that can be measured from several indicators. According to Johnson<sup>(1)</sup>, indicators of problem solving are formulating and identifying problems, evaluating problems, analyzing and formulating solutions to solve problems, determining the most appropriate solutions, and drawing conclusions.

In the 21st century, various models, strategies, learning method have been developed to keep up with the progress of science and technology and changes in social contexts. It also aims at making it easier for students to construct knowledge and learn about problem solving, including solving social problems in social sciences. The learning strategies include the guided group investigation by scaffolding questions and tasks that encourage students to work and communicate with each other through groups to investigate topics or problems that are studied or resolved.

Problem solving learning is essential in order to encourage students' ability improvement to apply knowledge and experience and work in groups to solve problems faced <sup>(2)</sup>. Problem solving has become an

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important cognitive activity in teaching and learning<sup>(3)</sup>. Problem solving learning in class is useful to evaluate problems and problem solving processes<sup>(4)</sup>. Problem solving and examples can increase the acquisition of cognitive skills and ability to solve problems independently<sup>(5)</sup>. The development of problem solving skills is very important in order to succeed in performing various tasks in regulating formal activities (eg schools and jobs) and informal activities (eg activities at home)<sup>(6)</sup>. Learning about solving important problems in order to be able to show confidence and views on ideas<sup>(7)</sup>. The application of problem solving interventions based on cognitive strategy instruction succeeded in improving student problem solving performance<sup>(8)</sup>.

Group investigation is a learning strategy that improve student learning outcomes and other aspects. This is in accordance with previous relevant research, including research conducted by Sharan<sup>(9)</sup>, that group investigation as a cooperative learning method guides students to apply cooperative learning skills to planning what they want to learn and how to learn, students work together in doing investigation, planning and integrating and presenting investigative findings also collaborates in evaluating students' academic and interpersonal efforts, giving responsibility for learning to students. But, the teacher must prepare and facilitate project investigations conducted by students. Students' learning ability is significantly higher after group learning<sup>(10)</sup>, group investigations to improve learning outcomes are carried out based on differences in student interests and achievements<sup>(11)</sup>.

Scaffolding is a teaching strategy derived from Lev Vygotsky's socio-cultural theory which is related to the zone of proximal development, describing the distance between what individuals can achieve and what they can achieve with help from others. Scaffolding is temporary support received by individuals from other people who are more knowledgeable during their development<sup>(12)</sup>. Social interaction is the most important factor to improve cognitive development<sup>(13)</sup>. Scaffolding is assistance to individuals in the early stages of learning, then reducing the assistance and providing opportunities for responsibility when individuals can do independently. Scaffolding is beneficial for students, for instance facilitating the internalization of knowledge to complete tasks, scaffolding of more competent friends

or adults will reduce the cognitive burden when students learn individually. Scaffolding significantly influences cognitive outcomes in problem-based learning<sup>(14)</sup>. Scaffolding increases students' attention and mastery of the concepts of questions and subject matter so as to improve learning outcomes<sup>(15)</sup>.

Several previous studies related to this present research have affirmed that learning strategy and self-efficacy take a role in influencing students' learning outcomes and students' performance, including learning outcomes and performance of social problem solving. Additionally, it confirm the influence of learning strategies and self efficacy on the outcome of learning social problem solving. Based on the background described above, the purpose of this study is to examine and prove the effect of learning strategies and self efficacy on the outcome of learning social problem solving.

## **Method**

This study was a quasi-pretest-posttest nonequivalent control group design. The influence of the independent variables on the dependent variable was designed using a 2 x 2 factorial design. The subjects of this study were inclusive junior high school students in Surabaya Indonesia, including ordinary students and students with special needs or disabilities. There were two classes or groups chosen randomly and given different treatments. It employed tests which were adapted from Johnson<sup>(1)</sup>. Self-efficacy inventory was adapted from the scale for the measurement of self-efficacy for learning (SEL) developed by Klobas, Renzi, Nigrelli (16). Data normality test was using Kolmogorov-Smirnov technique and variance homogeneity test was using leven's test. Data analysis to test the research hypothesis was using two-way ANOVA with a significance level of 5%.

## **Results**

Hypothesis testing was done to test or prove the effect of learning strategy variables and self efficacy on social problem solving. To obtain the results of hypothesis testing, the research data were analyzed using the two-way Analysis of Varians (Anova) technique. The results of research data analysis with two-way ANOVA based on the 0.05 significance level are presented in table 1.

**Table 1: Two-way ANOVA Results Analysis**

Tests of Between-Subjects Effects					
Dependent Variable: Social Problem Solving Learning Outcomes					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1410.424	3	470.141	11.508	0.000
Intercept	348985.559	1	348985.559	8542.394	0.000
Guided Group_ Investigation	652.360	1	652.360	15.968	0.000
Self_Efficacy	424.907	1	424.907	10.401	0.002
Guided Group_ Investigation * Self_Efficacy	407.230	1	407.230	9.968	0.002
Error	2573.762	63	40.853		
Total	358549.500	67			
Corrected Total	3984.187	66			

a. R Squared = .354 (Adjusted R Squared = .323)

According to the Two-way Anova analysis results, significance rate of learning strategy is 0.000 which is lower than alpha 0.05. It affirms that null hypothesis is rejected. The hypothesis testing indicates a difference of learning outcomes and social problem solving between students learning with guided group investigation scaffolding task questions and students learning with unguided group investigation. The significance level of self efficacy is 0.002 less than 0.05. It affirms that the null hypothesis (H0) is rejected. The results of testing this hypothesis is that there are differences in learning outcomes for solving social problems between students who have high self efficacy and low self efficacy. The significance level of interaction between learning strategies and self efficacy 0.002, less than 0.05 means that the null hypothesis (H0) is rejected. The results of testing this hypothesis is that there is an interaction between learning strategies and self efficacy that influences the learning outcomes of solving social problems of inclusive school students in Indonesia.

## Discussion

Theoretically and empirically, the findings of this study are consistent with the results of previous relevant research, including research conducted by Sangadji<sup>(17)</sup>, indicating that group investigations carried out correctly can improve student learning achievement better. The use of the group investigation model has a positive effect on students' critical thinking skills hence learning outcomes will increase<sup>(18)</sup>. According to Damini<sup>(19)</sup>. The positive effects of cooperative investigation group investigation models cause significant changes in student attitudes and teachers and perspectives on cooperative learning and diversity so that learning outcomes are better. The

conceptual knowledge and work skills of students using cooperative learning model group investigation types are better than conventional learning<sup>(20)</sup>. The application of collaborative learning models to group investigations can improve learning process and learning outcomes<sup>(21)</sup>.

Scaffolding offers students the opportunity to internalize knowledge and complete tasks. Scaffolding from more competent friends or adults will reduce the cognitive burden when students learn individually. It improves student performance and the results associated with complex problem solving, developing problem solving, communication, team work, modeling, and professional skills<sup>(22)</sup>. Scaffolding is an important element for obtaining problem solving skills, improving student performance in problem solving<sup>(23)</sup>. Scaffolding is effective for improving verbal intelligence and shared mental and sensitivity development and predicting cognitive outcomes of children<sup>(24)</sup>. Scaffolding correlates with student performance in class interaction, formative evaluation and summative evaluation<sup>(25)</sup>. Metacognitive scaffolding can be used to increase students' awareness of the process of continuous thinking, planning actions and doing problem solving tasks<sup>(26)</sup>.

The results are relevant to previous findings and theories about the importance of student characteristics including self efficacy to improve learning outcomes, student performance and other student abilities. Student characteristics are learning conditions that influence learning outcomes<sup>(27)</sup>. According to Degeng<sup>(28)</sup>, to facilitate the acquisition of learning outcomes, organizing and re-disclosure of new knowledge, it is important to consider the characteristics of students. The positive relationship between self-efficacy and performance

fosters optimal performance<sup>(29)</sup>. Children with high self-efficacy have the ability to participate, effort and future self-success are higher than children with low self-efficacy<sup>(30)</sup>. Self-efficacy is an individual belief in its ability to achieve the desired level of performance and is very important in education because it affects the personality and attitudes of individuals to achieve better learning outcomes. Self-efficacy mediates a positive relationship between mindset and solution quality and performance originality<sup>(31)</sup>. Self-efficacy in learning can improve academic performance and significantly improve thinking skills<sup>(32)</sup>. Self-efficacy helps students to transform motivation into action learning and influences their ability to complete tasks and learning performance, students with high self-efficacy learning outcomes outperform students who are low self-efficacy<sup>(33)</sup>.

The findings in this study also concluded that self efficacy has an influence on increasing learning acquisition, including the acquisition of learning social problem solving. Learning outcomes for solving social problems are more increasing if students have high self efficacy.

### Conclusion

Based on research findings, data analysis and discussion, there is a difference in the increase in learning outcomes of social problem solving, learning outcomes of students who learn using the guided investigation group learning strategy with scaffolding task questions than students who learn to use the non-guided investigation group. In addition there are differences in the increase in learning outcomes of social problem solving between students with high self-efficacy than students with low self-efficacy. In addition, it affirms the interaction effect between guided investigation group learning strategies and self efficacy on improving social problem solving learning outcomes.

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**Ethical Clearance:** We/I, the undersigned researcher(s) have read the Malang State University's Guidelines for Ethical Review of Research Involving

Humans and agree to abide by them in the conduct of this research. It is understood that this includes the reporting and monitoring roles associated with the approval by Indonesian Guidance and Counseling Association.

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