

**SCAFFOLDING STUDENTS' PROBLEM SOLVING PROCESSES VIA MODIFIED  
POLYA'S PROBLEM SOLVING MODEL**

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## **ABSTRACT**

The study was conducted to investigate the effect of scaffolding problem solving processes via modified Polya's problem solving model to Philippine Science High School-Bicol Region Campus (PSHS-BRC) Grade 9 students' motivation, attitudes towards mathematics, study habits, and mathematics performance. Fifty-nine high school students participated in the study; 29 in the control group and 30 in the experimental group.

The design of the study was the randomized pre-test posttest control group using cluster sampling. The instruments for data collection were as follows: 1) 30-item researcher-made multiple-choice type of test to measure students' mathematics performance along knowing, applying and reasoning skills on pre-test and posttest; 2) ten researcher-made non-routine mathematics problems to scaffold students' problem solving processes; and 3) researcher-made survey questionnaires to measure students' level of motivation, attitudes, and study habits.

Mean, Pearson's correlation coefficient, multiple linear regression analysis, t-test, and difference-in-difference coefficient were the statistical tools used to analyze the data. The results of the study showed that students who used the modified Polya's problem solving model significantly outperformed the students who used the Polya's linear model in the non-routine problems, had an increase of 11.5% on their mathematics performance, and had an average increase of 5% on their motivation, attitudes towards mathematics, and study habits.\

Students' motivation, attitudes towards mathematics, study habits, and mathematics performance can be developed by upgrading the teaching methods and incorporating the mathematics lessons or activities in the class that highlight problem solving. Problem solving method must be regularly implemented in the classroom activity. Students must be exposed to

solving more non-routine problems emphasizing the most appropriate heuristics to be utilized to solve the problem. Students' problem solving processes must be scaffolded in such a way that the gap is bridged between their current skill levels and the desired skill levels. Finally, there is a need for more research about scaffolding problem solving processes of the students which will be of national importance especially for PSHS System so that further implications can be drawn and adopted on a wider basis.