



DOCUMENTED PROBLEM-SOLVING STRATEGY (DPSS) AS AN INSTRUCTION PROTOCOL IN THE DEVELOPMENT OF ACADEMIC PERFORMANCE IN SCIENCE

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ABSTRACT

This study generally aimed to conduct an experimental investigation method on the use of Documented Problem-Solving Strategy in teaching Science. The experimental investigation was used to determine the effectiveness of Documented Problem-Solving Strategy (DPSS) in teaching Science 9, which mainly focused on Physics topics. Purposive sampling was used by the researcher to focus on particular characteristics of the students to be observed in the actual implementation of the study which can be helpful in answering research questions since the researcher aimed to improve academic performance of Grade 9 students and help the students to increase their interest towards learning Science concepts specifically problem solving in Physics. The participants of this study were handled by the researcher. The two groups were exposed in the Documented Problem-Solving Strategy (DPSS) and the other group was exposed in the Non-Documented Problem-Solving Strategy (Non-DPSS). The two groups belong to the heterogeneous section with 30 students each. The researcher implemented same topics and competencies for both groups as reflected in the K-12 curriculum guide. The learning plans designed by the researcher for the DPSS Group was aligned from Daily Lesson Plan prescribed by the Department of Education with the integration of DPSS. After the experimental period, both groups were given a 40-item posttest which was divided evenly based on the Bloom's Taxonomy cognitive skills. The scores of all respondents were used to ensure evenness between two groups. The mean, standard deviation, independent and paired t-Test were utilized as statistical tools in the study. The SPSS software was also utilized to validate the correctness of data vital for the research. From the results of the statistical treatment employed from the pretest and posttest performance of Non-DPSS and DPSS groups, it was revealed that the utilization of DPSS contributed a significant change in the performance of students in learning Physics concepts as noted by the test of significance of the posttest performance of both groups in which the computed t-value of 3.505 was higher compared to the tabular t-value 2.000. Furthermore, t-Test of the learning gains of both groups showed that the computed t-value of 18.452 was higher compared to the tabular t-value 2.000, respectively. Thus, the use of Documented Problem-Solving Strategy as a teaching approach was effective and contributes to the improvement of academic achievement and problem-solving performance of the students in Science.

Keywords: assessment strategies, documented problem-solving strategy, teaching methodologies, learning outcomes, and teachers' preparation.