ABSTRACT

Mathematics with its system of psychological tools and mathematical thinking dynamic provides the vehicle for the formulation, organization and articulation of human thought. As a goal of instruction, mathematics proficiency illuminates a better way to think about mathematics learning. Learners with mathematics proficiency understand basic concepts; are fluent in performing basic operations; exercise a repertoire of strategic knowledge; reason clearly and flexibly and maintain a positive outlook towards mathematics. It is observed that instructional dynamisms rooted in reflective learning practices could energize mathematics learning space by capacitating the learners to configure mathematical concepts, to construct, deconstruct and reconstruct solution strategies and to manage mathematical tasks with perseverance. The present study was intended to develop certain learning designs for promoting reflective learning practices among pupils at secondary level and to test its effectiveness in upbringing better mathematics proficiency. An experimental study with mixed method approach has been adopted for the present study. The study made use of quasi-experimental design with pretest posttest non-equivalent group design. The sample consisted of mathematics practitioners, experts in the field of mathematics and secondary school pupils. The major analytical supports and techniques made use of data collection were Semi - structured interview, Analytic rubric for synchronized assessment of mathematics proficiency, Lesson designs based on select reflective learning designs namely, Reflective journaling design, Problem based learning design and Thinking maps design, Achievement test in mathematics, Scale of reflective action, Strategy evaluation proforma and Focus group discussion. The results of the study points to the conclusion that the select reflective learning designs namely, Reflective journaling design, Problem based learning design and Thinking maps design are highly effective in improving the academic performance in mathematics, in enhancing the level of reflective thinking and in augmenting the set levels of mathematical proficiency among secondary school pupils.