

Exploring The Stages of Polya's Problem-solving Model during Collaborative Learning: A Case of Fractions

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ABSTRACT This paper reports on a small-scale action research, which investigated the processes involved in problem-solving in a mathematics class. Grade ten learners ($n = 47$) at a South African middle school were involved in the study. The participants from two classes attempted the solution of tasks involving the fraction concept. In one class, the learners worked in groups and in the other class, the learners worked individually. A qualitative method was adopted for data capture and analysis. Social constructivism was adopted as a theoretical framework and the stages advocated by Polya were interrogated when analyzing the learner responses on their problem solutions. The results revealed that those learners working in groups demonstrated most of the stages of the Polya linear problem-solving model. The findings helped identify which stages of the model promote effective problem-solving and some recommendations are made for classroom practitioners engaging their learners in problem-solving.