

The Development of the Hots Mathematical Problem-Solving Framework Using the Bar Model Strategy- A Need Analysis.

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- **Abstract:** This study aims to determine the need to develop the Higher Order Thinking Skills (HOTS) mathematical problem-solving framework (HMPSF) using the Bar Model strategy in improving primary school pupil's achievement, motivation and attitude on Mathematical problem-solving questions in the form of HOTS. This study also aims to develop an initial prototype for HMPSF using the Bar Model strategy based on the finding of the need analysis. A questionnaire and a structured interview were used to answer the research questions in Phase 1 from three-phase modified Design and Development Research (DDR) method. A total of 65 primary Mathematics teachers and five experts in Mathematics education were involved in this study. Finding from questionnaires was analyzed using descriptive statistics involving percentage while finding from structured interviews was analyzed using thematic analysis. In conclusion, the HMPSF framework using the Bar Model strategy is necessary to develop. An initial prototype of HMPSF framework using the Bar Model strategy can also be developed. The elements contained in initial prototype of HMPSF framework using the Bar Model strategy are (i) Topics: Number and Mathematical Operations Year 5; (ii) Title: Addition, Subtraction, Multiplication, Division and Combined Operations; (iii) Learning theory: Piaget's Theory of Cognitive Development, Lee Vygotsky's Theory of Social, Bruner's Theory of Learning; (iv) Mathematical problem-solving model: Polya Model; (v) Problemsolving strategies: Bar Model Strategies. The implications of this study showed that the need and importance of HMPSF being developed to guide teachers to train their pupils to solve HOTS mathematical problem-solving questions.
- **Keywords:** Bar Model strategy, Polya Model, Cognitive Development, Higher Order Thinking Skills