

ABSTRACT

Siti Mas'ula. 2019. Development of Enactive-Iconic-Symbolic-Oriented Problem Based Learning Model (PBM-ENIKSI) in Primary School Students. Dissertation. Postgraduate Program of Universitas Negeri Padang.

The research was triggered by some problems found by the researcher during preliminary research. The problem solving ability of students has not yet developed. Student's self-efficacy has not been seen in solving mathematical problems. Not enough learning resources are available and the models applied in learning have not provided opportunities for students to construct their knowledge. Researchers need to solve this problem through design research (design research) with the Plomp model (2013), with the stages of preliminary research, prototyping stage, and assessment stage. The product trial was carried out at SD Negeri Cluster II, Padang Selatan District, Padang City in the odd semester of the 2018/2019 school year. Data of study were gathered by discussion, surveillance, debriefing, questionnaire, and tests.

Based on the research, an Enactive-Iconic-Symbolic-Oriented Problem Based Learning model (PBM-ENIKSI) consists of model books, model support systems have the form teacher's book and pupil's book. The PBM-ENIKSI model has 5 syntaxes, namely: initial debriefing problem solving, looking for concrete problem solving solutions, representing problems into tables/drawings/graphics, solving question utilizing mathematical epitomes, and assess problem solving solutions. The validation results show that the PBM-ENIKSI model is suitable for use with a very valid category, with the following characteristics: (a) model development is based on strong theoretical curriculum and rational (constructivism theory, cognitive psychology, and model development theory), (b) PBM model syntax -ENIKSI leads to the achievement of increasing students' problem solving abilities, and (c) social principles, reaction principles, and support systems mutually support the implementation of the developed syntax. Practicality test results show that the PBM-ENIKSI model can be used in normal conditions and may be applied by teachers and pupils, with the characteristics of: (a) teacher's books and student books are easy to understand; (b) has an attractive physical form; (c) the steps of the model can be done on time allocation provided; (d) every activity in the student book can be carried out properly according to the time allocation provided; (e) student books are easy to use and very interesting; and (f) student books have interesting illustrations. The outcomes of the effectiveness test state that the problem solving skill of pupils utilizing the PBM-ENIKSI model was better than the problem solving skill of pupils using conventional models. PBM-ENIKSI model can be applied to students who have high or low self efficacy to increase students' problem solving skills. It may be concluded that the PBM-ENIKSI model is effective for increasing students' problem solving skills.

ABSTRAK

Siti Mas'ula. 2019. Pengembangan Model Pembelajaran Berbasis Masalah Berorientasi Enaktif-Ikonik-Simbolik (PBM-ENIKSI) pada Siswa Sekolah Dasar. Disertasi. Program Pascasarjana Universitas Negeri Padang.

Penelitian ini dipicu oleh beberapa masalah yang ditemukan peneliti selama penelitian pendahuluan. Keterampilan *problem solving* siswa belum berkembang. *Self efficacy* siswa belum terlihat dalam menyelesaikan masalah matematika. Sumber belajar belum cukup tersedia dan model yang diterapkan dalam pembelajaran belum memberikan peluang untuk siswa membangun sebuah pengetahuan. Peneliti perlu menyelesaikan masalah ini melalui penelitian desain (*design research*) dengan model Plomp (2013), yakni melalui riset awal, mendesain produk, dan tahapan penilaian. Uji coba produk dilakukan pada siswa SD Negeri Gugus II Kec. Padang Selatan, Kota Padang semester gasal tahun pelajaran 2018/2019. Data penelitian dikumpulkan melalui diskusi, pengamatan, tanya jawab, daftar pertanyaan, dan tes.

Berdasarkan penelitian dihasilkan model Pembelajaran Berbasis Masalah Berorientasi Enaktif-Ikonik-Simbolik (PBM-ENIKSI) yang diwujudkan dalam bentuk buku model, Buku Pegangan Pendidik (BP2) dan Buku Pegangan Siswa (BP2D). Model PBM-ENIKSI mempunyai 5 sintaks, yaitu: pembekalan awal pemecahan masalah, mencari solusi pemecahan masalah melalui hal konkret, merepresentasikan masalah ke dalam tabel/gambar/grafik, menyelesaikan masalah menggunakan simbol-simbol matematika, dan evaluasi solusi pemecahan masalah. Hasil validasi menunjukkan bahwa model PBM-ENIKSI layak digunakan dengan kategori sangat valid, dengan karakteristik: (a) pengembangan model didasarkan pada kurikulum dan rasional teoritik yang kuat, (b) sintaks model PBM-ENIKSI mengarah pada tercapainya peningkatan keterampilan *problem solving*, dan (c) komponen model lainnya saling menunjang implementasi langkah-langkah yang dikembangkan. Hasil uji praktikalitas menunjukkan bahwa model PBM-ENIKSI bisa dilaksanakan pada kondisi real dan dapat diterapkan oleh pengguna pembelajaran di lapangan, dengan karakteristik: (a) produk pendukung mudah dipahami; (b) mempunyai bentuk fisik yang menarik; (c) sintaks model dapat dilaksanakan sesuai waktu yang disediakan; (d) setiap kegiatan dalam BP2D bisa berjalan optimal; (e) BP2 mudah digunakan dan sangat menarik; dan (f) BP2D memiliki ilustrasi yang menarik. Uji efektifitas memperlihatkan keterampilan *problem solving* siswa dengan model PBM-ENIKSI lebih baik daripada keterampilan *problem solving* siswa menggunakan model konvensional. Model PBM-ENIKSI dapat diterapkan untuk siswa yang *self efficacy* tinggi maupun rendah untuk meningkatkan keterampilan *problem solving* siswa. Berdasarkan hal tersebut dinyatakan model PBM-ENIKSI efektif untuk menambah keterampilan *problem solving* siswa.