

## ABSTRACT

### **The Development of Mathematics Learning devices based on Problem Based Learning (*PBL*) on *Linear* Equation System of Two Variables and circles for 8th Grade Junior High School Students**

**Roki Hidayat**

Problem solving skill is as one of the essential capabilities for students which have not reached its full potential. There are several factors that cause the low ability. One of them is the unavailability of the learning devices that facilitated students optimally to grow and develop mathematical problem-solving ability. This research aims to develop the learning device in the form of RPP (lesson plan) and student's worksheets (LKPD) based on Problem Based Learning (*PBL*) for the material of Linear Equation System of Two Variables and Circles for 8th grade junior high school students which are valid, practical, and effective.

The type of this research is development research. This research used a Plomp's model which consists of three phases, namely the preliminary research, prototyping phase and the assessment phase. At the preliminary research phase is conducted a needs analysis, students analysis, curriculum analysis, and concept analysis. In the prototype phase is conducted the design of learning devices based on *PBL* for the material of Linear Equation System of Two Variables and circles, then formative evaluation is conducted to determine the validity and practicality of the product in the form of learning devices based on *PBL*. In the assessment phase carried out the test ratings of practicalities and effectiveness. The effectiveness seen through Quasi experimental research.

This research produced the learning devices that meet the criteria valid, practical and effective. The result of analysis of the lesson plan and students' worksheet validation sheet showed that is developed was valid. The learning devices are also practical based on the analysis of teachers' responses questionnaire, the learners' responses questionnaire and observation sheet of learning implementation. While the effectiveness of the learning devices seen based on the result of final test mathematical problem solving ability of students after using the learning devices based on *PBL*.

## ABSTRAK

### **Pengembangan Perangkat Pembelajaran Matematika Berbasis *Problem Based Learning (PBL)* untuk Materi Sistem Persamaan Linear Dua Variabel dan Lingkaran pada Peserta Didik Kelas VIII SMP**

**Roki Hidayat**

Kemampuan pemecahan masalah sebagai salah satu kemampuan esensial bagi peserta didik, masih belum tercapai secara maksimal. Terdapat beberapa faktor penyebab rendahnya kemampuan tersebut. Satu diantaranya adalah belum tersedianya perangkat pembelajaran yang secara optimal memfasilitasi peserta didik untuk menumbuh-kembangkan kemampuan pemecahan masalah matematisnya. Penelitian ini bertujuan mengembangkan perangkat pembelajaran berupa RPP (Rencana Pelaksanaan Pembelajaran) dan lembar kerja peserta didik (LKPD) yang didasarkan pada *Problem Based Learning (PBL)* untuk materi sistem persamaan linear dua variabel dan lingkaran kelas VIII SMP yang valid, praktis, dan efektif.

Jenis penelitian ini adalah penelitian pengembangan. Penelitian ini menggunakan model Plomp yang terdiri dari tiga fase, yaitu *preliminary research*, *prototyping phase*, dan *assessment phase*. Pada fase *preliminary research* dilakukan analisis kebutuhan, analisis peserta didik, analisis kurikulum, dan analisis konsep. Pada fase *prototype* dilakukan perancangan perangkat pembelajaran berbasis *PBL* untuk materi sistem persamaan linear dua variabel dan lingkaran, kemudian dilakukan evaluasi formatif untuk menentukan kevalidan, dan kepraktisan produk berupa perangkat pembelajaran berbasis *PBL*. Pada *assessment phase* dilakukan penilaian dengan uji praktikalitas dan efektivitas. Keefektivan dilihat melalui penelitian *Quasi Eksperiment*.

Penelitian ini menghasilkan perangkat pembelajaran yang memenuhi kriteria valid, praktis dan efektif. Hasil analisis terhadap lembar validasi RPP dan LKPD menunjukkan bahwa perangkat pembelajaran yang dikembangkan valid. Perangkat pembelajaran juga praktis berdasarkan hasil analisis terhadap angket respon guru, angket respon peserta didik dan lembar observasi keterlaksanaan pembelajaran. Sedangkan efektifitas perangkat pembelajaran dilihat berdasarkan hasil tes akhir kemampuan pemecahan masalah matematis peserta didik setelah belajar menggunakan perangkat pembelajaran berbasis *PBL*.