

## ABSTRAK

YUMNI AULIA HASIBUAN. Pengembangan Perangkat Pembelajaran Berbasis Masalah Untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa SMP Taman Siswa Tanjung Sari Medan. Tesis. Medan. 2015. Program Studi Pendidikan Matematika Program Pascasarjana Universitas Negeri Medan (UNIMED).

Penelitian ini bertujuan untuk: (1) Mengetahui apakah perangkat pembelajaran berbasis masalah yang dikembangkan valid, praktis dan efektif. (2) Mengetahui apakah kemampuan pemecahan masalah matematis melalui penggunaan perangkat pembelajaran dapat meningkat. (3) Mengetahui proses penyelesaian siswa terhadap kemampuan pemecahan masalah matematis. Jenis penelitian yang digunakan adalah penelitian pengembangan oleh Thiagarajan, Semmel dan Semmel, yaitu model 4-D (*define, design, develop, dan disseminate*). Tahap *dissaminate* dilakukan dengan disain *quasi eksperimen one group pre-test post-test* dengan teknik analisis data statistik kuantitatif *uji t*. Subjek penelitian pada uji keterbacaan adalah siswa dan guru kelas VIII-1. Subjek pada uji lapangan adalah siswa dan guru kelas VIII-2. Data dikumpulkan menggunakan 4 jenis instrumen yaitu lembar validitas, lembar observasi, angket dan tes. Hasil penelitian diperoleh perangkat pembelajaran yang valid, praktis, dan efektif. (1) Validitas ditunjukkan dari hasil 5 orang validator, rata-rata total validitas untuk RPP: 4,23; LAS: 4,11; Buku Siswa: 3,96; Tes Kemampuan Belajar: 4,0, hasil validasi ini menunjukkan bahwa perangkat yang dikembangkan layak digunakan (memenuhi kriteria  $3 \leq Va < 4$ ). Kepraktisan dilihat dari uji coba keterbacaan dengan hasil: lembar observasi keterlaksanaan perangkat 3,92; Respon siswa dan respon guru terhadap perangkat pembelajaran masing-masing 3,31 dan 3,50, hasil uji keterbacaan ini menunjukkan bahwa perangkat yang dikembangkan praktis (memenuhi kriteria kepraktisan). Keefektifan dilihat dari uji coba lapangan dengan hasil: nilai ketuntasan hasil belajar pada uji coba lapangan pertama belum mencapai kriteria keefektifan (ketuntasan belajar klasikal  $\leq 85\%$ ), sedangkan pada uji coba lapangan kedua sudah memenuhi kriteria keefektifan yaitu ketuntasan belajar klasikal  $\geq 85\%$ , kemampuan guru mengelola pembelajaran dalam kategori baik (3,50 - 4,49), dan aktivitas siswa berada pada kriteria batasan keefektifan pembelajaran. (2) Pada uji lapangan pertama dan kedua menunjukkan kemampuan pemecahan masalah matematis meningkat secara signifikan yang ditunjukkan dari nilai (sig.) = 0,00 ((sig.)  $\leq 0,05$ ). (3) Proses penyelesaian masalah matematis yang dibuat siswa dalam pembelajaran berbasis masalah lebih baik. Secara keseluruhan hasil penelitian menunjukkan bahwa perangkat pembelajaran yang dikembangkan adalah layak untuk digunakan.

Kata Kunci: Perangkat Pembelajaran, Kemampuan Pemecahan Masalah Matematis, Pembelajaran Berbasis Masalah

## Abstract

YUMNI AULIA HASIBUAN. Developing Problem-Based Learning Instrument in Improving Maths Problem Solving Ability of Taman Siswa Senior High School Students, Tanjung Sari, Medan. Thesis. Medan. 2015. Maths Education Department, Post-Graduate Programme of Universitas Negeri Medan (UNIMED).

The objectives of this study were; (1) to find out the validity, practical and effectiveness of developed problem-based learning instrument, (2) to investigate whether the use of learning instrument could improve the students' ability in solving maths problems, (3) to investigate the students' completion process toward the problem solving of maths. This study was conducted by using research and development 4-D method (define, design, develop and disseminate) which was developed by Thiagarajan, Semmel and Semmel. The disseminate stage was done by using one group pre-test post-test experimental quasi design which was analyzed by using quantitative statistical t-test. The subject of study on readability test was the teacher and the students of class VIII-1. The subject of field test was the teacher and the students of class VIII-2. There were four kinds of instruments utilized in collecting the data of study, namely validity sheet, observation sheet, questionnaires and test. The result of study found that the learning instrument was valid, practical and effective. (1) the validity was obtained from the results of 5 validators, with the total average of lesson plans validity was 4,23; LAS: 4,11; students' books: 3,96; learning achievement test: 4,0. Whereas the results of validity showed that the developed learning instruments was applicable (fulfilled the criterion  $3 \leq Va < 4$ ). The practicality was obtained from the readability test with the results of observation sheet 3,92; students' and teacher's responses toward the learning instruments respectively showed the number of 3,31 and 3,50. The result of readability test showed that the developed learning instrument was practical (fulfilled the practicality criterion). The effectiveness was obtained from the field test with the results of: the standard score on the first field test hadn't achieved the effectiveness criterion (classical learning achievement  $\leq 85\%$ ), besides in the second field test had achieved the effectiveness criterion with classical learning achievement  $\leq 85\%$ , the teacher's ability in organizing the learning was in good criterion (3,50-4,49), and the students' activities are in the limit of learning effectiveness. (2) the score of (sig.) = 0,00 ((sig.)  $\leq 0,05$ ) showed that in the first and second field trip, the maths problem solving ability was significantly improved. The process of maths problem solving done by the students in the problem-based learning was getting better. The results of study thoroughly showed that the developed learning instrument was applicable.

Keywords: Learning instrument, maths problem solving ability, problem-based learning.