

ABSTRAK

IBNU RAASH ALESLAMI. Pengembangan Bahan Ajar Matematika Berbasis Pendekatan Matematika Realistik (PMR) untuk Meningkatkan Kemampuan Penalaran dan Representasi Matematis Siswa Kelas VII SMP Muhammadiyah 47 Medan Sunggal. Tesis. Pascasarjana Pendidikan Matematika Universitas Negeri Medan, 2020.

Penelitian ini bertujuan untuk menganalisis validitas dan keefektivan bahan ajar yang dikembangkan berbasis pendekatan matematika realistik dalam meningkatkan kemampuan penalaran dan representasi matematis siswa, untuk menganalisis peningkatan kemampuan penalaran dan kemampuan representasi matematika siswa yang diajar menggunakan bahan ajar berbasis pendekatan matematika realistik. Data diperoleh melalui lembar validasi bahan ajar, lembar observasi, angket respon siswa, instrumen tes kemampuan penalaran matematis dan tes kemampuan representasi matematis. Penelitian ini menggunakan model pengembangan 4-D Thiagarajan, Semmel dan Semmel dengan mengembangkan bahan ajar dengan pendekatan matematika realistik. Berdasarkan hasil validasi nilai rata-rata total validitas RPP sebesar 4,81, buku siswa sebesar 4,83 dan LKPD sebesar 4,85, tes kemampuan penalaran matematis siswa dan tes kemampuan representasi matematis telah berada pada kategori valid. Ketuntasan belajar secara klasikal mencapai 90,62% yang telah memenuhi kriteria ketuntasan yaitu $\geq 85\%$ siswa telah mencapai KKM. Peningkatan kemampuan penalaran matematis siswa menggunakan bahan ajar berbasis pendekatan matematika realistik pada materi pecahan dilihat dari N-Gain pada uji coba I dan uji coba II mengalami peningkatan yaitu dari 0,36 menjadi 0,50 artinya berada pada kategori sedang. Serta peningkatan kemampuan representasi matematis siswa menggunakan bahan ajar berbasis pendekatan matematika realistik pada materi pecahan dilihat dari N-Gain pada uji coba I dan uji coba II mengalami peningkatan yaitu dari 0,43 menjadi 0,50 artinya berada pada kategori sedang.

Keywords: Pengembangan Bahan Ajar, Pendekatan Matematika Realistik, Kemampuan Penalaran Matematis, Kemampuan Representasi Matematis

ABSTRACT

IBNU RAASH ALESLAMI. Development of Mathematics Teaching Materials Based on the Realistic Mathematics Approach (PMR) to Improve the Mathematical Reasoning and Representation Ability of Class VII Students of SMP Muhammadiyah 47 Medan Sunggal. Thesis. Medan: Post Graduate Program of Mathematics for Education Department of State University of Medan 2020.

This study aims to analyze the validity and effectiveness of teaching materials developed based on a realistic mathematical approach in improving students' mathematical reasoning and representation abilities, to analyze the increase in students' reasoning skills and mathematical representation abilities taught using teaching materials based on realistic mathematical approaches. The data were obtained through the validation sheet of teaching materials, observation sheets, student response questionnaires, mathematical reasoning ability test instruments and mathematical representation ability tests. This study uses a 4-D development model Thiagarajan, Semmel and Semmel by developing teaching materials with a realistic mathematical approach. Based on the results of the validation, the total average value of the RPP validity was 4.81, the student books were 4.83 and the LKPD was 4.85, the students' mathematical reasoning ability tests and the mathematical representation ability tests were in the valid category. Classical mastery of learning reaches 90.62% which has met the completeness criteria, namely $\geq 85\%$ of students have reached the KKM. The increase in students' mathematical reasoning abilities using teaching materials based on a realistic mathematical approach on fraction material seen from N-Gain in the first trial and second trial has increased from 0.36 to 0.50 meaning that it is in the medium category. As well as an increase in the ability of students' mathematical representation using teaching materials based on a realistic mathematical approach on fraction material seen from N-Gain in the first trial and second trial, it increased from 0.43 to 0.50, meaning that it was in the medium category.

Keywords: Teaching Material Development, Realistic Mathematical Approach, Mathematical Reasoning Ability, Mathematical Representation Ability