ABSTRACT

Mahendra. (2016). Improving the Mathematical Understanding and Representation Abilities and Reducing Mathematical Anxiety of Junior High School Students through Inquiry Based on Multimedia.

The purpose of this research was to examine the achievements and improvement ability of mathematical understanding and representation, also the reduction of mathematical anxiety students who got inquiry learning based on multimedia and conventional learning; to examine the views of students towards inquiry learning based on multimedia. Method of this research is quantitatives. This research used a quasi-experimental pattern with nonequivalent control group design. Population of this research was 7 grade in a junior high school, Yogyakarta. Sample of this research was students of VIII A. Student of VIII C was a control group. The instruments used, namely (1) test, such as item of mathematical understanding and representation abilities, (2) non test, in the form of a mathematical anxiety scale, the scale of students' views on learning, and observation sheet. The trial results showed the reliability coefficient of mathematical understanding and representation abilities were respectively 0,78 and 0,76, the reliability coefficient of mathematical anxiety and scale of students' views on learning were 0,634 and 0,743. Analysis of quantitative data in this research used IBM SPSS Statistics 23, and the conclusion: the achievement of mathematical understanding and representation abilities of students who receive inquiry learning based on multimedia are higher significantly than students who receive the conventional learning; inquiry learning based on multimedia is able to increase significantly the mathematical understanding and representation abilities more than students who received the conventional learning; mathematical anxiety of students who receive inquiry learning based on multimedia is decreased more significantly than students who receive the conventional learning; students' views on inquiry learning based on multimedia is good.

Keywords: Inquiry learning based on multimedia, mathematical understanding ability, mathematical representation ability, mathematical anxiety.

ABSTRAK

Mahendra (2016). Meningkatkan Kemampuan Pemahaman dan Representasi Matematis serta Menurunkan Kecemasan matematis Siswa SMP dengan Pembelajaran Inkuiri Berbasis Multimedia.

Penelitian ini bertujuan untuk menelaah pencapaian dan peningkatan kemampuan pemahaman, representasi, dan kecemasan matematis siswa yang memperoleh pembelajaran inkuiri berbasis multimedia dan pembelajaran biasa, serta menelaah pandangan siswa terhadap pembelajaran inkuiri berbasis multimedia. Metode penelitian ini adalah kuantitatif. Penelitian ini merupakan kuasi eksperimen dengan *nonequivalent control grup design*. Populasi dalam penelitian ini adalah siswa kelas 7 di suatu SMP di Yogyakarta. Sampel penelitian ini adalah siswa kelas VIII A. Kelas VIII C merupakan kelas pembanding/kelas kontrol. Instrumen yang digunakan, yaitu (1) tes, berupa soal kemampuan pemahaman dan representasi matematis, (2) nontes, berupa skala kecemasan matematis, skala pandangan siswa terhadap pembelajaran, dan lembar observasi. Hasil uji coba instrumen menunjukkan koefisien reliabilitas tes kemampuan pemahaman dan representasi matematis berturut-turut adalah 0,78 dan 0,76, koefisien reliabilitas skala kecemasan matematis dan skala pandangan siswa terhadap pembelajaran berturut-turut adalah 0,634 dan 0,743. Analisis data kuantitatif pada penelitian ini menggunakan *IBM SPSS Statistics 23,* sehingga diperoleh kesimpulan: pencapaian kemampuan pemahaman dan representasi matematis siswa yang memperoleh pembelajaran inkuiri berbasis multimedia lebih tinggi daripada siswa yang memperoleh pembelajaran biasa secara signifikan; pembelajaran dengan pembelajaran inkuiri berbasis multimedia mampu meningkatkan kemampuan pemahaman dan representasi matematis siswa secara signifikan; kecemasan matematis siswa yang memperoleh pembelajaran inkuiri berbasis multimedia menurun secara signifikan daripada siswa yang memperoleh pembelajaran biasa; siswa berpandangan baik terhadap pembelajaran inkuiri berbasis multimedia.

Kata kunci:
Pembelajaran Inkuiri Berbasis Multimedia, kemampuan pemahaman matematis, kemampuan representasi matematis, kecemasan matematis.