

## ABSTRACT

Roima Rizki Lestari, (2018). Improvement of Junior High School Mathematical Problem Solving and Learning Independence Ability Through Realistic Mathematical Approach Assisted by Autograph Software. Thesis of Postgraduate Mathematics Education Study Program, Medan State University, 2018.

The objective of this quasi-experimental research was to improve the problem-solving ability with autograph software in learning statistics in junior high schools that used realistic mathematical approaches. This study focuses on students' mathematical problem solving skills in studying statistics. 64 students involved in this study consisted of two classes, namely 32 students in the experimental class and 32 students in the control class. Students in the experimental group learn with the help of the autograph software, while in the control group the students learn without the help of autograph software. The overall average score of the problem solving ability of the experimental group is 17.625 (N-gain = 0.299) higher than the control group average of 15.438 (N-gain = 0.100). The average mathematics learning independence of the experimental group was 116.531 (N-gain = 0.427) higher than the control group average of 104.281 (N-gain = 0.200). The results of the analysis process of students' mathematical answers in the experimental class during learning is better than the process of students' mathematical answers in the control class, and students' interaction between learning and initial abilities during attending mathematics learning assisted by autograph software is much better and positive, and students have learning independence high. From the results of this study it can be concluded that the autograph software is effectively used in teaching statistics in junior high schools. Based on the results of this study it is suggested that teachers use dynamic software in teaching mathematics to improve the quality of mathematics learning for various topics in junior high school.

**Keywords:** Realistic Mathematical Approach Assisted by Autograph Software, Mathematical Problem Solving Ability, Student Learning Independence, Student Mathematical Answer Process.

## ABSTRAK

**Roima Rizki Lestari, (2018). Peningkatan Kemampuan Pemecahan Masalah Matematik dan Kemandirian Belajar Siswa SMP Melalui Pendekatan Matematika Realistik Berbantuan Software Autograph. Tesis Program Studi Pendidikan Matematika Pascasarjana Universitas Negeri Medan, 2018.**

Tujuan penelitian eksperimen semu ini untuk meningkatkan kemampuan pemecahan masalah dengan software autograph dalam belajar statistika di SMP yang menggunakan pendekatan matematika realistik. Penelitian ini berfokus pada kemampuan pemecahan masalah matematik siswa dalam mempelajari statistika. 64 orang siswa terlibat dalam penelitian ini yang terdiri dari dua kelas, yaitu 32 siswa di kelas eksperimen dan 32 siswa di kelas kontrol. Siswa dikelompokkan eksperimen belajar dengan bantuan software autograph, sedangkan di kelompok kontrol siswa belajar tanpa bantuan software autograph. Skor rata-rata keseluruhan kemampuan pemecahan masalah kelompok eksperimen adalah 17,625 ( $N\text{-gain} = 0,299$ ) lebih tinggi dari rata-rata kelompok kontrol yaitu 15,438 ( $N\text{-gain} = 0,100$ ). Rata-rata kemandirian belajar matematika kelompok eksperimen adalah 116,531 ( $N\text{-gain} = 0,427$ ) lebih tinggi dari rata-rata kelompok kontrol yaitu 104,281 ( $N\text{-gain} = 0,200$ ). Hasil analisis proses jawaban matematika siswa di kelas eksperimen selama pembelajaran lebih baik dari pada proses jawaban matematika siswa di kelas kontrol, dan interaksi siswa antara pembelajaran dan kemampuan awal selama mengikuti pembelajaran matematika berbantuan software autograph jauh lebih baik dan positif, serta siswa memiliki kemandirian belajar yang tinggi. Dari hasil penelitian ini dapat disimpulkan bahwa software autograph efektif digunakan dalam mengajar statistik di SMP. Berdasarkan hasil penelitian ini disarankan agar guru menggunakan software dinamis dalam mengajar matematika untuk meningkatkan kualitas pembelajaran matematika untuk berbagai topik di SMP.

**Kata Kunci:** Pendekatan Matematika Realistik Berbantuan Software Autograph, Kemampuan Pemecahan Masalah Matematik, Kemandirian Belajar Siswa, Proses Jawaban Matematika Siswa.