ABSTRAK

Radifan Irsaly Ruchiyat (2024), "Penerapan Pendekatan *Realistic Mathematics Education* melalui *Group Investigation* Berbantuan Media Augmented Reality untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa dan *Self Concept* Siswa SMP".

Penelitian ini bertujuan untuk menelaah Penerapan Pendekatan *Realistic Mathematics Education* melalui *Group Investigation* Berbantuan Media Augmented Reality untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa dan *Self Concept* Siswa SMP, adapun metode yang digunakan pada penelitian ini yaitu; *Mix Method The Sequential Explanatory* yang tahapannya sudah disesuaikan, Subjek pada penelitian ini adalah Peserta didik kelas VIII yang berlokasi di Kota Cimahi dengan jumlah 60 orang Peserta didik. Adapun hasil pada penelitian itu diantaranya; 1**)** Peningkatan kemampuan kemampuan pemecahan masalah matematis siswa yang mendapat pendekatan *Realistic Mathematics Education* melalui *Group Investigations* berbantuan media *Augmented Reality* lebih baik dari pembelajaran biasa ditunjukan dengan rata-rata *pretest*t kelas eksperimen sebesar 58,04 dan kelas kontrol sebesar 52,32. Rata-rata postest pada kelas eksperimen sebesar 72,96 dan kelas kontrol sebesar 56,98. Dengan hasil tersebut kelas eksperimen mengalami peningkatan yang cukup signifikan dibandingkan dengan kelas kontrol pada tes kemampuan pemecahan masalah matematis. Dilihat dari N-Gain atau peningkatan sebelum dan sesudah untuk kelas eksperimen mendapatkan skor sebesar 0,76 yang masuk dalam kategori tinggi dan kelas kontrol sebesar 0,48 yang masuk dalam kategori sedang. 2) Pengaruh dari *Self Concept* Siswa terhadap kemampuan pemecahan masalah matematis yang mendapat pendekatan *Realistic Mathematics Education* melalui *Group Investigations* berbantuan media *Augmented Reality.* dari hasil analisis Karena 0,080 lebih besar dari 0,05 maka hasil uji linieritas data *Self Concept* dan kemampuan pemecahan masalah matematis siswa memiliki hubungan yang linear serta data diperoleh bahwa nilai R (korelasi) sebesar 0, 752 dan nilai *R square* (koefisien determinasinya) sebesar 0,565. Tabel di atas juga menunjukkan bahwa terdapat pengaruh antara *Self Concept* terhadap kemampuan pemecahan masalah matematis sebesar 56,5%. 3) Proses penerapan pendekatakan *Realistic Mathematics Education* dan *Group Investigations* dengan berbantuan *Augmented Reality* pada pembelajaran siswa SMP maka pembelajaran matematika yang dilakukan oleh peneliti sudah sesuai dengan pendekatan RME menggunakan langkah-langkah: (1) Memahami masalah/konteks, (2) Menjelaskan masalah kontekstual, (3) Menyelesaikan masalah kontekstual, (4) Membandingkan dan mendiskusikan jawaban, dan (5) Menyimpulkan. Dengan kombinasi dari GI yaitu Penerapan model pembelajaran group investigation dilaksanakan melalui langkah-langkah yang meliputi: 1) Membentuk kelompok. 2)Mengidentifikasi topik. 3)Merencanakan investigasi. 4) Melaksanakan

investigasi. 5) Menyiapkan laporan akhir. 6) Mempresentasikan laporan akhir. 7) Evaluasi serta penggunaan media agumented reality dapat dikatakan baik. 4) Efektivitas penerapan pendekatan pendekatakan *Realistic Mathematics Education* dan *Group Investigations* dalam meningkatkan kemampuan pemecahan masalah matematis dan *Self Concept* Siswa Dengan perolehan nilai terendah diperoleh siswa pada pada indikator Memeriksa kembali hasil dan proses kerja yang di peroleh sebesar 59.74, dan nilai tertinggi yang didapatkan adalah 82,42% pada indikator Menyelesaikan rencana dengan prosedur yang jelas, hal ini berarti siswa sudah mampu menyelesaikan suatu permasalahan matematika dengann menggunakan rencana yang jelas serta terarah dalam memecahkan masalah, serta diketahui bahwa nilai rata-rata sebesar 78,73% dengan kategori efektif. Hal ini menyatakan penerapan pendekatan pendekatakan *Realistic Mathematics Education* dan *Group Investigations* dalam meningkatkan kemampuan pemecahan masalah matematis dan *Self Concept* Siswa efektif untuk digunakan dalam proses peningkatan kemampuan pemecahan masalah matematis siswa. Kendala yang dihadapi oleh guru dan siswa dalam melaksanakan pembelajaran dengan pendekatan *Realistic Mathematics Education* dan *Group Investigations* dengan berbantuan *Augmented Reality*. 5) Kendala yang dihadapi oleh guru dan siswa dalam melaksanakan pembelajaran dengan pendekatan *Realistic Mathematics Education* dan *Group Investigations* dengan berbantuan *Augmented Reality* Terdapat 3 kondisi kendala yang dihadapi guru yaitu; persiapan, pelaksanaan dan evaluasi; pada tahapan pelaksanaan ada 3 kendala diantaranya keterbatasan teknologi, Kesiapan Guru dalam Menggunakan Teknologi, Kesiapan perangkat pembelajaran dan konten yang disajikan.

Kata Kunci; *Realistic Mathematics Education, Group Investigations, Self Concept,* Kemampuan Pemecahan Masalah Matematis, *Augmented Reality*

ABSTRACT

Radifan Irsaly Ruchiyat (2024), "Application of the Realistic Mathematics Education Approach through Group Investigation Assisted by Augmented Reality Media to Improve Students' Mathematical Problem Solving Ability and Middle School Students' Self Concept."

This research aims to examine the application of the Realistic Mathematics Education Approach through Group Investigation Assisted by Augmented Reality Media to Improve Students' Mathematical Problem Solving Ability and Middle School Students' Self Concept. The method used in this research is; Mix Method The Sequential Explanatory whose stages have been adjusted. The subjects in this research were class VIII students located in Cimahi City with a total of 60 students. The results of the research include; 1) The increase in mathematical problem solving abilities of students who receive the Realistic Mathematics Education approach through Group Investigations assisted by Augmented Reality media is better than ordinary learning, shown by the *pretest*t average for the experimental class being 58.04 and the control class being 52.32. The post-test average in the experimental class was 72.96 and the control class was 56.98. With these results, the experimental class experienced a significant improvement compared to the control class in the mathematical problem solving ability test. Judging from the N-Gain or increase before and after, the experimental class got a score of 0.76 which was in the high category and the control class was 0.48 which was in the medium category. 2) The influence of students' self-concept on their mathematical problem solving abilities. received a Realistic Mathematics Education approach through Group Investigations assisted by Augmented Reality media. from the results of the analysis Because 0.080 is greater than 0.05, the results of the linearity test of Self Concept data and students' mathematical problem solving abilities have a linear relationship and the data obtained shows that the R value (correlation) is 0.752 and the *R square* value (coefficient of determination) is 0.565. The table above also shows that there is an influence between Self Concept on mathematical problem solving abilities of 56.5%. 3) The process of implementing the Realistic Mathematics Education and Group Investigations approach with the help of Augmented Reality in junior high school students' learning means that the mathematics learning carried out by researchers is in accordance with the RME approach using the steps: (1) Understanding the problem/context, (2) Explaining contextual problems, (3) Solving contextual problems, (4) Comparing and discussing answers, and (5) Concluding. With a combination of GI, namely the application of the group investigation learning model is carried out through steps which include: 1) Forming groups. 2) Identify the topic. 3) Plan the investigation. 4) Implement investigation. 5) Prepare final repor. 6) Present the final report. 7) Evaluation and use of agumented reality media can be said to be good. 4) The effectiveness of applying the Realistic Mathematics Education and

Group Investigations approach in improving students' mathematical problem solving abilities and Self Concept. With the lowest score obtained by students on the indicator of checking the results and work processes again, the score obtained was 59.74, and the highest score obtained was 82 .42% in the indicator Completing a plan with clear procedures, this means that students are able to solve a mathematical problem by using a clear and directed plan in solving the problem, and it is known that the average value is 78.73% in the effective category. This states that the application of the Realistic Mathematics Education and Group Investigations approach in improving students' mathematical problem solving abilities and Self Concept is effective for use in the process of improving students' mathematical problem solving abilities. Obstacles faced by teachers and students in carrying out learning using the Realistic Mathematics Education and Group Investigations approach with the help of Augmented Reality. 5) Obstacles faced by teachers and students in carrying out learning using the Realistic Mathematics Education and Group Investigations approach with the help of Augmented Reality. There are 3 conditions of obstacles faced by teachers, namely; preparation, implementation and evaluation; At the implementation stage there are 3 obstacles including technological limitations, teacher readiness in using technology, readiness of learning tools and the content presented.

Keywords; Realistic Mathematics Education, Group Investigations, Self Concept, Mathematical Problem Solving. Augmented Reality