RINGKASAN

Dianti, Zulfa. 2026. *Pengembangan Modul Pembelajaran Realistic Mathematics Education (RME) untuk Meningkatkan Pemahaman Operasi Matematika Dasar dan Kemampuan Berpikir Kritis Peserta Didik Kelas VII*. Tesis, Program Studi Magister Pedagogi, Pascasarjana, Universitas Maritim Raja Ali Haji. Pembimbing utama: Dr. Dody Irawan, S.Pd., M.Pd., M.Hum., dan Pembimbing Pendamping: Dr. Dra. Hj. Nevrita, M.Pd., M.Si.

Penelitian ini berlandaskan dari temuan bahwa banyak peserta didik masih mengalami kesulitan dalam memahami operasi matematika dasar, sementara keterampilan berpikir kritis mereka belum berkembang secara optimal karena proses pembelejaran yang terlalu abstrak dan kurang memanfaatkan situasi nyata sebagai jembatan konsep. Pendekaran *Realistic Mathematics Educarion* (RME) dipilih karena memberikan ruang bagi penggunaan konteks kehidupan sehari-hari, terutama konteks kemaritiman di Kepulaun Riau sebagai dasar bagi peserta didik untuk membangun pemahaman melalui tahapan matematisasi horizontal dan vertikal. Pendekatan penelitian yang digunakan yakni *Research and Development* (R&D) dengan menerapkan model ADDIE, yang terdiri atas tahapan analisis, perancangan, pengembangan, implementasi dan evaluasi. Produk yang dihasilkan berupa modul pembelajaran berbasis RME yang dirancang secara sistematis, berlandaskan situasi nyata serta memuat aktivitas pemecahan masalah untuk mengoptimalkan kemampuan berpikir kritis peserta didik.

Hasil penelitian menampilkan bahwa modul pembelajaran memenuhi aspek validitas, praktikalitas dan efektivitas. Berdasarkan penilaian ahli materi, media dan bahasa, modul berada pada kategori sangat valid, sesuai dengan hasil rekapitulasi validitas yang menunjukkan skor 89%. Aspek praktikalitas juga berada pada kategori sangat praktis yang diperoleh dari respons peserta didik dan pengamatan oleh guru sejawat. Efektivitas modul ditunjukkan melalui peningkatan signifikan setelah penggunaan modul. Pada pemahaman operasi matematika dasar, hasil uji Wilcoxon menunjukkan $Z = -2.404, p < 0.05$ dengan ukuran efek $r = 0.567$ yang termasuk pada kategori efek besar, sehingga modul memberikan dampak kuat terhadap peningkatan pemahaman tersebut. Sementara pada kemampuan berpikir kritis, hasil uji Wilcoxon menunjukkan nilai $p < 0.05$ dengan ukuran efek $r = 0.729$ berada dalam kategori besar, menandakan bahwa modul efektif mengembangkan kemampuan pemahaman operasi matematika dan kemampuan berpikir kritis peserta didik. Secara keseluruhan, modul pembelajaran berbasis *Realistic Mathematics Educarion* (RME) dinyatakan sangat valid, sangat praktis dan sangat efektif untuk meningkatkan pemahaman operasi matematika dasar dan kemampuan berpikir kritis peserta didik SMP. Peneliti merekomendasikan pengembangan lanjutan pada materi lain dengan tetap mempertahankan konteks lokal untuk meningkatkan kebermaknaan pembelajaran.

Kata Kunci: *Realistic Mathematics Educarion*, Operasi Matematika Dasar, Kemampuan Berpikir Kritis, Modul Pembelajaran, Konteks Kemaritiman.

SUMMARY

Dianti, Zulfa. 2026. *The Development of Realistic Mathematics Education (RME) Based Learning Module to Enhance Seventh-Grade Students' Understanding of Basic Mathematical Operations and Critical Thinking Skills*. Thesis, Master's Study Program, Pedagogy, Postgraduate, University of Maritime Raja Ali Haji. Main supervisor: Dr. Dody Irawan, S.Pd., M.Pd., M.Hum., dan Adjunct supervisor: Dr. Dra. Hj. Nevrita, M.Pd., M.Si.

This study is grounded in empirical findings indicating that many students continue to experience difficulties in understanding basic mathematical operations, while their critical thinking skills have not yet developed optimally due to learning processes that excessively abstract and insufficiently connected to real-world contexts as conceptual bridges. Realistic Mathematics Education approach was selected because it provides meaningful opportunities to integrate everyday life contexts—particularly maritime contexts of Riau Islands—as a foundation for students to construct mathematical understanding through horizontal and vertical mathematization processes. The research employed Research and Development (R&D) methodology using ADDIE model, which encompasses the stages of analysis, design, development, implementation and evaluation. The resulting product is RME-based learning module that is systematically designed, grounded in authentic real-life situations and incorporates problem-solving activities aimed at optimizing students' critical thinking skills.

The findings of study indicate that developed learning module fulfills the criteria of validity, practicality and effectiveness. Based on evaluations conducted by subject-matter experts, media experts and language experts, the module classified as highly valid, as reflected in validity recapitulation results, which yielded a score of 89%. The practicality aspect also categorized as highly practical, as evidenced by students' responses and observations conducted by peer teachers. The effectiveness of the module demonstrated through significant improvement in students' learning outcomes following its implementation. Regarding students' understanding of basic mathematical operations, Wilcoxon signed-rank test revealed statistically significant result ($Z = -2.404$, $p < 0.05$) with an effect size of $r = 0.567$, which falls within the large effect category, indicating the module exerted substantial impact on improving this understanding. Similarly, for students' critical thinking skills, Wilcoxon test produced p-value < 0.05 with an effect size of $r = 0.729$, also categorized as large effect, signifying that the module effective in fostering both mathematical operational understanding and critical thinking abilities. Overall, Realistic Mathematics Education based learning module can be concluded to be highly valid, highly practical and highly effective in enhancing junior secondary school students' understanding of basic mathematical operations and their critical thinking skills. The study recommends further development of module for other mathematical topics while consistently maintaining local contextual elements to strengthen the meaningfulness of learning.

Keywords: Realistic Mathematics Education, Basic Mathematical Operations, Critical Thinking Skills, Instructional Module, Maritime Context.