ABSTRACT

Sutiaharni, 2020. Developing Realistic Mathematics Education (RME) Based Learning Design of Linear Programming for Financial Accounting Major in Vocational High School. Thesis Master's Degree Program in Mathematics Education, Faculty of Mathematics and Natural Sciences, Universitas Negeri Padang.

The results of preliminary studies and literature studies state that students' problem-solving abilities on the topic of linear programming are still low. This is due to learning that focuses on textbooks. While the presentation of linear programming material in textbooks is not optimal and does not contribute to the development of student learning, especially in students' mathematical problem-solving abilities. Therefore, the design of instructional design for linear programming topic based on Realistic Mathematics Education is implemented on Hypothetical Learning Trajectory (HLT), teacher books, and student books.

This research was conducted by combining two types of design research namely the Plomp model with Gravemeijer and Cobb models. The research consists of three phases, namely: preliminary research, development or prototyping phase, and assessment phase. The subjects of the study were Xth grade students of SMK Negeri 2 Padang. Data analysis techniques used descriptive statistics and descriptive techniques. Data collection instruments used were tests of mathematical problem-solving abilities, checklist lists, observation sheets, interview guidelines, and questionnaires.

The results showed that the learning design of linear programming topics based on the RME approach was valid, practical, and effective. Considered to be valid because it meets the characteristics of validity from the aspect of content, aspects of language, aspects of presentation, and aspects of appearance. HLT validation results with an average of 3,45 are in the valid category. The results of teacher's book validation with an average of 3,58 are in the very valid category. The results of student book validation with an average of 3,56 are in the very valid category. Considered to be practical because this product is easy to use and understand, the allotted time allocation is efficient, interesting, and contributes to learning linear programming. Teacher book questionnaire results with an average of 89,17% according to the category are very practical. The results of the practicality of student book questionnaires with an average of 77,79% are in the practical category. Furthermore, it is supposed to be effective because the use of this design has a potential impact on students' problem-solving abilities on the topic of linear programming, with an average score of students' mathematical problem-solving abilities being 81,31.

ABSTRAK

Sutiaharni, 2020. Pengembangan Desain Pembelajaran Topik Program Linear Berbasis *Realistic Mathematics Education* (RME) Di SMK Program Keahlian Akuntansi dan Keuangan. Tesis Program Studi Magister Pendidikan Matematika, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Negeri Padang.

Hasil studi pendahuluan dan studi literatur menyatakan bahwa kemampuan pemecahan masalah siswa pada topik program linear masih rendah. Hal ini disebabkan pembelajaran yang fokus pada buku teks. Sementara penyajian materi program linear pada buku teks belum optimal dan kurang berkontribusi terhadap perkembangan belajar siswa terutama pada kemampuan pemecahan masalah matematis siswa. Oleh sebab itu, dirancanglah desain pembelajaran topik program linear berbasis *Realistic Mathematics Education* yang diimplementasikan pada HLT, buku guru dan buku siswa.

Penelitian ini dilaksanakan dengan menggabungkan dua jenis *design research* yaitu model Plomp dengan model Gravemeijer dan Cobb. Penelitian terdiri dari tiga fase yaitu: *preliminary research*, *development or prototyping phase,* dan *assesment phase.* Subjek penelitian adalah siswa kelas X SMK Negeri 2 Padang. Teknik analisis data menggunakan statistika deskriptif dan teknik deskriptif. Instrumen pengumpulan data yang digunakan adalah tes kemampuan pemecahan masalah matematis, daftar *checklist,* lembar observasi, pedoman wawancara, dan angket.

Hasil penelitian menunjukkan bahwa desain pembelajaran topik program linear berbasis pendekatan RME sudah valid, praktis, dan efektif. Dikatakan valid karena telah memenuhi karakteristik kevalidan dari aspek isi, aspek bahasa, aspek penyajian, dan aspek tampilan. Hasil validasi HLT dengan rata-rata 3,45 berada pada kategori valid. Hasil validasi buku guru dengan rata-rata 3,58 berada pada kategori sangat valid. Hasil validasi buku siswa dengan rata-rata 3,56 berada pada kategori sangat valid. Dikatakan praktis karena produk ini mudah untuk digunakan dan dipahami, alokasi waktu yang ditentukan efisien, menarik dan berkontribusi terhadap pembelajaran program linear. Hasil angket praktikalitas buku guru dengan rata-rata 89,17% berada pada kategori sangat praktis. Hasil angket praktikalitas buku siswa dengan rata-rata 77,79% berada pada kategori praktis. Selanjutnya dikatakan efektif karena penggunaan desain ini memberikan dampak potensial terhadap kemampuan pemecahan masalah siswa pada topik program linear, dengan rata-rata nilai tes kemampuan pemecahan masalah matematis siswa adalah 81,31.