

## ABSTRAK

Penelitian ini bertujuan untuk mengembangkan desain didaktis materi sistem persamaan linear dua variabel (SPLDV). Penelitian ini dilakukan berdasarkan temuan *learning obstacles* (LO) dan analisis terhadap *learning trajectory* (LT) siswa dalam mempelajari SPLDV. Metode penelitian yang digunakan adalah *didactical design research* (DDR) yang terdiri atas tiga tahap, yaitu a) analisis situasi didaktis; b) analisis metapedadidaktis dan c) analisis retrospektif. Dari tahap analisis situasi didaktis teridentifikasi beberapa LO yang dialami siswa, yaitu siswa melakukan kesalahan dalam memilih operasi hitung dalam metode eliminasi, kesalahan dalam melakukan operasi hitung, siswa tidak dapat membuat model matematika dan ketidakmampuan siswa dalam memaknai variabel. Dirancang pula suatu LT hipotetis yang akan dilalui siswa dalam mempelajari SPLDV. Berdasarkan temuan LO dan LT yang dibuat, dirancanglah suatu desain didaktis hipotetis materi SPLDV yang terdiri dari tiga *lesson design*. *Lesson design* 1 berisi pengantar mengenai konsep SPLDV serta cara menyelesaikan SPLDV menggunakan metode grafik. *Lesson design* 2 berisi cara menyelesaikan SPLDV menggunakan metode substitusi. *Lesson design* 3 berisi cara menyelesaikan SPLDV menggunakan metode eliminasi dan eliminasi-substitusi. Ketiga *lesson design* tersebut dijadikan tiga LKS untuk tiga pertemuan pembelajaran. Analisis metapedadidaktik selama pembelajaran serta analisis retrospektif mengungkap LO yang dialami siswa setelah implementasi desain didaktis hipotetis. Berdasarkan temuan tersebut dilakukan perbaikan terhadap desain didaktis hipotetis dan diperoleh desain didaktis empirik.

**Kata kunci:** DDR, Sistem Persamaan Linear Dua Variabel, *Learning Obstacles*, *Learning Trajectory*

## ABSTRACT

This study aims to develop a didactical design of system of linear equation in two variables. The study was conducted based on findings of students' learning obstacles (LO) and analysis of students' learning trajectory (LT) in learning system of linear equation in two variables. The research method used in this study was a didactical design research (DDR) which consists of three stages: a) analysis of didactical situation; b) metapedadidactical analysis; and c) retrospective analysis. From the analysis of didactical situation phases, there were identified some LO that experienced by students, who made errors in selecting the arithmetic operation in the elimination method, errors in performing arithmetic operations, the inability of students in mathematizing a word problem and the inability of students in defining variables. It was also designed a hypothetical LT that students' will be learned deal with system of linear equation in two variables. Based on the LO found and LT made, it was designed a hypothetical didactical design of system of linear equation in two variables that consists of three lesson designs. The first lesson design provided an introduction to the concepts and also told how to solve a system of linear equation in two variables using the graphical method. The second lesson design showed how to solve a system of linear equation in two variables using the substitution method. The third lesson design showed how to solve system of linear equation in two variables using the elimination and elimination-substitution method. The three lesson designs were presented into three students' worksheets (LKS) for three meetings. The metapedadidactical analysis phase during the learning process and the retrospective analysis phases revealed the LO experienced by students after the implementation of hypothetical didactical design. Based on the findings, an improvement of the hypothetical didactical design was done and resulted an empirical didactical design.

**Keywords:** *DDR, System of Linear Equation in Two Variables, Learning Obstacles, Learning Trajectory*