

ABSTRAK

Penelitian ini bertujuan untuk (1) mengembangkan lembar kerja peserta didik elektronik (E-LKPD) berbasis *problem based learning* (PBL) pada materi persamaan linear satu variabel (PLSV), (2) mengetahui tingkat kelayakan E-LKPD berdasarkan validasi ahli materi, ahli media, dan respons peserta didik, serta (3) mengetahui peningkatan pemahaman peserta didik terhadap soal cerita setelah menggunakan E-LKPD.

Penelitian ini merupakan penelitian dan pengembangan (*Research and Development*) menggunakan model 4D yang terdiri atas tahap *define*, *design*, *develop*, dan *disseminate*. Subjek penelitian adalah peserta didik kelas VII SMP Negeri 1 Kalasan. Instrumen penelitian meliputi lembar wawancara, lembar validasi ahli materi dan ahli media, angket respons peserta didik, serta tes pretest dan posttest. Analisis data dilakukan secara deskriptif kuantitatif dan kualitatif, sedangkan peningkatan pemahaman peserta didik dianalisis menggunakan skor N-Gain.

Pengembangan E-LKPD dilaksanakan melalui empat tahapan model 4D, yaitu *define*, *design*, *develop*, dan *disseminate*, sehingga menghasilkan E-LKPD berbasis *problem based learning* pada materi persamaan linear satu variabel yang memuat aktivitas pembelajaran sesuai sintaks *problem based learning* dan langkah penyelesaian soal menurut Polya. Berdasarkan hasil validasi, E-LKPD memperoleh rata-rata skor 2,85 dari ahli materi dengan kategori valid dan rata-rata skor 2,85 dari ahli media dengan kategori valid. Respons peserta didik menunjukkan bahwa E-LKPD berada pada kategori sangat praktis. Selain itu, rata-rata nilai peserta didik meningkat dari 88,83 pada *pretest* menjadi 96,78 pada *posttest* dengan nilai *N-Gain* sebesar 0,71 yang termasuk kategori tinggi, serta ketuntasan belajar klasikal mencapai 100%. Dengan demikian, E-LKPD berbasis *problem based learning* yang dikembangkan dinyatakan valid, sangat praktis, efektif, dan layak digunakan sebagai bahan ajar untuk membantu meningkatkan kemampuan peserta didik dalam menyelesaikan soal cerita pada materi persamaan linear satu variabel.

Kata kunci: E-LKPD, *Problem Based Learning*, Persamaan Linear Satu Variabel, soal cerita, penelitian pengembangan.

ABSTRACT

This study aimed to (1) develop a Problem-Based Learning (PBL)-based Electronic Student Worksheet (E-LKPD) for the topic of One-Variable Linear Equations (PLSV), (2) determine the feasibility of the developed E-LKPD based on expert validation and students' responses, and (3) examine the improvement of students' understanding of mathematical word problems after using the E-LKPD.

This study employed a Research and Development (R&D) method using the 4D model, consisting of the define, design, develop, and disseminate stages. The participants were seventh-grade students at SMP Negeri 1 Kalasan. The research instruments included interview guidelines, material and media validation sheets, student response questionnaires, and pretest-posttest instruments. The data were analyzed using descriptive qualitative and quantitative techniques, while students' learning improvement was measured using the N-Gain score.

The development of the E-LKPD was carried out through the four stages of the 4D model, namely define, design, develop, and disseminate, resulting in a Problem-Based Learning (PBL)-based Electronic Student Worksheet (E-LKPD) on the topic of One-Variable Linear Equations. The developed E-LKPD incorporates learning activities based on the syntax of Problem-Based Learning and Polya's problem-solving steps. Based on the validation results, the E-LKPD obtained an average score of 2.85 from the material experts, which was categorized as valid, and an average score of 2.85 from the media experts, which was also categorized as valid. The students' responses indicated that the E-LKPD was highly practical. Furthermore, the students' average score increased from 88.83 in the pretest to 96.78 in the posttest, with an N-Gain score of 0.71, which falls into the high category. In addition, classical learning mastery reached 100%. Therefore, the developed Problem-Based Learning-based E-LKPD is considered valid, highly practical, effective, and feasible to be used as a teaching material to help improve students' ability to solve mathematical word problems on the topic of One-Variable Linear Equations.

Keywords: *Electronic Student Worksheet (E-LKPD), Problem-Based Learning, One-Variable Linear Equations, mathematical story problems, Research and Development.*