ABSTRACT

Nadya Mahardika, 2019. Development of Physics Learning Modules Based on Problem Based Learning Models Which Is Integrated with Polya's Problem Solving to Improve Student's Problem Solving Ability. Thesis. Master of Physics Education Faculty of Mathematics and Natural Sciences of Padang State University.

The problem encountered in school is the unavailability of learning material and learning model that challenge students to improve their physics problem solving abilities. Learning material that is used in school is learning module. The learning module is one of the important components in the learning process, so it is expected that the module can guide students to be independent in the learning process. The right model to train student's problem solving abilitiy is the Problem Based Learning model by practicing Polya's problem solving indicators, better known as Polya's Problem Solving. Thus the purpose of this study is to produce a physics learning module based on the Problem Based Learning model which is integrated with Polya's Problem Solving to improve student's problem solving abilitiy is in valid, practical, and effective criteria .

The type of research is research and development, using the Plomp development model which consists of preliminary research, development or prototyping, and assessment phase. The data in this study are the analysis of needs, validity, practicality, and effectiveness. The instruments in the study are sheets of needs analysis, validity, practicality, and effectiveness. The data is analyzed with descriptive statistics on preliminary research and practicality, Aiken's V formula on validity. The effectiveness of the product is shown by the problem solving ability of students which is analyzed by t test, correlation test, and the coefficient of determination.

The results of the research are, in the preliminary research phase, it is necessary to develop a physics learning module based on the Problem Based Learning model which is integrated Polya's Problem Solving to improve student's problem solving abilitiy. At the development or prototyping phase, the learning module is in valid and practical category. Furthermore, the result of the assessment phase indicates that the learning module is effective. Based on the results of the study it can be concluded that the Physics learning module based on the Problem Based Learning model which is integrated with Polya's Problem Solving to improve students' problem solving abilitiy is in valid, practical, and effective criteria.

Keywords: *Students' Problem Solving Ability, Modules, Polya's Problem Solving, Problem Based Learning.*

ABSTRAK

Nadya Mahardika, 2019. Pengembangan Modul Fisika Berbasis Model *Problem Based Learning* Terintegrasi *Polya's Problem Solving* Untuk Meningkatkan Kemampuan Pemecahan Masalah Peserta Didik. Tesis. Program Studi Magister Pendidikan Fisika Fakultas Matematika Dan Ilmu Pengetahuan Alam Universitas Negeri Padang.

Masalah yang ditemui di lapangan adalah belum tersedianya bahan ajar dan model yang digunakan dalam pembelajaran yang menantang peserta didik untuk meningkatkan kemampuan pemecahan masalah Fisika. Bahan ajar yang digunakan di sekolah berupa modul. Modul merupakan salah satu komponen penting dalam proses pembelajaran sehingga diharapkan modul yang digunakan adalah yang dapat menuntun peserta didik mandiri dalam proses pembelajaran. Model yang tepat digunakan untuk melatih kemampuan pemecahan masalah peserta didik adalah model *Problem Based Learning* dengan melatihkan indikator pemecahan masalah Polya, yang lebih dikenal dengan istilah *Polya's Problem Solving.* Dengan demikian tujuan penelitian ini adalah untuk menghasilkan modul Fisika berbasis model *Problem Based Learning* terintegrasi *Polya's Problem Solving* untuk meningkatkan kemampuan pemecahan masalah peserta didik dengan kriteria valid, praktis, dan efektif.

Jenis penelitian adalah *research and developmen*t menggunakan model pengembangan Plomp yang terdiri dari tahap *preliminary reseacrh, development or prototyping*, dan *asessment.* Data penelitian adalah data analisis kebutuhan, validitas, praktikalitas, dan efektivitas. Instrumen penelitian terdiri dari lembar analisis kebutuhan, validitas, praktikalitas, dan efektivitas. Data yang diperoleh dianalisis dengan statistik deskriptif untuk analisis *preliminary research* dan praktikalitas, rumus Aiken's V untuk validitas. Keefektifan produk dilihat dari nilai kemampuan pemecahan masalah siswa yang dianalisis dengan uji **t**, uji korelasi, dan koefisien determinasi.

Hasil penelitian pada tahap *preliminary research* yaitu perlunya pengembangan modul Fisika berbasis model *Problem Based Learning* terintegrasi *Polya's Problem Solving* untuk meningkatkan kemampuan pemecahan masalah peserta didik. Hasil tahap *development or prototyping* menunjukkan modul yang dikembangkan berada pada kategori valid dan praktis. Lebih lanjut, hasil tahap *asessment* menunjukkan modul efektif. Berdasarkan hasil penelitian dapat disimpulkan bahwa modul Fisika berbasis model *Problem Based Learning* terintegrasi *Polya's Problem Solving* untuk meningkatkan kemampuan pemecahan masalah peserta didik memenuhi kriteria valid, praktis, dan efektif.

Kata Kunci: Kemampuan Pemecahan Masalah Peserta Didik, Modul, *Polya's Problem Solving, Problem Based Learning.*