## ABSTRACT

**Yosa Aulya Putri. 2021. Development of Physics Teaching Materials Based on Problem Based Learning Model Using *CTL* Approach to Improve Students' Critical Thinking. Thesis. Master of Physics Education Study Program, Faculty of Mathematics and Natural Sciences, Padang State University.**

The implementation of physics learning is still not optimal, so it affects the achievement of students' competencies. One of the reasons is the use of teaching materials that have not met the demands of the 2013 Curriculum. The teaching materials used still do not contain learning models and approaches, besides that, students' critical thinking skills are still categorized as low. The purpose of this study was to produce physics teaching materials based on a problem-based learning model using the *CTL* approach to improve students' critical thinking with valid, practical, and effective criteria.

This type of research is research and development using the ADDIE development model which consists of the analysis, design, development, implementation, and evaluation stages. The research instrument consisted of a preliminary study questionnaire, a validity questionnaire, a practicality questionnaire, an essay test sheet, and a skills assessment sheet. The data obtained were analyzed using descriptive statistics for preliminary study analysis and practicality, as well as Aiken's V formula for validity analysis. The effectiveness test used t-test analysis.

The results of the analysis of the preliminary study include an analysis of the needs, characteristics of students, and the material needed to become a reference in the development of this teaching material. Preliminary study analysis is the first stage in the ADDIE development model. This analysis stage helps in the design stage of physics teaching materials based on a problem-based learning model using the *CTL* approach to improve students' critical thinking. The results of the teaching material development stage met the valid criteria with an average of 0.824. The results of the implementation stage of teaching materials include practicality and effectiveness. In practicality, it met the very practical criteria of the teacher's response questionnaire, it was obtained an average of 90.85% and the student's response questionnaire was obtained an average of 83.81% with the very practical category. At the effectiveness stage, physics teaching materials based on a problem-based learning model using the *CTL* approach on the competence of knowledge and skills, there are significant differences between the experimental and control classes. Based on the results of the study, it can be concluded that physics teaching materials based on problem-based learning models using the *CTL* approach to improve students' critical thinking meet the criteria of validity are very practical and effective.



**Keywords:** Physics Teaching Materials, Problem Based Learning, *CTL*, Critical Thinking

# ABSTRAK

**Yosa Aulya Putri. 2021. Pengembangan Bahan Ajar Fisika Berbasis Model *Problem Based Learning* Menggunakan Pendekatan *CTL* untuk Meningkatkan Berpikir Kritis Peserta Didik. Tesis. Program Studi Magister Pendidikan Fisika Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Negeri Padang.**

Pelaksanaan pembelajaran fisika masih belum maksimal, sehingga mempengaruhi pencapaian kompetensi peserta didik. Salah satu penyebabnya adalah penggunaan bahan ajar yang belum memenuhi tuntutan Kurikulum 2013. Bahan ajar yang digunakan masih belum memuat model dan pendekatan pembelajaran, selain itu kemampuan berpikir kritis peserta didik masih dikategorikan rendah. Tujuan dalam penelitian ini adalah untuk menghasilkan bahan ajar fisika berbasis model *problem based learning* menggunakan pendekatan *CTL* untuk meningkatkan berpikir kritis peserta didik dengan kriteria valid, praktis, dan efektif.

Jenis penelitian yang dilakukan adalah penelitian dan pengembangan dengan menggunakan model pengembangan ADDIE yang terdiri dari tahap analisis, Perancangan, pengembangan, implementasi, dan evaluasi. Instrumen penelitian ini terdiri dari angket studi pendahuluan, angket validitas, angket praktikalitas, lembar tes essai, dan lembar penilaian keterampilan. Data yang diperoleh dianalisis dengan menggunakan statistik deskriptif untuk analisis studi pendahuluan dan praktikalitas, serta rumus Aiken's V untuk analisis validitas. Uji efektifitas digunakan analisis uji hoptesis t.

Hasil analisis studi pendahuluan meliputi analisis kebutuhan, karakteristik peserta didik, dan materi diperlukan untuk menjadi acuan dalam pengembangan bahan ajar ini. Analisis studi pendahuluan merupakan tahapan pertama dalam model pengembangan ADDIE. Tahap analisis ini membantu dalam tahapan perancangan bahan ajar Fisika berbasis model *problem based learning* menggunakan pendekatan *CTL* untuk meningkatkan berpikir kritis peserta didik. Hasil tahap pengembangan bahan ajar memenuhi kriteria valid dengan rata-rata 0,824. Hasil tahap implementasi bahan ajar meliputi praktikalitas dan efektifitas. pada praktikalitas memenuhi kriteria sangat praktis dari angket respon guru diperoleh rata-rata 90,85% dan angket respon peserta didik diperoleh rata-rata 83,81% dengan kategori sangat praktis. pada tahap efektifitas, bahan ajar Fisika berbasis model *problem based learning* menggunakan pendekatan *CTL* pada kompetensi pengetahuan dan keterampilan terdapat perbedaan yang berarti antara kelas eksperimen dan kontrol. Berdasarkan hasil penelitian dapat disimpulkan bahwa bahan ajar fisika berbasis model *problem based learning* menggunakan pendekatan *CTL* untuk meningkatkan berpikir kritis peserta didik memenuhi kriteria valid, sangat praktis, dan efektif.

**Kata Kunci** : Bahan Ajar Fisika, *Problem Based Learning, CTL*, Berpikir Kritis