

PENGEMBANGAN PROGRAM PERKULIAHAN FISIKA SEKOLAH III UNTUK
MENINGKATKAN KOMPETENSI MENULIS MATERI AJAR CALON GURU
MENGUNAKAN MULTI MODUS REPRESENTASI

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Abstrak

Hasil studi lapangan menunjukkan rendahnya keterampilan para guru dalam menulis materi ajar. Akar permasalahannya terletak pada ketidakmampuan para guru mentranslasi *outline* menjadi tulisan materi ajar. Penelitian ini mencoba untuk mengatasi permasalahan tersebut dengan merancang program perkuliahan untuk meningkatkan keterampilan menulis materi ajar bagi calon guru fisika. Implementasi program perkuliahan menggunakan pendekatan *learning to write activity*. Pendekatan tersebut dikembangkan dari model umum menulis Hayes dan Flower pada perkuliahan bahasa dengan proses kebalikannya. Pengembangan dilakukan dengan cara memberikan *scaffolding* antara tahap *planning* dengan tahap *translation plans to the text*. *Scaffolding* terdiri dari peta konsep dan representasi konsep. Tahapan representasi konsep meliputi jenis modus representasi, translasi antar modus, multi representasi dan multi modus representasi. Metode penelitian yang digunakan ialah metode campuran dengan desain *embedded experiment one group pre test post test*. Subjek penelitian ialah 17 orang mahasiswa semester genap tahun ajaran 2012-2013 yang mengontrak mata kuliah fisika sekolah III pada salah satu LPTK di Kota Bandung. Hasil penelitian menunjukkan bahwa program perkuliahan efektif dengan kriteria tinggi dalam meningkatkan pemahaman konseptual, kemampuan membuat translasi antar modus representasi, kemampuan membuat multi representasi, efektif dengan kriteria sedang dalam meningkatkan strategi dan *self regulated* mahasiswa, dan efektif dengan kriteria tinggi meningkatkan keterampilan menulis materi ajar fisika calon guru. Program perkuliahan juga efektif dalam mencapai tujuan pembelajaran berdasarkan persepsi mahasiswa dan dosen rekan sejawat. Perspektif mahasiswa menyatakan akan memanfaatkan keterampilan dan pengetahuan yang dipelajari dari program perkuliahan ini, ketika mereka menjadi guru kelak.

THE DEVELOPMENT OF SCHOOL PHYSICS III COURSE PROGRAM TO IMPROVE
WRITING TEACHING MATERIALS COMPETENCE OF THE PROSPECTIVE
PHYSICS TEACHERS USING MULTI MODES REPRESENTATION

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Abstract

Result of field studies showed low writing skill of teachers in teaching materials. The root of the problem lies in their inability translating description of teaching material into writing. This study attempts to overcome this problem by designing a program to improve writing skills of teaching materials for prospective physics teachers. Implementation of the lecture program use a learning to write activity approach. The approach was developed from a common model to write by Hayes and Flower from language classes with the opposite process. Further development has been done by providing scaffolding between the planning stage and translation plans to the text. Scaffolding consists of concept maps and concept representations. Stages of concept representation include the type of mode representation, translation between mode of representation, multiple presentation and multi modes representation. The method used is a mixture of methods experiment with the embedded one group pre-test post-test design. Research subjects are 17 students of the second semester of the 2012-2013 school year who were enrolled in School Physics III course at one of LPTK in Bandung. The results showed that the lecture program effective with a high criterion in improving the writing skills of physics teaching materials and improved the conceptual understanding of physics, as well as the criteria of being effective in improving learning strategies and self-regulated students. Lecture programs were also effective in achieving the learning objectives as perceived by students and faculty member. Perspective students said they are will utilize the skills and knowledge learned from the lecture program, when they are become teachers someday.