ABSTRAK

Fibelia Dwi Puspaningrum, 2025. Pengembangan Modul Ajar Berdiferensiasi Berbasis Paradigma Pedagogi Reflektif dalam Memfasilitasi Pemecahan Masalah dan Penalaran Matematis Pada Materi Pythagoras. Program Studi Pendidikan Matematika, Jurusan Pendidikan Matematika dan Ilmu Pengetahuan Alam Fakultas Keguruan dan Ilmu Pengetahuan, Universitas Sanata Dharma.

Penelitian ini memiliki tujuan 1) mengembangkan dan menjelaskan kualitas modul ajar berdiferensiasi dengan paradigma pedagogi refleksi untuk memfasilitasi kemampuan pemecahan masalah dan penalaran matematis pada materi pythagoras; 2) mengidentifikasi sejauh mana modul ajar berdiferensiasi dengan pendekatan paradigma pedagogi reflektif dapat mengakomodasi kemampuan pemecahan masalah dan penalaran matematis siswa.

Model pengembangan yang digunakan dalam penelitian ini adalah ADDIE dengan teknik pengumpulan data melalui observasi, wawancara, angket, dan tes. Instrumen divalidasi oleh 2 validator sebelum dianalisis untuk dinilai kualitas modul ajar dan keefektifannya dalam meningkatkan kemampuan pemecahan masalah dan penalaran matematis.

(1)Pengembangan dalam penelitian ini dilakukan melalui 5 tahapan, Analisis peneliti menemukan bahwa kemampuan pemecahan masalah dan penalaran matematis siswa masih rendah dan cara mengajar guru masih menggunakan metode ceramah. Desain, penelitian menyusun modul ajar berdiferensiasi berbasis Paradigma Pedagogi Reflektif. Pengembangan, peneliti menyempurnakan modul berdasarkan validasi dan revisi dari validator. Implementasi, peneliti menerapkan modul dalam 3 pertemuan. Evaluasi, peneliti meninjau kepraktisan, keefektifan, dan perkembangan keterampilan 4C siswa. Hasil penelitian menunjukkan tingkat kevalidan modul sebesar 88 % (Sangat valid), kepraktisan 84%(Praktis), dan keefektifan 76%(Efektif).

(2)Modul ajar berdiferensiasi dengan Paradigma Pedagogi Reflektif dapat mengakomodasi peningkatan kemampuan pemecahan masalah dan penalaran matematis secara signifikan. Tes kemampuan awal meningkat dari 55 % menjadi 76% pada ulangan harian. kemampuan pemecahan masalah pada gaya belajar visual mencapai 86%, gaya belajar auditori 75%, dan gaya belajar kinestetik 73%. Selain itu, kemampuan penalaran matematis gaya belajar visual 82%, gaya belajar auditori 77% dan gaya belajar kinestetik 77%.

Kata kunci : modul ajar berdiferensiasi, paradigma pedagogi reflektif, pemecahan masalah, penalaran matematis, kualitas pengembangan.

ABSTRACT

Fibelia Dwi Puspaningrum, 2025. ***Development of Differentiated Teaching Modules Based on the Reflevtive Pedagogy Paradigm in Facilitating Problem Solving and Mathematical Reasoning on PythagOrean Material. Mathematicas Education Study Program, Department of Mathematics and Natural Sciences Education, Faculty of Teacher Training and Science, Sanata Dharma University.***

This study to 1) develop and explain the quality of differentiated teaching modules with a reflective pedagogy paradigm to facilitate problem solving and mathematical reasoning skills on pythagorean material; 2) identify the extent to which differentiated teaching modules with a reflective pedagogy paradigm approach can accommodate students' problem solving and mathematical reasoning skills.

The development model used in this research is ADDIE with data collection techniques through observation, interviews, questionnaires, and tests. The instruments were validated by 2 validators before being analysis d to assess the quality of the teaching module and its effectiveness in improving problem solving and mathematical reasoning skills.

(1) The development in this study was carried out through 5 stages, Researcher analysis found that students' problem solving and mathematical reasoning skills were still low and the teacher's teaching method still used the lecture method. Design, the researcher compiled a differentiated teaching module based on the Reflective Pedagogy Paradigm. Development, researchers refined the module based on validation and revision from validators. Implementation, researchers applied the module in 3 meetings. Evaluation, researchers reviewed the practicality, effectiveness, and development of students' 4C skills. The results showed the module's validity level of 88% (Very valid), practicality of 84% (Practical), and effectiveness of 76% (Effective).

(2) Differentiated teaching modules with Reflective Pedagogy Paradigm can accommodate a significant increase in problem solving and mathematical reasoning skills. The initial ability test increased from 55% to 76% in the daily test. problem solving ability in visual learning style reached 86%, auditory learning style 75%, and kinesthetic learning style 73%. In addition, the mathematical reasoning ability of visual learning style was 82%, auditory learning style was 77% and kinesthetic learning style was 77%.

Keywords: *differentiated teaching module, reflective pedagogy paradigm, problem solving, mathematical reasoning, development quality.*