

Nailul Farrohah. 2026. *Pengembangan Instrumen Diagnostik Two-Tier Test Multiple Choice Berbasis Web pada Materi Berpikir Algoritma*. Skripsi, Program Studi Pendidikan Informatika, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Trunodjoyo Madura. Pembimbing: Puji Rahayu Ningsih, S.Pd., M.Pd.

ABSTRAK

Pembelajaran Informatika pada materi Berpikir Algoritma di MTsN Bangkalan masih menghadapi permasalahan dalam mengidentifikasi pemahaman konsep siswa secara mendalam. Instrumen penilaian yang digunakan selama ini belum mampu membedakan siswa yang benar-benar memahami konsep dengan siswa yang hanya menebak jawaban, sehingga diperlukan instrumen diagnostik yang dapat mengungkap pemahaman dan alasan berpikir siswa secara lebih akurat. Penelitian ini bertujuan untuk mengembangkan instrumen diagnostik *Two-Tier Test Multiple Choice* berbasis web pada materi Berpikir Algoritma untuk siswa kelas VII MTsN Bangkalan. Penelitian ini menggunakan metode *Research and Development (R&D)* dengan model pengembangan *Waterfall* yang terdiri atas tahapan *Requirements, Design, Implementation, Testing, dan Maintenance*. Produk yang dikembangkan berupa instrumen diagnostik *Two-Tier Test Multiple Choice* berbasis web yang memungkinkan guru menganalisis tingkat pemahaman, miskonsepsi, dan ketidakpahaman siswa secara lebih efektif. Hasil penelitian menunjukkan bahwa validasi ahli soal memperoleh persentase sebesar 91% dan 79% dengan kategori “sangat layak”, sedangkan validasi ahli media memperoleh persentase sebesar 87,37% dengan kategori “sangat layak”. Uji coba pengguna memperoleh persentase sebesar 87,95% pada kelompok kecil dan 91% pada kelompok besar dengan kategori “sangat baik”. Berdasarkan hasil tersebut dapat disimpulkan bahwa instrumen diagnostik *Two-Tier Test Multiple Choice* berbasis web pada materi Berpikir Algoritma sangat layak digunakan untuk mengukur pemahaman konsep siswa serta membantu guru dalam mengidentifikasi miskonsepsi siswa secara lebih efektif.

Kata kunci : *Waterfall, Instrumen Diagnostik, Two-Tier Test Multiple Choice, Berpikir Algoritma, Pemahaman Konsep*

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ABSTRACT

Learning Informatics, particularly the Algorithmic Thinking topic at MTsN Bangkalan, still faces challenges in identifying students' conceptual understanding comprehensively. The assessment instruments currently used are unable to effectively distinguish between students who genuinely understand the concepts and those who merely guess the answers. Therefore, a diagnostic instrument capable of revealing students' understanding and reasoning more accurately is needed. This study aimed to develop a web-based Two-Tier Multiple-Choice Diagnostic Instrument on Algorithmic Thinking material for seventh-grade students at MTsN Bangkalan. This research employed the Research and Development (R&D) method using the Waterfall development model, which consists of the Requirements, Design, Implementation, Testing, and Maintenance phases. The product developed was a web-based Two-Tier Multiple-Choice diagnostic instrument that enables teachers to analyze students' levels of understanding, misconceptions, and lack of understanding more effectively. The results showed that the content expert validation achieved scores of 91% and 79%, both categorized as "highly feasible," while the media expert validation obtained a score of 87.37%, also categorized as "highly feasible." User testing resulted in scores of 87.95% in the small-group trial and 91% in the large-group trial, both categorized as "very good." Based on these findings, it can be concluded that the web-based Two-Tier Multiple-Choice diagnostic instrument on Algorithmic Thinking material is highly feasible for measuring students' conceptual understanding and assisting teachers in identifying students' misconceptions more effectively.

Keywords: *Waterfall, Diagnostic Instrument, Two-Tier Multiple-Choice, Algorithmic Thinking, Conceptual Understanding.*