

ABSTRAK

PENGEMBANGAN INSTRUMEN TES *COUNTERARGUMENT* UNTUK MENGUKUR KEMAMPUAN KOGNITIF SISWA PADA MATERI USAHA DAN ENERGI

Oleh

BELLA WAHYUNI

Penelitian ini bertujuan untuk mengetahui validitas, reliabilitas, dan kepraktisan instrumen tes *counterargument* untuk mengukur kemampuan kognitif siswa pada materi usaha dan energi. Penelitian ini menggunakan metode *Research and Development* (R&D) dengan model *Design and Development Research* (DDR) yang meliputi tahap *analysis, design, develop, dan evaluation*. Subjek penelitian terdiri atas validator ahli, guru fisika, dan siswa kelas XI dari beberapa SMA/MA di Lampung Selatan. Validasi instrumen dilakukan pada aspek konstruk, materi, dan bahasa dengan memperoleh skor rata-rata sebesar 94,4% dalam kategori sangat valid. Instrumen yang dikembangkan diuji coba kepada 115 siswa dan dianalisis menggunakan model *Rasch* berbantuan *software Winsteps 4.7.0.0*. Hasil analisis menunjukkan bahwa sebanyak enam butir soal dinyatakan valid secara empiris untuk mengukur kemampuan kognitif siswa. Instrumen juga dinyatakan reliabel dengan nilai *person reliability* sebesar 0,80 dalam kategori baik, item *reliability* sebesar 0,95, dan *Cronbach's Alpha* sebesar 0,84. Hasil uji kepraktisan berdasarkan penilaian guru pada aspek isi, tampilan, bahasa, dan manfaat memperoleh skor rata-rata sebesar 91% dengan kategori sangat praktis, sedangkan penilaian siswa memperoleh skor rata-rata sebesar 73% dengan kategori praktis. Dengan demikian, instrumen tes *counterargument* yang dikembangkan telah memenuhi kriteria valid, reliabel, dan praktis sehingga layak digunakan untuk mengukur kemampuan kognitif siswa pada materi usaha dan energi.

Kata kunci: *Counterargument*, kemampuan kognitif, instrumen tes, usaha dan energi, *Rasch Model*.

ABSTRACT

DEVELOPMENT OF A COUNTERARGUMENT TEST INSTRUMENT TO MEASURE STUDENTS' COGNITIVE ABILITY IN THE SUBJECT OF WORK AND ENERGY

By

BELLA WAHYUNI

This study aims to determine the validity, reliability, and practicality of a counterargument test instrument for measuring students' cognitive ability regarding work and energy. This study employs the Research and Development (R&D) method using the Design and Development Research (DDR) model, which includes the analysis, design, development, and evaluation stages. The research subjects consisted of expert validators, physics teachers, and 11th-grade students from several high schools in South Lampung. Instrument validation was conducted on the construct, content, and language aspects, yielding an average score of 94.4% in the "highly valid" category. The developed instrument was pilot-tested on 115 students and analyzed using the Rasch model with Winsteps 4.7.0.0 software. The analysis results indicated that 6 test items were empirically valid for measuring students' cognitive ability. The instrument was also found to be reliable, with a person reliability value of 0.80 (good), item reliability of 0.95, and Cronbach's Alpha of 0.84. The results of the practicality test, based on teachers' evaluations of content, appearance, language, and utility, yielded an average score of 91% in the "very practical" category, while students' evaluations yielded an average score of 73% in the "practical" category. Thus, the counterargument test instrument that has been developed meets the criteria of validity, reliability, and practicality, making it suitable for measuring students' cognitive ability regarding the topic of work and energy.

Keywords: counterargument, cognitive ability, test instruments, work and energy, rasch model.