ABSTRAK

PENGEMBANGAN INSTRUMEN TES *SCIENTIFIC ARGUMENTATION* FISIKA BERBASIS TEORI TES MODERN MENGGUNAKAN PEMODELAN SOAL MELALUI *E-LEARNING EDPUZZLE LMS*

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Penelitian ini bertujuan untuk mengembangkan produk instrumen tes *scientific argumentation* fisika yang valid, praktis, dan efektif. Berdasarkan penelitian pendahuluan melalui *google form* di 12 Sekolah di Provinsi Lampung diperoleh bahwa guru melakukan pembelajaran kepada siswa yaitu 81% secara luring, 6% daring, 13% *blended learning*. Hasil analisis angket kebutuhan terhadap 28 siswa di 5 Sekolah bahwa 68% siswa kesulitan memahami fisika. Instrumen penilaian pembelajaran menurut siswa 64% membuat sendiri, sedangkan 36% dari buku/mengambil dari internet. Siswa menyatakan 54% sudah pernah, sedangkan 46% belum pernah menyelesaikan masalah kompleks fisika yang meminta argumentasi ilmiah. Pada sistem penilaian yaitu 93% siswa mengharapkan guru menilai secara objektif. Guru sebanyak 88% dan siswa 68% setuju jika penilaian hasil belajar mendorong meningkatkan *scientific argumentation*. Hasilnya 95% siswa dan guru menyetujui adanya penilaian *scientific argumentation*. Desain penelitian pengembangan, *Borg & Gall* (1989) dengan 10 tahapan. Produk instrumen tes telah dinyatakan sangat valid dengan bobot persentase rata-rata dari ahli media, evaluasi, dan bahasa sebesar 91%. Kepraktisan instrumen terkategori 97% sangat praktis sehingga dapat digunakan pada pembelajaran Fisika. Hasil menggunakan *Rasch Model* dengan berbantuan *software Ministep Rasch 5.9.2.0*, telah memenuhi kriteria reliabel dengan *person reliability* sebesar 0,82 & 0,84, *item reliability* yaitu 0,87 & 0,88 terkategori bagus. Nilai *cronbach alpha reliability* sebesar 0,84 terkategori bagus sekali. Oleh karena itu, efektivitas dengan hasil terkategori bagus sekali untuk menstimulus *scientific argumentation* siswa dengan pemodelan soal fisika melalui *e-learning edpuzzle LMS*.

Kata kunci: Instrumen Tes *Scientific Argumentation,* Teori Tes Modern, Pemodelan Soal Fisika, *E-Learning Edpuzzle LMS*.

ABSTRACT

DEVELOPMENT OF INSTRUMENT TEST SCIENTIFIC ARGUMENTATION PHYSICS BASED ON MODERN TEST THEORY USING QUESTION MODELLING THROUGH E-LEARNING OF EDPUZZLE LMS

By

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This study aims to develop a scientific argumentation test instrument in physics that is valid, practical, and effective. Based on preliminary research conducted via Google Forms in 12 schools in Lampung Province, it was found that teachers deliver instruction to students through offline methods (81%), online (6%), and blended learning (13%). The results of a needs analysis questionnaire distributed to 28 students in 5 schools showed that 68% of students had difficulty understanding physics. Regarding assessment instruments used in learning, 64% of students reported creating them independently, while 36% used books or sourced them from the internet. In terms of solving complex physics problems requiring scientific argumentation, 54% of students stated they had experience with such tasks, while 46% had not. For assessment systems, 93% of students expected teachers to assess objectively. A total of 88% of teachers and 68% of students agreed that learning outcome assessments should encourage the development of scientific argumentation. As a result, 95% of both students and teachers agreed on the importance of assessing scientific argumentation. The research employed, Borg & Gall (1989) development model, which consists of 10 stages. The developed test instrument was deemed highly valid, with an average percentage score of 91% from media, evaluation, and language experts. The practicality of the instrument was categorized as very practical at 97%, making it suitable for use in physics learning. The results, analyzed using the Rasch Model with the help of Ministep Rasch software version 5.9.2.0, met reliability criteria with person reliability scores of 0.82 and 0.84, and item reliability scores of 0.87 and 0.88 both categorized as good. The Cronbach's alpha reliability score was 0.84, classified as excellent. Therefore, the effectiveness of the instrument was categorized as excellent for stimulating students' scientific argumentation skills through physics problem modeling using the Edpuzzle LMS e-learning platform.

Keywords: Instrument Test Scientific Argumentation, Modern Test Theory, Question Modelling Physics, E-Learning Edpuzzle LMS.