

ABSTRAK

Mahasiswa calon guru fisika diharapkan menjadi individu yang memiliki literasi energi. Untuk mengukur literasi energi dibutuhkan instrumen asesmen. Namun sejauh ini belum ditemukan instrumen untuk kepentingan tersebut. Penelitian ini bertujuan untuk menghasilkan *framework* dan instrumen asesmen untuk mengukur literasi energi bagi mahasiswa calon guru fisika. Penelitian dilakukan melalui langkah-langkah: (1) mengembangkan *framework* asesmen; (2) mendesain *item*; (3) mengembangkan rubrik penskoran; (4) melakukan uji coba; dan (5) menganalisis data menggunakan model Rasch. *Framework* asesmen yang berhasil dikembangkan mencakup tiga sistem berpikir yakni kognitif, metakognitif, dan *self-system*. *Item* dan rubrik dikembangkan berdasarkan *framework* asesmen. Setelah melalui tahap penilaian ahli dan *pilot test*, instrumen diuji coba di lapangan. Uji coba akhir melibatkan 123 mahasiswa calon guru fisika dari tiga perguruan tinggi negeri di Indonesia. Setelah melalui analisis data dengan model Rasch dan membuang dan/atau memodifikasi *item* yang problematik, dihasilkan 33 *item* unidimensional. Hasil validasi menunjukkan instrumen yang dihasilkan memiliki argumen validitas yang memenuhi inferensi penskoran, generalisasi, eksplanasi, dan ekstrapolasi. Petunjuk dan contoh penggunaan instrumen juga disertakan.

Kata kunci: calon guru fisika, *framework* asesmen, model Rasch, literasi energi, pengembangan dan validasi instrumen

ABSTRACT

Prospective physics teachers are expected to be individuals who have energy literacy. As yet there is no assessment instrument currently available, this research aims to develop a framework and assessment instrument to measure prospective physics teachers' energy literacy. The research was conducted through the following steps: (1) developing assessment framework; (2) designing items; (3) developing scoring rubrics; (4) conducting pilot and field testing; and (5) applying the Rasch analysis. A developed assessment framework encompasses three systems: cognitive, metacognitive, and self-system. Items and rubrics then were developed based on the assessment framework. Experts judgment and pilot test were carried out before the instrument was field tested. There were 123 participants from three state universities in Indonesia involved in final field test. Through the processes of removing and/or modifying misfit items based on Rasch analyses, a set of 33 items that has a unidimensional construct of energy literacy was empirically established. Instrument validation results successfully provided validity argument as they met inferences of scoring, generalization, explanation, and extrapolation. Further instructions on and example of how to use results obtained from the instrument is also provided, so that even those with no or limited knowledge of Rasch analysis could use the instrument and interpret their findings.

Keywords: assessment framework, assessment validation, energy literacy, pre-service physics teacher, Rasch model