

Abstrak

Penelitian ini bertujuan untuk mengetahui 1) kelayakan instrumen penilaian berbasis *Quizstar* yang dikembangkan untuk mengukur kemampuan kognitif peserta didik SMA, 2) penguasaan materi teori kinetik gas peserta didik. Penelitian ini merupakan penelitian pengembangan dengan model 4-D (*Four D Models*) menurut pendapat Thiagarajan yang terdiri atas tahap *define*, *design*, *develop*, dan *disseminate*. Hasil penelitian ini: (1) Instrumen penilaian berbasis *Quizstar* layak untuk mengukur kemampuan kognitif peserta didik dengan telah memenuhi validitas isi dengan *expert judgment* dan telah mendapatkan bukti empiris *fit* dengan model *Rasch*. Seluruh item dalam kriteria baik karena tingkat kesukaran berada pada rentang -1,65 sampai dengan 1,78. Instrumen penilaian berbasis *Quizstar* telah memiliki koefisien reliabilitas sebesar 0,73 yang termasuk kategori reliabel. Berdasarkan fungsi informasi, instrumen penilaian berbasis *Quizstar* sangat tepat digunakan untuk mengukur kemampuan kognitif peserta didik yang berkemampuan dari -2,3 sampai 1,1. Media penilaian berbasis *Quizstar* mendapatkan nilai CVI sebesar 1,00 yang termasuk kategori sangat baik dengan reliabilitas sebesar 0,868 yang termasuk kategori sangat reliabel. Berdasarkan analisis angket respon peserta didik didapatkan hasil pada kategori cukup, baik, dan sangat baik berturut – turut 11%, 52%, dan 36%. (2) Kemampuan peserta didik mendapatkan kategori kurang, cukup, baik, dan sangat baik berturut – turut 21%, 44%, 25%, dan 9%.

Kata Kunci: pengembangan instrumen, *Quizstar*, teori kinetik gas

Abstract

This research aims to determine 1) the feasibility assessment instrument based Quizstar for measuring cognitive abilities of high school students, 2) mastery of the kinetic theory of gases learners. This research was the development of the model 4-D (Four D Models) in the opinion of Thiagarajan consisting of stages define, design, develop, and disseminate. The results of this study are: (1) assessment instrument based Quizstar feasible for measuring cognitive ability of learners to have met the content validity by expert judgment and has gained empirical evidence fit the Rasch models. The items difficulty indexes were between -1.65 and 1.78, which means the items were good. Assessment instruments based Quizstar have had reliability coefficient of 0.73 that included reliable category. Based on the information function, assessment instruments very appropriately used to measure cognitive abilities of learners capable of -2.3 to 1.1. Assessment instruments based Quizstar get CVI value of 1.00 which included a very good category with the reliability of 0.868 which includes a very reliable category. The result analysis of learners questionnaire responses showed in enough, good, and very good categories respectively – were 11%, 52%, and 36%. (2) The ability of learners get less, enough, good, and very good category respectively – were 21%, 44%, 25% 9%.

Keyword: developing assessment instrument, *Quizstar*, theory of kinetic gas