

ABSTRAK

Pemenuhan keterampilan abad 21 salah satunya berpikir kritis merupakan hal penting, namun rendahnya keterampilan berpikir kritis siswa merupakan permasalahan yang sering ditemukan. Penelitian ini bertujuan mengembangkan media digital STEM untuk meningkatkan keterampilan berpikir kritis siswa pada materi Hukum Archimedes. Jenis penelitian ini ialah *Research & Development* (R&D) dengan model pengembangan Dick, Carey & Carey dengan sembilan tahapan. Hasil validasi produk menunjukkan rata-rata Aiken's V pada aspek desain, media, dan materi masing-masing sebesar 0,85; 0,93; dan 0,89 sehingga media dinyatakan valid pada tiap aspek. Hasil evaluasi formatif menunjukkan bahwa persentase respon siswa pada uji perorangan sebesar 90%, respon siswa pada uji kelompok kecil 83%, dan respon siswa pada uji lapangan sebesar 85%. Ketiga hasil respon dikategorikan sangat baik. Media yang dikembangkan berupa website menggunakan Google Sites. Laman awal berisi identitas disertai empat menu utama (tujuan, pembelajaran, edu game dan profil pengembang). Laman menu pembelajaran memiliki lima menu (ayo terlibat, ayo eksplorasi, ayo jelaskan, ayo elaborasi dan ayo evaluasi). Pada media terdapat teks, gambar, video, laboratorium maya, LKPD online, game edukasi dan kuis. Efektifitas media dilihat dari hasil tes keterampilan berpikir kritis. Nilai N-gain dari pretes dan postes diketahui sebesar 0,36 (sedang). Hasil uji hipotesis menggunakan uji t sampel berpasangan menyimpulkan bahwa terdapat perbedaan keterampilan berpikir kritis siswa sebelum dan sesudah menggunakan media digital STEM. *Effect size* penggunaan media digital sebesar 2,44 (tinggi).

Kata Kunci: Keterampilan berpikir kritis, STEM, Google Sites, Hukum Archimedes

ABSTRACT

Developing 21st-century skills, one of which is critical thinking is important, but students' low critical thinking skills are a problem that is often found. This study aims to develop STEM digital media to improve students' critical thinking skills on Archimedes' principle material. This type of research is Research & Development (R&D) with the Dick, Carey, & Carey instructional model with nine steps. Product validation results show Aiken's V average in the design, media, and material aspects of 0.85; 0.93; and 0.89 so that the media is declared valid in each aspect. The results of the formative evaluation showed that the percentage of student responses in the one-to-one evaluation was 90%, the student response in the small group evaluation was 83%, and the student response in the field trial evaluation was 85%. The three results of the responses are categorized as very good. Media was developed in the form of a website using Google Sites. The home page contains an identity accompanied by four main features (tujuan, pembelajaran, edu game dan profil pengembang). Pembelajaran page has five features (ayo terlibat, ayo eksplorasi, ayo jelaskan, ayo elaborasi dan ayo evaluasi). The media includes text, images, videos, virtual laboratories, online worksheets, educational games, and quizzes. The effectiveness of the media can be seen from the results of critical thinking skills tests. The N-gain value from the pretest and posttest is known to be 0.36 (moderate). The results of hypothesis testing using paired sample t-tests concluded that there are differences in students' critical thinking skills before and after using STEM digital media. The effect size of the use of digital media is 2.44 (high).

Keywords: Critical thinking skills, STEM, Google Sites, Archimedes' Principle