

Abstrak

Penelitian ini bertujuan untuk membuat perangkat pembelajaran *inquiry learning* berbasis STEAM pada materi desain gambar bitmap (*raster*) untuk meningkatkan kemampuan berpikir kritis siswa yang sudah tervalidasi oleh ahli. Jenis penelitian ini merupakan penelitian dan pengembangan (R & D) mengikuti prosedur penelitian dan pengembangan menurut Thiagarajan dkk (1974) dengan model penelitian 4 D (*Define, Design, Develop, and dissemination*). Data hasil penelitian meliputi deskripsi analisis kebutuhan, karakteristik perangkat pembelajaran *inquiry learning* berbasis STEAM pada materi desain gambar bitmap (*raster*), dan validasi produk. Penelitian ini dilakukan di SMK Negeri 1 Arosbaya Kelas X TKJ mata pelajaran dasar desain grafis. Hasil penelitian ini diketahui rata-rata hasil validasi yang diperoleh perangkat pembelajaran yang meliputi RPP 84,4%, Lembar Observasi Aktivitas Siswa 89,6%, dan Lembar Kerja Siswa (LKS) 86,4%. Kepraktisan perangkat pembelajaran dan Keefektifan produk perangkat pembelajaran belum diketahui dikarenakan ditengah terjadinya pandemi *Covid-19* yang mengakibatkan peneliti tidak dapat melakukan tahap uji coba. Simpulan dari penelitian ini yaitu perangkat pembelajaran yang dikembangkan memenuhi kriteria valid, sehingga dinyatakan dapat digunakan dalam proses pembelajaran di kelas.

Kata Kunci: Perangkat Pembelajaran, *Inquiry Learning*, STEAM, Gambar Bitmap, Berpikir Kritis

Abstract

This study aims to create a STEAM-based inquiry learning tool on bitmap (raster) image design material to improve students' critical thinking skills that have been validated by experts. This type of research is a research and development (R & D) following the research and development procedures according to Thiagarajan et al (1974) with a 4 D research model (Define, Design, Develop, and Dissemination). Data from the research includes a description of the needs analysis, STEAM-based inquiry learning tool characteristics on bitmap (raster) design material, and product validation. This research was conducted at SMK Negeri 1 Arosbaya Class X TKJ basic graphic design subjects. The results of this study note that the average validation results obtained by learning tools include 84.4% RPP, 89.6% Student Activity Observation Sheet, and 86.4% Student Worksheet (LKS). The practicality of the learning device and the effectiveness of the learning device product are unknown because in the midst of the Covid-19 pandemic which resulted in researchers not being able to carry out the testing phase. The conclusion of this research is that the learning tools developed meet valid criteria, so that they can be used in the learning process in class.

Keywords: *Learning Tools, Inquiry Learning, STEAM, Bitmap Images, Critical Thinking*