

ABSTRACT

Additive Manufacturing, or 3D printing, is a technology capable of transforming digital data into physical objects through a layer-by-layer printing process. In Indonesia, this technology is becoming increasingly recognized and utilized as an educational tool, including in mini Makerspace laboratories. However, the workspaces in these laboratories have yet to fully implement ergonomic principles, particularly those related to user anthropometric dimensions. In fact, the workstation plays a crucial role in supporting work activities that are optimal, safe, and comfortable. This study employs a mixed methods with a case study approach in the Makerspace environment. The design process is based on the Design Thinking approach, incorporating the SCAMPER technique during the ideation stage to generate alternative design solutions. Postural evaluation is conducted using the REBA (Rapid Entire Body Assessment) method across all work phases, including pre-production, production, and post-production. The design outcomes present a concept for an ergonomic 3D printing workstation tailored to user needs based on anthropometric data. The proposed design considers posture comfort, space efficiency, and a logical workflow. This workstation design not only enhances work comfort and efficiency but also supports productivity and effectiveness in the 3D printing process within the mini Makerspace laboratory. It is expected that the application of ergonomic principles in this workstation can serve as a reference for the development of similar facilities in both educational and industrial settings.

Keywords: 3D Printing, Anthropometry, Design Thinking, Ergonomics, REBA, Workstation.