

ABSTRACT

The use of non-ergonomic school bags causing discomfort in various body parts has been widely experienced by schoolchildren in the age group of 10 to 13 years, such as those from SD Babakan Sari 158, Flexi School, SMP Muhammadiyah 5, and SMPN 1 Banda Aceh. Identifying a suitable back system for school bags used by children aged 10 to 13 years to enhance their comfort while wearing the bags is crucial. The aim is to design school bags with ergonomic shapes tailored to the body size of this age group. The research methodology employed is quantitative with a descriptive survey approach, involving 64 samples, observations, and interviews. The design process involves creating an ergonomic school bag for children aged 10 to 13 years, featuring design elements like hip belt, padding, sternum belt, internal frame, air circulation, and adjustable size. The bag's dimensions are 40 cm x 29 cm x 17 cm, based on child anthropometry at the 95th percentile. The validation results using the Guttman scale categorize the product as "appropriate" if it falls within the range ($0.5 \leq \chi \leq 1$) (Setiowati, 2017). This implies that the ergonomic bag is suitable for usage with loads ranging from 0 (empty) to loads $\geq 10\%$, whereas the non-ergonomic bag is appropriate for usage with no load (0) but not suitable for loads $\leq 10\%$ and $\geq 10\%$. The comparison results conclude that the ergonomic bag offers greater comfort for children aged 10 to 13 years compared to non-ergonomic bags. Based on data presented in Table 26, the validation feedback from users indicates that a total of 172 assessment criteria were rated as "excellent," 85 criteria were rated as "good," 15 criteria were rated as "fair," 3 criteria were rated as "poor," and no criteria were rated as "very poor." The total score for assessment is 1.139, with an average score of 4.5 for ergonomics, 4.53 for functionality, and 4.6 for visual aspects, demonstrating fulfillment of the "excellent" criteria.

Keywords: Ergonomic, School backpack, Product Design