

# Sustainable Children's wear with Zero-Waste Grading Design in the Clothing Industry

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## ABSTRACT

This research aims to focus on the zero-waste clothing design of childrenswear to address sustainability in the children's clothing market. By reducing variables from fabric waste, the zero-waste idea may be optimized throughout the design process. Furthermore, the development of technology has revolutionized the way people conduct their daily lives worldwide. Hence, the objective of this study is to suggest a digital zero-waste childrenswear design in the clothing industry with multiple grading. So, as one of the zero-waste techniques, the Jigsaw Puzzle is used for making patterns and grading techniques in this research. For all the aggregate parts of the entire garment, fabric width dictates the pattern size. The study demonstrated that the multi-digital grading zero-waste technique would be used on mass production to make more profit in the clothing sector. In this regard, the study's conclusions can guide designers, patternmakers, and manufacturers. To make more objective selections and encourage the development of innovative design in zero-waste childrenswear collections. Therefore, the findings could be used in a variety of clothing products to aid in the reduction of environmental pollution and resource depletion issues associated with the clothing industry toward making more profit in the children's market.

**Keywords:** Childrenswear market; Sustainable fashion; Pattern grading, Zero-waste design.

## 1. INTRODUCTION

The notion of sustainable design has been entrenched in children's products (Zhang, 2018). Complicated clothing design might lead to visual fatigue. The design of children's clothing should be flexible and straightforward to promote children's aesthetic awareness and focus their health on sustainability (Bezerra et al., 2017). Furthermore, there has been limited research on children's clothing, and fashion features are frequently overlooked. Therefore, it is appropriate to emphasize design as a catalyst for developing the sustainable children's clothing industry. One of the creative strategies in sustainable design is zero-waste pattern creation. Indeed, seamlines play an essential role in forming garments, whether using the zero-waste pattern approach or the traditional way. As a result, reducing seamlines can aid in improving the functionality and other abilities. Other

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