



## Multifunctional Children Clothing Design Process Based on the Eco-Fashion Design Model

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**Abstract.** The purpose of this study was to develop the design of multifunctional children's clothing that supports sustainability goals. This paper proposes multifunctional clothing that can be recycled and decomposed at the end of the clothing's lifespan. In particular, the Eco-fashion design model was adopted in this project. After analyzing fashion consumption and problems in children's product design, four items of multifunctional children's clothing were developed. Multifunctional children's clothing design focuses on material selection, zero-waste techniques, design for disassembly and children's health. Thus, the minimization of material diversity as well as the application of zero-waste design techniques and multifunctional design guidelines for children's clothing design can be implemented towards sustainability in order to preserve the environment by selecting recyclable materials, promoting profit and human health concerning multifunctional purposes and international standards for children's clothing design. The findings can be used in various apparel products to help mitigate problems related to environmental pollution and resource depletion in the apparel industry.

**Keywords:** *children's clothing; design for disassembly; eco-fashion design; multifunctional design; recycling technology; zero-waste design.*

### 1 Introduction

Considering the current demand for sustainable children's products, from traditional to practical, from aesthetic to flexible, safe and environmentally-friendly, researchers and businesses have introduced sustainable design concepts to children's products. Sustainable design is a combination of integrated technological, economic, environmental and social factors. It is environmentally conscious in fulfilling function, quality, lifespan and the cost of the product, considering the environmental and social health and economic attributes of the product throughout its life cycle. Gam [1] found that women with at least one child are interested in sustainable and eco-friendly products that are beneficial for their children, which also inspires parents to act in an environmentally responsible manner. Previous researches mainly focused on

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