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Embedding Sustainability Values in Fashion Education through Ready-to-Wear Design: A Feasibility Study of the 'KONKA' Collection

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Abstract
The fashion industry, driven by fast fashion practices, significantly contributes to textile waste, highlighting the need for sustainable approaches within fashion education. This study examines the feasibility of the KONKA sustainable ready-to-wear collection as a design-based learning medium for embedding sustainability values in fashion education. The KONKA collection applies upcycling techniques by transforming two discarded shirts into a single skirt design, with the traditional game of congklak serving as the primary source of design inspiration. A descriptive, quantitative method was employed, utilizing a percentage-based feasibility assessment. Data were collected through a design feasibility instrument and evaluated by three fashion design experts, focusing on color, design lines, silhouette, proportional balance, and center of interest. The results show that the KONKA design achieved a feasibility score of 95.6%, categorized as highly feasible. These findings suggest that upcycling-based ready-to-wear design can serve as an effective pedagogical medium for embedding sustainability values, resulting in designs that are both aesthetically pleasing and functionally practical, as well as culturally meaningful. This study supports Education for Sustainable Development (ESD) in fashion education, offering insights for curriculum development and sustainable fashion practices.

Keywords: sustainability values, fashion education, ready-to-wear, feasibility study

INTRODUCTION

The fashion industry is currently dominated by the fast fashion phenomenon, a fashion system characterized by the rapid production of clothing in large quantities at low cost, in order to follow the latest fashion trends (Kornelis et al., 2022). Fast fashion design commonly adapts concepts from well-known brand fashion shows, which are then reproduced as ready-to-wear products and immediately marketed (Bick et al., 2018). This production system has caused severe environmental impacts, including the exploitation of natural resources, the increasing accumulation of textile solid waste, and the extensive use of harmful chemicals during the production process. These conditions highlight the urgent need for more responsible alternatives in fashion design and production (Niinimäki et al., 2020).

In response to these challenges, sustainable fashion has emerged as an alternative approach within the fashion industry, emphasizing a balance between environmental, social, and economic aspects. Sustainable fashion refers to a fashion production system that is oriented toward environmental sustainability by minimizing negative impacts on the environment (Mahardika, 2024). One of the most widely applied concepts in sustainable fashion is upcycling, which has experienced significant growth in the fashion industry over recent years (Amallina et al., 2024).

Upcycling refers to the process of reusing materials that are unused or discarded to produce new products with higher value and quality than their original condition. The primary objective of upcycling is

to optimize unused goods, allowing them to regain functionality without requiring extensive material processing. In the context of fashion, upcycling serves as a strategic solution for clothing production and can be classified into three main techniques: combining two or more garments, modifying fashion models, and adding materials or decorative elements (Putri & Suhartini, 2018).

Several previous studies have explored the application of upcycling techniques in the development of the fashion industry. One such study, titled *Application of the Upcycle Technique Concept in Deluxe Ready-to-Wear Clothing with Androgynous Style*, focuses on developing ready-to-wear fashion through an androgynous design approach. In that study, upcycling was applied by maintaining the original function of garments, where upper garments remained as tops and lower garments as bottoms. The research primarily emphasized the exploration of design concepts and fashion style development as forms of upcycling application (Amallina et al., 2024).

Despite demonstrating the potential of upcycling techniques in ready-to-wear fashion development, previous studies have not conducted systematic feasibility testing of the resulting designs. Design assessments were primarily descriptive and did not employ structured evaluation instruments involving fashion design experts to assess critical design aspects such as color, design lines, silhouette, proportion, and center of interest. Furthermore, the integration of local cultural elements as sources of design inspiration has not been sufficiently addressed.

Addressing these gaps, the present study focuses on evaluating the feasibility of a sustainable ready-to-wear fashion design, titled *KONKA*, developed through upcycling techniques that transform two used shirts into a single skirt product. The *KONKA* design draws inspiration from the traditional game of *congklak* as its primary source. This approach not only emphasizes the utilization of textile waste but also prioritizes the objective evaluation of design feasibility as a ready-to-wear product through expert assessment.

KONKA is inspired by *congklak*, a traditional game recognized as cultural heritage with strong educational and cultural values. From an educational perspective, *congklak* fosters cooperation, mutual respect, and positive social interaction among players (Susila, 2021). Additionally, the game stimulates fine motor skills, enhances concentration, and develops logical and numeracy skills through planning and calculation processes during gameplay (Eny Suprihatin & Merci Padaela, 2019). These educational values are translated into the *KONKA* fashion design as symbolic representations of balance among functionality, aesthetics, and sustainability. Therefore, *KONKA* functions not only as an upcycling-based ready-to-wear fashion product but also as an educational medium that embeds local cultural values and sustainable fashion principles within the context of fashion education.

METHOD

Types of Research

This study employs a quantitative approach with a descriptive percentage method, aiming to assess the feasibility level of ready-to-wear fashion design *KONKA* based on sustainable fashion principles. This method was chosen because the research focuses on presenting assessment data based on instruments tested by three experts in the field of ready-to-wear fashion design.

Three experts in the field of fashion design who have competence and experience as ready-to-wear designers. The three experts involved in this research are Sudarna Suwarsa, Risfani Rahmawati, S.Pd., and Dominica Rila, S.Pd., M.M. All three were chosen because they possess expertise in ready-to-wear fashion design and understand the aspects and techniques involved in the development of fashion design.

Instruments and Data Collection

The research instrument takes the form of a fashion design feasibility test assessment sheet, which covers five design aspects: fashion color, design line, fashion shape or silhouette, proportions between clothing parts, and fashion attention.

The data collection procedure is carried out through the following stages: (1) preparation of the *KONKA* ready to wear fashion concept and design based on sustainable fashion; (2) preparation of design feasibility assessment instruments; (3) providing instruments to fashion design experts; and (4) collection of assessment results in the form of scores and evaluative notes from experts.

Data Analysis Techniques

Data analysis was conducted using a descriptive analysis technique, specifically by processing the results of expert assessments into a percentage of eligibility. Descriptive percentages include presenting data through tables, graphs, calculations of average values, and percentages. In the descriptive percentage, no significance test was conducted because the study did not aim to make generalizations about the population, and therefore, there were no generalization errors (Scott, 2020).

The percentage of fashion design feasibility is calculated using the following formula:

$$P = \frac{\text{Score obtained}}{\text{Maximum score}} x100\%$$

Remarks

Score obtained: total score as a result of expert assessment

Maximum score: the highest score possible based on the scoring instrument

The results of this percentage are used to determine the feasibility level of *KONKA*'s ready-to-wear fashion design in relation to sustainable fashion.

Table 1. Product Eligibility Categories

Percentage	Category
0% – 20%	Not Eligible
21% – 40%	Less Worthy
41% – 60%	Quite Decent
61% – 80%	Worthy
81% – 100%	Highly Worth It

(Ashhari & Silvia, 2016)

RESULT AND DISCUSSION

The results of the research were obtained through a feasibility test of ready-to-wear fashion design *KONKA*, which was assessed by three expert validators in the field of fashion design. Aim to assess whether" has met fashion design standards. The results of this assessment are used to determine the level of feasibility of fashion design quality, as well as the basis for evaluation in further design development, especially in the context of the sustainable fashion industry.

Table 2. *KONKA* Design Feasibility Results

Validator	Maximum Score	Score obtained	Percentage
Validator 1	30	29	96.7%
Validator 2	30	30	100%
Validator 3	30	27	90%
Total	90	86	95.6%

Table 2 shows that the total score obtained is 86 out of a maximum score of 90, resulting in a percentage of 95.6%. In the category of eligibility percentage, the value falls within the very feasible category (81% – 100%). The high feasibility indicates that the application of fashion design principles has been carried out appropriately. The harmony between concept, function, and aesthetics shows that ready-to-wear *KONKA* clothing meets the design feasibility standards as a sustainable fashion product.

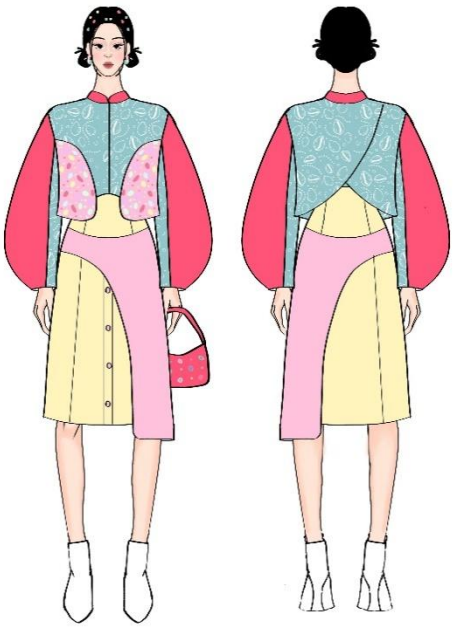

Figure 1. Fashion Design Ready to wear *KONKA*

The colors in fashion design are in harmony with the theme and character of the wearer. The choice of color can strengthen the design identity and support the concept raised without creating excessive contrast, ensuring the fashion look remains harmonious. This finding aligns with the principles of fashion design, which state that color not only functions as an aesthetic element but also serves as a means of representing specific atmospheres, emotions, and characters that designers aim to convey through fashion (Mayer, 2019).

The aspect of the design line is considered effective in emphasizing the shape of the body and directing fashion attention in a controlled manner. The application of lines creates a clear structure in the design. It plays a role in creating balance, allowing the visual attention of the wearer and the observer to be distributed proportionally without disrupting the overall design unity.

In terms of shape and silhouette, fashion design is judged by the character and concept it embodies. The silhouette used supports the character of ready-to-wear clothing, giving a functional and adaptive impression of various body shapes, which is one of the main criteria for ready-to-wear clothing.

The aspect of proportions between the pieces of clothing shows balance and harmony between the top and bottom, as well as between the length and width of the clothes. The right proportions demonstrate that fashion design is executed with careful calculations, resulting in a look that is both visually appealing and comfortable to wear. This balance of proportions also enhances the character of fashion as a ready-to-wear product that considers ergonomics and user comfort.

The aspect of the fashion center is considered clear and attractive without disturbing the overall design unity. The center of attention is achieved through the application of decorative details, including beads in the shape of congklak seeds, and the incorporation of congklak seed batik motifs. The existence of this focal point serves to strengthen the design character and maintain visual harmony, so that the clothes do not seem excessive. Clarity of attention is one of the factors that support the feasibility of design in the context of ready-to-wear clothing.

Figure 2. Finished Results Fashion Ready to wear KONKA

In addition to the design aspect, *KONKA* clothing also contains educational value. The inspiration of the traditional game congklak, translated through the form of cuts, motifs, and decorative elements, presents a symbolic educational meaning. Congklak is a traditional game that plays a role in developing children's numeracy skills, because it can be used to introduce the concepts of addition, subtraction, multiplication, and division. In addition, this game also teaches the value of precision, strategy, patience, and logical thinking (Maria Lily et al., 2023; Siregar et al., 2014). These values are represented in the design of *KONKA* fashion through a planned design process and the wise use of resources, which align with the principles of sustainable fashion.

In the context of education, *KONKA* clothing can be interpreted as a creative learning medium that integrates elements of local culture, educational values, and environmental awareness. This demonstrates that fashion design not only serves as a fashion product, but can also function as an educational tool to foster an appreciation for traditional games and raise awareness of the importance of sustainability in the fashion industry.

Overall, the results of this discussion confirm that the ready-to-wear fashion design *KONKA* meets the design feasibility criteria both aesthetically and functionally. The application of ready-to-wear techniques, combined with traditional congklak game ideas, enables the production of a design that is both feasible and sustainable, with substantial educational value and a clear conceptual identity. Therefore, this design is relevant for development in the sustainable fashion industry and can also serve as a reference in the field of fashion design education.

CONCLUSION

This study aimed to examine the feasibility of sustainable ready-to-wear fashion design, *KONKA*, developed through upcycling techniques and inspired by the traditional game of *congklak*. The feasibility test results show that the *KONKA* design achieved a total score of 86 out of 90, corresponding to a feasibility percentage of 95.6%, which falls within the very feasible category (81%–100%). This quantitative result indicates that the *KONKA* ready-to-wear design has met key fashion design standards, including color harmony, design lines, silhouette, proportional balance, and clarity of the center of interest, as assessed by three fashion design experts. These findings confirm that the application of upcycling techniques can produce a ready-to-wear fashion product that is not only environmentally responsible but also aesthetically and functionally feasible.

Based on these results, it is recommended that future studies expand feasibility testing by involving broader expert panels or user-based evaluations, and explore the implementation of *KONKA*-inspired designs within fashion education curricula to strengthen sustainability-oriented learning practices further.

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