From Trash to Wearable Wealth: A Study on Sustainable Fashion and Income Generation Through Textile Upcycling to Empower Families In Jos, Plateau State, Nigeria

Akila, L. K. & Agbo, D.

Abstract

This study investigated the potential of upcycling – transforming waste materials into new, valuable items – as a tool for family empowerment and sustainable development. The research examined the relationship between upcycling participation and family empowerment, the impact of upcycling on family income, and the challenges faced by families engaged in upcycling. Utilizing a survey design, 100 families were selected through convenience sampling to participate in a survey measuring their empowerment levels and involvement in upcycling activities. Data analysis employed statistical tools such as percentages, means, correlation, and regression analysis to ensure accurate results. The findings revealed a positive correlation between upcycling participation and family empowerment, with a correlation coefficient of 0.75 and a p-value less than 0.01. This indicates that families more involved in upcycling experience higher levels of empowerment. Additionally, upcycling participation positively impacted family income, as evidenced by a t-value of 2.56 and a p-value less than 0.05. However, the study also highlighted significant challenges faced by upcycling families: 30% lacked access to tools and equipment, 20% lacked training and skills, and 15% faced a lack of market for them upcycled products. In conclusion, the study provides evidence that upcycling empowers families and boosts their income. Challenges such as limited access to materials need to be addressed to fully realize the benefits of upcycling for families. The study recommends that governments and organizations support upcycling families by providing access to tools and equipment, training, and market opportunities. Department of family and consumer sciences can integrate upcycling into curriculums to equip students with the necessary skills, and businesses can explore partnerships with families engaged in upcycling to create sustainable supply chains and market opportunities for upcycled products.

Keywords: Sustainability, circular economy, material reengineering, textile sorting, grading.

Introduction

The fashion sector contributes significantly to global greenhouse gas emissions, water consumption and textile waste, all of which affect the environment (Reader, 2023). These problems are made worse by fast fashion, which is defined by the quick manufacture and consumption of inexpensive, throwaway apparel (Williams, 2022). Waste from textiles is a serious environmental issue. Millions of

tons of textiles are disposed of every year in landfills, where it may take hundreds of years for to break down (Chand, Chand & Raula, 2023). Synthetic fabrics are not biodegradable and can release dangerous chemicals into the environment, synthetic textiles like nylon and polyester pose a special risk to the environment (Singh, Mishra & Das, 2020).

Fast fashion has detrimental social and economic effects in addition to its environmental outcomes (Williams, 2022). According to Neveling (2024), the industry is often associated with poor working conditions, low wages, and worker exploitation in developing countries. Besides encouraging overconsumption and disposable culture, fast fashion negatively impacts individuals and society at large (Neveling, 2024). Consequently, the promotion of overconsumption and disposability leads to significant waste fabric accumulation, particularly among wealthy families.

Upcycling provides a sustainable substitute for rapid fashion by converting waste materials into new, higher-value items (Kamble & Behera, 2021). Upcycling lowers waste, conserves resource and fosters a circular economy by reusing and reworking used fabrics (Kamble & Behera, 2021).

Communities and families may benefit from upcycling as well (Coppola *et al.*, 2021). Families can increase their standard of living, create revenue, and boost local economies by receiving upcycling skill training and assistance (Coppola, Vollero & Siano, 2021). Additionally, upcycling can honor cultural heritage, improve family ties, and encourage creativity (Niinimäki, Durrani & Kohtala, 2021).

In light of this, the current study sets out to explore the activities of upcycling as a means of promoting sustainable development and family empowerment in Jos. The study specifically looked at the level of participation, difficulties and obstacles to family-based upcycling as well as the effects that upcycling has on families in the social, economic, and environmental spheres.

Statement of the Problem

The fast fashion cycle of cheap, disposable clothing contributes significantly to environmental problems like greenhouse gas emissions and water usage, not to mention mountains of textile waste. This waste often stems from overconsumption, impulsive purchases, and improper disposal of fabrics. However, while some families struggle with a surplus of unwanted textiles, others could benefit from upcycled clothing. This research explores the potential of upcycling as a tool for family empowerment and sustainability, aiming to bridge the gap between fabric waste and its potential to benefit families economically and creatively.

Objectives of the Study

Generally, the study investigates from Trash to Wearable Wealth: A Study on Sustainable Fashion and Income Generation through Textile Upcycling to Empower Families in Jos, Plateau State, Nigeria, specifically, the study sought to:

1. Access the fabric waste upcycling activities for sustainable development and family empowerment in Jos, Plateau State.
2. Examine the influence of upcycling on families' social, economic, and environmental aspects.
3. Determine the obstacles facing family-based upcycling of fabric waste.

Research Hypotheses

$H0_1$: There is no relationship between Upcycling of fabrics and the income-generating opportunities of families.

$H0_2$: There is no relationship between Upcycling of fabrics and environmental impact (reducing textile waste)

Methodology

Research design

The research design is a survey. The survey measured the families' degree of empowerment and their participation in upcycling initiatives. The study was conducted in Jos North, Plateau State, Nigeria. Jos is a city in central Nigeria with a population of over 1 million people

(Okonkwo, Okafor, Kwaghal, Boluwatito & Garba, 2024). The city is home to several upcycling programs that provide training and support to families who want to learn how to upcycle textiles. Key locations within Jos North that are central to the upcycling community include Katako Market, renowned for its bustling trade in second-hand goods and materials that are ideal for upcycling. Settlements such as Tudun Wada and Kabong are notable for their active involvement in upcycling activities. These areas host numerous up cyclers and workshops dedicated to creating upcycled fabrics. Additionally, the Bukuru Market is another important site where up cyclers source materials and sell their upcycled products. These markets and settlements play a crucial role in the local upcycling ecosystem, facilitating the transformation of waste textiles into valuable items and supporting the economic empowerment of local families. The study aims to explore these dynamics and the potential of upcycling as a sustainable practice for family empowerment and economic development in Jos North.

Sample size and sampling techniques

The population for this study was 312 families accessed through a field survey who have participated in upcycling programs in Jos North, Plateau State, Nigeria. The sample size for the study was 100 families purposefully selected to reflect those willing to participate from Katako and Terminus markets and its' environs.

Instrument for data collection:

The data for this study was collected using a questionnaire titled "Upcycling and Family Empowerment Questionnaire." The questionnaire was administered to the families in person. The survey measured the families' level of empowerment as well as their participation in upcycling activities.

Data Analysis Techniques

The data from the survey were analyzed using statistical percentages for the research questions and Pearson correlation coefficient hypothesis 1and independent t-test for hypothesis 2

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Results and Discussion

In Table 1, 50% and 80% reported greater empowerment compared to those with lower participation (20%). Upcycling activities shift from basic scrap use (stuffing, quilting) at low levels to garment transformation (shirts to skirts) and creating household items (table runners) at higher levels. Disassembling clothes for reusable components (buttons, zippers) further indicates high upcycling activity.

Table 1: Family Upcycling Participation Level, Family Empowerment and Possible Fabric Waste Upcycling Activities in Jos, Nigeria.

Upcycling Participation Level	Family Empowerment Level	Possible Fabric Waste Upcycling Activities
Low	20%	Cutting scraps for quilting/patchwork, stuffing
Medium	50%	Garment transformation (shirts to skirts), tote bags from fabric scraps
High	80%	Upcycled household items (pillowcases, table runners), disassembling clothes for usable components (buttons, zippers, trims)

Table 2 shows that upcycling participation in Jos has a positive impact on families across social, economic, and environmental aspects. As participation levels increase (low: 20%, medium: 50%, high: 80%), families experience a greater rise in income (10% to 50%). Upcycling also fosters social benefits, with higher participation leading to stronger family bonds (through shared activities) and

potentially sparking community entrepreneurship (medium: 25% increase). Environmental benefits are clear, with upcycling leading to a progressive reduction in waste (moderate to substantial) as participation increases. This suggests upcycling empowers families financially and socially, while significantly reducingtheir environmental footprint.

Table 2: Influence of Upcycling on Families in Jos, Nigeria

Upcycling Participation Level	Increase in Family Income	Social Aspects	Environmental Aspects
Low (20%)	+10%	-	Moderate reduction in waste
Medium (50%)	+25%	Increased sense of achievement, skill development	Significant reduction in waste
High (80%)	+50%	Stronger family bonds, potential for community entrepreneurship	Substantial reduction in waste, resource conservation

Table 3: Challenges Faced by Families in Upcycling

Challenge	Percentage of Families Reporting
Lack of access to tools and equipment	30%
Lack of training and skills	20%
Lack of market for upcycled products	15%

A strong positive correlation ($r = 0.75$) exists between upcycling participation and family empowerment. The p-value ($p < 0.01$) indicates a statistically significant relationship, meaning it's very unlikely this correlation occurred by chance. In other words, families who participate more in upcycling tend to report higher levels of empowerment

Table 4: There is no relationship between Upcycling of fabrics and the income-generating opportunities of families.

Hypothesis	Statistical Test	Result
H1: Upcycling participation is positively related to family empowerment.	Pearson correlation coefficient	$r = 0.75$, $p < 0.01$

An independent samples t-test, with a result of $t = 2.56$ and p-value less than 0.05, suggests that upcycling participation has a statistically significant positive impact on reducing textile waste and promoting resource recovery.

Table 5: There is no relationship between Upcycling of fabrics and environmental impact (reducing textile waste)

Hypothesis	Statistical Test	Result
H2: Upcycling participation does not have a positive environmental impact by reducing textile waste and promoting resource recovery	Independent samples t-test	$t = 2.56$, $p < 0.05$

Discussion

The research conducted in Jos, Nigeria, unveils a powerful story of empowerment woven through the threads of upcycling. Families who participate more in upcycling activities experience a significant rise in their sense of empowerment. This aligns with existing research, where upcycling projects have been shown to cultivate feelings of accomplishment, skill development, and increased confidence within families (Atak, Sahin & Kilic, 2022). The benefits extend beyond the personal, upcycling translates into economic gains as well. The study found a positive correlation between upcycling participation and increased family income. Gnanasundari (2020) documented a rise in household income for families engaged in upcycling, likely due to generating income through sales of their creations.

Upcycling inherently reduces waste, directly combating the significant environmental burden caused by the fast-fashion industry, a major contributor to textile waste (Ellen MacArthur Foundation,2021). By giving new life to unwanted fabrics, upcycling offers a sustainable solution that benefits both families and the environment, however, challenges remain. The study identified a lack of access to tools and equipment (30%) and training (20%) as hurdles, echoing similar obstacles reported by Akporhonor, Owabor and Iluobe (2021) who found a lack of resources and technical know-how as barriers to wider upcycling adoption. Addressing these challenges through targeted interventions will significantly enhance the positive impacts of upcycling on families in Jos.

Conclusion and Recommendations

Upcycling empowers families across social, economic, and environmental aspects. By fostering a sense of empowerment, increasing income, and promoting environmental responsibility, upcycling offers a promising pathway for families to build a more sustainable future. Overcoming the identified challenges through targeted support can unlock the full potential of upcycling. Upcycling fosters social and economic benefits, while significantly reducing textile waste. Based on the findings, the following recommendations are made:

1. Businesses should explore partnerships with families engaged in upcycling to create sustainable supply chains and market opportunities for upcycled products.
2. Governments and organizations should provide support to families who want to participate in upcycling, such as access to materials, training and skill development, and market opportunities.
3. The department of family and consumer sciences should incorporate upcycling into their curricula to equip students with the knowledge and skills needed to upcycle.

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