

EXTENDING THE LIFE CYCLE OF CLOTHING THROUGH UPCYCLING TO REDUCE ENVIRONMENTAL IMPACT

***Purpose.** A study of the application of circular economy principles in the fashion industry is being considered. One area of research is the upcycling of obsolete and worn-out garments. This is particularly relevant for children's clothing, which inherently has a short lifespan due to rapid growth. Meanwhile, adult clothing, such as that of parents, often does not physically wear out, but often goes out of fashion and becomes obsolete. Thus, upcycling is essential for extending the life cycle of clothing by transitioning it to a new cycle, where worn-out clothing becomes raw material for the production of new items, particularly children's clothing. Consequently, the negative impact of textile production and the fashion industry on the environment is reduced in the era of extra-consumption.*

Keywords: ecology, upcycling, denim, waste recycling, creativity.

Objectives. The aim of research is to emphasize the problem of natural, material and energy resources rational use in daily life; to analyzing the circular approach in the terms of circular economy and to find relevant technics to manage used garments and textiles; to analyze the ways to recycle old clothing and textiles like as: mechanical recycling – the process of shredding old clothing to create new materials; chemical recycling – through chemical reagents and processes, old textiles are transformed into new ones; upcycling – the creative transformation of old items into new, more individual pieces, often with improved qualities compared to the originals. As a result to identify one of the most acceptable way of recycling to large audience which not needed special equipment to apply.

Methodology. Visual-analytical method and morphological analysis were used for creation children's clothes from some old garments in the terms of upcycling.

Research results. Textile products, whose production continues to increase, are needed in many areas, starting from the most basic needs of our lives. In production processes to reduce the effects of environmental damage, to prevent the problems that will occur when thrown into nature, Sustainable recycling is seen as the best solution for regenerated and synthetic-based textile wastes. Currently, the fashion industry has come up with initiatives to transform the linear economy strategy into a circular one, as the negative impact of the fashion industry on the environment has been established.

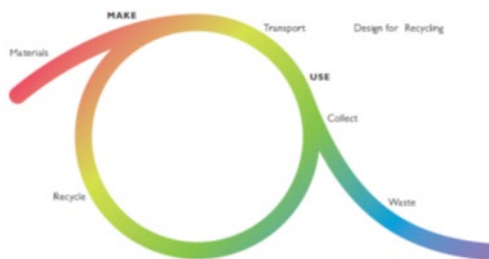


Fig. 1. The product life cycle in linear and cycle economy model

The product life cycle, [1] in a linear economy (Materials – Production – Transportation – Use – Collection – Waste) Recycling can replace the "waste" stage and is implemented from a design perspective, creating a new cycle through production from used products (fig.1).

Since January 1, 2024, the EPR system (Extended Producer Responsibility) has been implemented in Moldova, refining the rules for manufacturers and importers to conduct their activities while minimizing environmental pollution. [2] The EPR functioning as an environmental

policy that obliges manufacturers and importers to manage the disposal of their products and packaging once they have lost their consumer value. Producers are required to ensure the recycling or reuse of goods, either independently or through specialized recyclers. The goal of the EPR system is to encourage the creation of more durable products that are suitable for subsequent recycling.



Fig. 2. Examples of SASHIKO embroidery using textile waste. [Unknown author]

Upcycling has gained popularity over the past decade. Exhibitions of works and competitions (fig.2) are being held, and academic programs on the topic have emerged. Today, it is a well-known trend and widely discussed, as it provides an accessible way for everyone to contribute to environmental protection.

This includes being more conscious when purchasing items, not discarding unused clothing, and instead bringing it to collection points, selling it at charity fairs, and similar initiatives. That trend is pretty actual among young people, which was study by survey held through Technical university of Moldova [5].

By purchasing products, anyone can express their engagement with the global trend of environmental responsibility through their personal style. Choosing more sustainable products instead of “fast fashion” demonstrates how to thoughtfully and rationally build a wardrobe and properly recycle unwanted clothing. Levi’s advertising slogan sums it up: “BUY LESS. CHOOSE WELL. WEAR LONG.”

Many people, even if they are not familiar with the term upcycling or lack any creative skills, have encountered it at least once—when they cut worn-out jeans at the knees into shorts, or turned an old T-shirt that they no longer wore into a cleaning rag.

For a creative person faced with jeans that are no longer wearable, the thought often arises: “These are good jeans; I should make something out of them.” From there, anything is possible—from tote bags and backpacks with multiple small details to skirts, dresses, hats, blankets, rugs, and more. Denim is pleasant to use, easy to work with, and, importantly today, suitable for recycling as well.

Sometimes, we have an item in our wardrobe that is valuable—either emotionally or because it cost a lot of money—and something happens to it. Then we look for ways to restore its original look and shape so that it can once again be useful and bring joy. This is when a “creative person” comes to the rescue! Just as appetite comes while eating, ideas come to a creative person during the process of working with the item.

My experience started same the patch pockets with orange topstitching sparked the idea of combining denim with brick-colored corduroy. The original inspiration came from brick-colored denim and corduroy trousers. The waistband from the jeans became a ready-made piece for the attached waistband of the denim jacket. Eureka: it would be a denim jacket! (fig.3).

A rivet on the waistband initiated the classic button closure typical for denim jackets, serving as the bottom button of the jacket's fastening. The composition was completed with cuffs on the closure, also featuring rivets, made from the corduroy material. In the seam attaching the yoke to the main front piece, a flap with topstitching was added. A patch pocket on the main front piece—taken from the mother's jeans—served as the spark that ignited the creative idea.

The turned-down collar, an essential part of a denim jacket, was also made from corduroy. The two-piece sleeve featured a lower part made from the same corduroy material.

Thus, creativity, craftsmanship, and, undoubtedly, a mother's love ultimately resulted in a finished denim jacket.



Fig. 3. Children's jacket created from parents' jeans and jacket.

Conclusion. The upcycling trend, even if you can't come up with ideas yourself, allows you to seek advice and help from professionals to develop and implement your creative vision, while also focusing on responsible consumption and, as a result, achieving environmental goals. Recycled clothing takes on a new life and embodies positive, creative energy, which the wearer embodies along with it.

References

1. Niinimäki K. (ed.). Sustainable fashion in a circular economy. Helsinki : Aalto ARTS Books, 2018.
2. Scripcenco A. Circular fashion: development competencies among university students. 2025.
3. Heckl W. New life of old things. 2013.

4. Graur I.-V. та ін. Application of the principle of sustainability in designing a garment collection for women // Innovative textile materials and processing. 2025. P. 257–261. URL: <https://repository.utm.md/handle/5014/29916> (date of application: 08.02.2026).
5. Scripcenco A., Pashkevich K. From linear to circular fashion: is it new trend or necessity? // Актуальні проблеми сучасного дизайну. 2020. P. 265–268.
6. Avadanei M. та ін. Clothing development process towards a circular model // Industria Textila. 2021. Vol. 72, No. 1. P. 89–96.
7. Bartkutė R., Streimikiene D., Kačerauskas T. Between fast and sustainable fashion: the attitude of young Lithuanian designers to the circular economy // Sustainability. 2023. Vol. 15, No. 13. Art. 9986.
8. Scripcenco A., Graur I. V. Redesign, reuse and 3D prototyping as efficient approach of sustainable fashion. 2024.