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CREATIVE PROJECTS IN THE TRAINING OF LABOR AND TECHNOLOGY TEACHERS

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Abstract

The article examines the didactic possibilities of the technology of processing textile materials when performing creative projects by students - future teachers of labor education and technology. In particular, the introduction defines the priorities of the educational policy in Ukraine, among which an important place belongs to environmentalization, which is aimed at achieving the goals of sustainable development and contributing to the prosperity and protection of life on the planet. The key to the implementation of this priority is the formation of the readiness of the participants in the educational process for ecological conservation activities since it is one of the main subject-transformative practices that are implemented in labor training lessons in basic school and technology lessons in high school. Ecodesign in general and upcycling technology in particular are determined to be relevant in the acquisition of professional competencies.

The main part of the article outlines the essence of secondary use of materials, the history of its appearance, its importance for nature conservation, and compliance with the concept of the three R's: "consumption reduction - reuse - recycling". Active use by fashion designers is being updated. Emphasis is placed on the importance of using upcycling in educational projects. The experience of the Department of Technological and Vocational Education of the Central Ukrainian State Pedagogical University named after Volodymyr Vinnichenko in the implementation of individual projects on the "upcycling" technology in the educational process in the preparation of future teachers of labor training and technology is presented. It is about the methodology of project activity from the choice of the project topic to the final result, during which students have the opportunity to independently choose the design object according to their capabilities, develop the design and manufacture the product, and prove the necessity of the existence of the finished product in the real world.

The results of the study are convincing that the implementation of educational projects by future teachers of work training and technology contributes to the development of creative abilities, creativity, the search for non-standard solutions, and the responsibility of students. Each manufactured item is unique, has an innovative design because an individual approach and design vision of each individual student is used to create it. In addition, the issue of ecological impact on the environment is raised - the recycled item will have a "second life" and will not be thrown into the trash. It is obvious that in the conditions of ecologically transformative activities, the development of the ecological culture of students takes place, and the implementation of such projects contributes to the ecological activity of future specialists.

Keywords: *project activity, creative project, upcycling, ecological culture, teachers of labor training, and technology*

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Introduction

The priority direction of educational policy in Ukraine is its environmentalization. Today, education is focused on achieving the goals of sustainable development, which are based on promoting the prosperity and protection of the planet. Changing views on the role of education in solving environmental problems, and new requirements for the professional activity of teachers in conditions of sustainable development actualize the problem of training future specialists in the context of environmental education.

Environmentalization of the educational process is one of the defining directions of the formation of the education development strategy at the current stage. In the context of its implementation, the problem of forming the readiness of future teachers of labor education and technology for environmental conservation activities becomes relevant, since it is one of the main subject-transformative practices that are implemented in labor education lessons in basic school and technology lessons in high school.

Since the beginning of the 21st century, environmental issues have been actively discussed in society, as the rapid growth of production, excessive consumption, and a significant amount of waste create a burden on the planet's ecosystem. Currently, responsible consumption and minimization of the negative impact on the environment are becoming decisive.

One of the directions of this concept is eco-design, which is based on the formation of products from eco-materials and with the use of eco-technologies that take into account all stages of the product's life cycle - from creation to disposal. At the same time, the main goal of ecodesign is the preservation of natural resources. According to the definition of Sim van der Ryn and Stuart Cowan, who became the founders of ecodesign, "ecological design is any form of design that minimizes ecologically destructive consequences by integrating itself into the processes of active activity" (Ryn & Cowan, 1996, p. 18). It is necessary that all subject-transformative activities are carried out in such a way as to reduce or completely eliminate negative effects on the environment.

One of the technologies mastered by future teachers of labor education and technology in the process of implementing project activities (including eco-design) is the "upcycling" technology. This technology complies with the provisions of the Circular Economy Concept, reflected in the European Commission's March 4, 2019 report "Report on the implementation of the Circular Economy Action Plan", which emphasizes the possibility of wider reuse and recycling of various materials. Products and services designed in a circular way can minimize the use of resources and contribute to the reuse, recovery, and recycling of materials in the future (Ryn & Cowan, 1996, p. 3).

The purpose of the article is to characterize the didactic possibilities of textile processing technology when performing creative projects by students - future teachers of labor education and technology.

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Didactic Possibilities of Textile Processing Technology

In the conditions of the growing role of creative work, the competence of future specialists depends on the level of theoretical and practical training of graduates. It is logical to introduce technologies into the educational process that contribute to the formation of students' readiness to act for the benefit of the natural environment and the most practical transformative activities because, in the conditions of solving the problems of environmental pollution, the issues of economical use of natural resources and long-term use of already existing things are urgent. The improvement of such training is facilitated by the implementation of creative projects by the students on the technology of ecological processing of textile materials, which corresponds to the introduction of the principles of sustainable fashion into the educational process. An acquaintance of pupils and students with the principles of sustainable fashion in educational institutions is aimed at the formation of environmental competence among young people, the study of approaches to the development of new sewing products that will be multifunctional, and transformable, thereby contributing to the minimization of the use of clothing (Mykhyda et al., 2019, p. 186).

Processing of textile materials - the "upcycling" technology, involves the reuse of textile and sewing products, and the creation of a new item from one that has already been used. In general, the technology of upcycling is the process of transformation of secondary products, waste, and unnecessary products into new materials or products of better quality that acquire ecological value.

Such technology promotes the search for new ways, thanks to which sources of waste are found, materials are "saved" and reintroduced into the system of reuse thanks to the intelligent application of creativity and craftsmanship, artistic vision, and creative decision. In the last three decades, upcycling has gained popularity, trends have appeared to increase its use, and this technology has been around for a long time. Previously, this process was called "creative reuse". The technology has been used mainly in artistic works since the beginning of the 20th century, as well as in other industries for the purpose of saving money.

Environmental problems, excessive consumption, a large amount of waste, and a significant burden on the planet's ecosystem from the fashion industry led to the emergence of a new concept - sustainable (slow) fashion, which is based on responsible consumption and minimizing the negative impact on the environment. Upcycling is an effective way to slow down fashion. One of the first to use the term "upcycling" in the meaning of recycling was Rainer Pilz, when in 1994 during his interview with the magazine "Salvo" he spoke about the need for creative recycling of materials, emphasizing the recycling of unnecessary things and giving them even more value. With the growth of recycling in the late 20th and early 21st centuries, upcycling technology gained popularity, as people are now more aware of environmental protection and awareness of their responsibility to future generations.

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In 2002, William McDonagh and Michael Braungart wrote a book called "Cradle to Cradle: Remaking the Way We Make Things" about C2C principles, the benefits of upcycling, and its role in creating and marketing various types of products. This book is a kind of guide that shows upcycling as a simple, real-world method of waste prevention by recycling used goods into new ones.

Upcycling is often confused with downcycling, which is similar in nature but has a different end result. Although products are disassembled and then reassembled using the raw materials from which they are made, the final product resulting from recycling is usually of a different quality. The result of such processing leads to a decrease in the consumption of raw materials.

Unfortunately, environmental pollution continues today, a significant amount of energy, air, and water is being depleted, and greenhouse gas emissions are also increasing, the rates have not decreased, but on the contrary, continue to increase. Therefore, the use of upcycling, downcycling, etc. technologies are efficient and resource-saving.

The term "upcycling" is considered new, but this concept of secondary use is an old one. Upcycling is observed in all historical periods. Let us recall the respectful attitude of Ukrainians toward textiles, when even the smallest piece of fabric was not thrown away, the cut of clothes was planned in such a way as to minimize the remains of the cut. Also, paths were woven from clothes that were out of order, mothers created dolls for their daughters, dolls, etc.

The transformation of old things into new ones without attracting new resources, or with minimal use of new ones, creating new functionality for items that cannot be used for their primary purpose is the basis of upcycling. Historically, people used this method of recycling things long before the term "upcycling" appeared, when they repaired, renewed, transformed things. As a rule, this was caused by a lack of funds and material resources, poverty, and limited access to the necessary things. In o dreams of upcycling - making new unique things without involving new resources (or with minimal involvement) and creating new functionality for items that can no longer be used for their intended purpose.

Upcycling has been used long before the term itself appeared, in many countries, it has been used for centuries, people repaired, updated, decorated, and transformed things into something new. Until the end of the 20th century, such processing was a forced measure for the strata of the poor population. Wars, revolutions, economic instability, devastation, and shortage of goods forced people to recycle old things. What was very memorable and valuable continued to be carefully preserved, and everything that was damaged and worn out was repaired or reworked into something else that is needed today. During the war and in the post-war period, dresses and coats were sewn from soldiers' uniforms, women's and children's clothes were sewn from men's clothes. Parachutes were used under tablecloths, curtains, and bed linen. Blankets and rugs were sewn from the remnants of fabrics and old things, worn bed linen was used as material for sewing bags, and various rags for cleaning. Today, when there is a war going on in Ukraine

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and a significant amount of material resources have been destroyed, upcycling is relevant because many things that have been saved are reused.

Over time, with the growth of the material well-being of the population and the emergence of a mass consumer society in the countries of Western Europe, the experience of changing clothes lost its popularity, people were able to buy new things. Independent tailoring of clothes became irrelevant, focused on the poor population. On the other hand, the material became cheaper, and human labor became more expensive. So, tailoring and re-stitching in studios and tailors became an expensive service and a privilege for the well-to-do population. The new upcycling boom arose from the reverse, that is, against the background of commodity abundance, in contrast to the Soviet consumer culture, which developed against the background of commodity scarcity.

Technologies based on ecological processing of materials are recycling and upcycling. The differences between these technologies are defined by Chuprina and Susuk when they state: "Recycling is the processing of production and household waste. That is, ordinary garbage is perceived as a secondary raw material that can be used repeatedly. This is done in order to reduce the amount of inorganic waste that pollutes the planet at a very fast rate and takes an incredibly long time to decompose. […] Recycling means reprocessing materials, but they will lose some of their qualities and properties each time. This, of course, slows down the pollution process but does not completely eliminate it. Perhaps, this is why a somewhat fresher type of recycling - upcycling - has emerged. This is not only the preservation of the primary functional characteristics of raw materials but also their improvement and improvement. Very often, the remains of some activity or old objects cannot be simply restored, but new ones can be created from them. This is the main idea of upcycling" (Chuprina & Susuk, 2014, p. 40).

The technology of textile upcycling from the point of view of global trends was studied by scientists. I. Davydenko identified and systematized "the main ways of working with secondary textile raw materials in different cultures of the world, the principles of creating new textures and ornamental solutions […] elements of the design of a modern costume" (Davidenko & Choni, 2017).

Currently, designers are actively introducing upcycling technology into fashion, as it corresponds to the concept of the three R's: "consumption reduction - reuse - recycling". Among the global brands of the fashion industry, upcycling technology is used by H&M, Diesel, Zara, and Nike. Designers Stella McCartney and John Galliano are active advocates of reusing clothes. Almost waste-free production of clothes with subsequent use of scraps of fabric - from the Japanese designer Issey Miyake. The concept of Zero waste fashion is supported by Maison Martin Margiela, Levi's, Polartec.

The currently popular philosophy of Zero Waste is a philosophy of waste-free production and reuse of products as raw materials. Companies that implement their activities on the principles of Zero Waste do not pollute the air, water and do not produce waste that they could not process on their own. The philosophy of reuse is

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promoted by Ukrainian brands Remade, Uli Ulia, Papina-rubashka, MoD44, Rehach, Preapoklo; designers Solomiya Butkovska, Olga Gaevska, Oleg Zvonaryev, Yasya Khomenko, Ksenia and Anton Shnayder and others. In 2020, a new Bettter upcycle project was presented in Ukraine, aimed at popularizing responsible consumption, and making new things from vintage or damaged things. Raw materials for new collections are second-hand items bought in different countries of the world (Chystiakova & Kutsenko, 2020).

Figure 1
Creative Students' Work

The implementation of upcycling in the educational process of future teachers of labor training and technology is one of the aspects of professional training, since the training programs help labor training and technology providers for the implementation of projects on secondary processing of materials, in particular, the indicative project "Second life for old things". Accordingly, future teachers should be ready to implement such projects.

So, for example, when performing practical work on the topic "Technology of manufacturing a soft toy", you can use the remnants of the cut of various fabrics, things that are no longer used, the remains of accessories, and finishing materials, thereby giving them a second life. At the same time, in addition to the development of technological skills, the ability to select appropriate materials, harmoniously combine colors, select accessories, etc. is developed.

Of particular importance in the implementation of the "upcycling" technology is the introduction of the elective course "Ecological processing of materials", where

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theoretical and practical training of future specialists is carried out in accordance with the provisions of environmental education. We specify the practical training on the example of the topic "Ecological processing of textile materials".

The mastery of the topic is based on the experience of Swedish schools in creative remakes using clothing and textile waste when students determine the idea of a new product, the possibilities of the material, and methods of recycling (Hofverberg & Maivorsdotter, 2018).

Students are offered the task of a creative project - to create a new one that is relevant today from any item of their own wardrobe that is no longer used. The goal of the project is to creatively process a textile product for clothing. The implementation of the project is carried out in several stages, according to the same algorithm, according to which students of general secondary education institutions work. Some stages of the project can be implemented remotely, when the topic of the project, its purpose, and manufacturing technology are determined, the search for analog models is carried out, planning of project execution, etc. is carried out.

Figure 2
Manufacturing processes and finished products

Project technology is primarily based on independent, active cognitive, and practical work (group, pair, individual) - from choosing a project topic to the final result, during which students have the opportunity to independently choose a design object according to their capabilities, develop a design and produce a product, to prove the necessity of the existence of the finished product in the objective world. At the same time, in the process of such project activity, knowledge and skills are formed, which create work experience, which gradually expands and deepens and, thus, becomes one of the essential links in a series of comprehensive development of the personality.

The first stage is organizational and preparatory, during which the search for manufacturing technologies, processing, or updating of the product is carried out:

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from simple decoration to a radical change of the model. At this stage, the search for ideas for the performance of work, comparison with similar models, execution of sketches of the future model is carried out, the appropriate technology is selected, appropriate in each specific case.

Figure 3
Manufacturing Processes and Finished Products

The second is design and construction, where the design of sewing products, and the technology of sewing or decoration are studied, the optimal version of the remake of the model is chosen, the design is developed, and materials are selected.

The third is technological, in which the direct production of a new product is carried out. Techniques of appliqué, embroidery, decoration with lace and braid, etc. are used. When reworking clothes, there are more complex products in which the utilitarian property of the thing is completely changed - a woman's blouse is sewn from a man's shirt, a skirt is made from pants, a skirt is made from a dress, and a vest, etc. It should be noted that at this stage, students' skills in design and sewing technology, processing of individual components, and the product as a whole are being improved.

The last stage of project implementation is the final one, where the project is protected, the economic and ecological feasibility of manufacturing the product is determined, and the product is demonstrated (Chystiakova, 2020, p. 125–127).

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Figure 4
Creative Students' Work

According to a similar algorithm, creative projects using the "Art-Quilt" technology are implemented - the creation of decorative products from the remains of textile materials - from small postcards to large panels. Art quilting is an art form, a technology derived from traditional patchwork, sometimes known as art quilting, that uses both modern and traditional quilting techniques to create works of art. Art quilts are created by artists based on their experience, images, and ideas, rather than traditional patchwork patterns. Usually, such works have more in common with fine art than traditional patchwork, have a high artistic value, are usually hung on the wall or mounted as a sculpture, although there are exceptions, which include mini-products (postcards, mini-panels, etc.).

In the 1960s and 1970s, patchwork and quilting techniques, which were traditionally used to create utilitarian items, began to be used in the creation of works of fine art. Dr. Mimi Chike, from the state of Virginia, contributed to the development of art in the middle of the 20th century through her scientific work, social activism, and the creation of artistic works in the art quilt technique. The transition from traditional patchwork to art quilting was quick; many of the most important advances in this field were made in the 1970s and 1980s. Jean Ray Laurie, Nancy Halpern, Beth Gutchon, Radka Donnell, Nancy Crowe, and other artists are currently working on art quilts.

Today, the art quilt technology is embodied in the works of Ukrainian artists. Such technology has significant potential in the professional training of future teachers of labor education and technology, as it is based on interdisciplinary connections: like any technology, it uses knowledge of physics, chemistry, material science, construction, drawing, design, composition, modern information technologies, but also as a cultural phenomenon, refers to visual disciplines, history, history of culture, techniques and technologies, history of social relations and modern communication and social practices.

After all, "fabric contains countless possibilities of action: color, structure, texture, relief - it combines all the secrets that govern the rules of painting, graphics, and sculpture. Its ability to integrate into the form of space involves all spheres of

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consciousness and subconsciousness - intellectual, visual, acoustic and tactile, and finally, those unnamed ones that are associated with a sense of security" - says Jolanta Owidzka (Owidzka, 1998).

Summing-up

It is worth noting that the implementation of such projects by future teachers of labor education and technology contributes to the development of creative abilities, creativity, the search for non-standard solutions, and the responsibility of students. Each manufactured item is unique, unique, has an innovative design because an individual approach and design vision of each student is used to create it. In addition, the issue of environmental impact on the environment is raised - the recycled item will have a "second life" and will not be thrown into the trash. It is obvious that in the conditions of ecologically transformative activities, the development of the ecological culture of students takes place, and the implementation of such projects contributes to the ecological activity of future specialists.

The preparation of a teacher of labor training and technology for professional activity is an integration process based on the interaction of pedagogical and special, specific only for this specialty, meaningful and technological aspects. This, on the one hand, allows us to use the theoretical foundations of labor training and education, the formation of a teacher capable of providing educational activities and artistic education, the combination of training with productive work, labor training and education of students when studying the problem of training a future teacher. On the other hand, it obliges to build a pedagogical process taking into account specific aspects of the future pedagogical activity of the teacher, which arise from the nature and content of work in the field of decorative and applied arts and artistic creativity, their technical-technological, organizational-economic and ecological foundations, and as well as the content of labor training and technologies at school.

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