

The Artistic Conversion of Waste for a Sustainable Future: Printmaking with Zero Waste*

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Abstract

The Purpose of the Study: *This study aims to examine the process of utilizing recyclable and reusable waste materials for artistic purposes as a response to the waste problem caused by increased production capacity, mass consumption, urbanization, and the widespread use of plastics following the Industrial Revolution. Within the framework of the Zero Waste approach, the research seeks to reveal the potential of using waste materials in artistic production in terms of sustainability, education, and social transformation.*

Method: *The study employed an emancipatory/developmental/critical action research design, one of the qualitative research methods. As part of the Zero Waste project, discarded packaging*

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materials such as gloves, PET bottles, and juice cartons were used as printmaking matrices. Monochromatic prints were produced using these materials, and the process of transforming waste into a medium of artistic expression was carried out through practical applications. The study was conducted within the framework of circular economy principles and an art-based sustainability approach.

Findings: The prints produced during the project demonstrated that waste materials, which are often perceived as worthless at first glance, can be transformed into objects of aesthetic and artistic value. It was observed that participants perceived waste not only as a physical material but also as a means of learning, creativity, self-expression, and raising social awareness. The findings indicate that art can serve as an effective tool for fostering sustainability awareness.

Conclusion: The incorporation of waste materials into artistic production processes contributes to the promotion of sustainable lifestyles and the enhancement of environmental awareness. This approach is consistent with the United Nations Sustainable Development Goals, which emphasize the development of sustainability awareness through education. To achieve a more tangible contribution to these goals, it is recommended that this model be expanded, that art-based sustainability programs be integrated into educational policies, and that scalable pilot projects be supported through collaboration with local stakeholders.

Keywords: Art, Recycling, Sustainability, Zero Waste.

Sürdürülebilir Bir Gelecek İçin Atıkların Sanatsal Dönüşümü: Sıfır Atık ile Özgümbaskı

Öz

Çalışmanın Amacı: Sanayi Devrimi sonrasında artan üretim kapasitesi, kitlesel tüketim, kentleşme ve plastik kullanımının yol açtığı atık sorununa karşı, geri dönüştürülebilir ve yeniden kullanılabilir atıkların sanatsal amaçlarla değerlendirilme sürecini incelemek amaçlanmıştır. Araştırma, sıfır atık yaklaşımı kapsamında atık malzemelerin sanatsal üretimde kullanımının sürdürülebilirlik, eğitim ve toplumsal dönüşüm açısından potansiyelini ortaya koymayı hedeflemektedir.

Yöntem: Yöntem olarak nitel araştırma yöntemlerinden eylem araştırması türünün özgülleştirici/geliştirici/eleştirel eylem araştırması deseni kullanılmıştır. Sıfır atık projesi kapsamında çöpe atılan eldivenler, PET şişeler ve meyve suyu kutuları gibi ambalaj atıkları baskı kalıbı olarak kullanılmıştır. Bu malzemelerle tek renk baskı çalışmaları üretilmiş ve atıkların sanatsal ifade aracı olarak değerlendirilme süreci uygulamalı olarak gerçekleştirilmiştir. Çalışma, dögüsel ekonomi ve sanat temelli sürdürülebilirlik yaklaşımı çerçevesinde yürütülmüştür.

Bulgular: Proje sonucunda üretilen baskılar, ilk bakışta değersiz görünen atık malzemelerin estetik ve sanatsal bir değere dönüştürülebileceğini göstermiştir. Katılımcıların atıkları yalnızca fiziksel bir malzeme olarak değil, aynı zamanda öğrenme, yaratıcılık, ifade ve toplumsal farkındalık aracı olarak değerlendirdikleri gözlemlenmiştir. Çalışma, sanatın sürdürülebilirlik bilincinin geliştirilmesinde etkili bir araç olabileceğini ortaya koymuştur.

Sonuç: Atık malzemelerin sanatsal üretim süreçlerine dahil edilmesi, sürdürülebilir yaşam biçimlerinin desteklenmesine ve çevresel farkındalığın artırılmasına katkı sağlamaktadır. Bu yaklaşım, eğitim yoluyla

sürdürülebilirlik bilincinin geliştirilmesini hedefleyen Birleşmiş Milletler Sürdürülebilir Kalkınma Hedefleri ile uyumludur. Modelin yaygınlaştırılması, eğitim politikalarında sanat temelli sürdürülebilirlik programlarına yer verilmesi ve yerel paydaşlarla iş birliği içinde ölçeklenebilir pilot projelerin desteklenmesi önerilmektedir.

Anahtar Kelimeler: Sanat, Geri Dönüşüm, Sürdürülebilirlik, Sıfır Atık.

Introduction

The transformation in production processes brought about by the Industrial Revolution led to an increase in production capacity and the proliferation of single-use products. This situation resulted in waste accumulation to an extent that nature could not cope with on its own, while traditional repair and reuse practices gradually lost their importance. As part of nature, humans exist in an inseparable relationship with it. The Anthropocene era, which emerged alongside the Industrial Revolution, period of significant technological advancements, has irreversibly altered the relationship between humans and nature (Tan, 2022, p. 23). With the acceleration of urbanisation, the promotion of mass consumption, and the increase in plastic use, waste management has become a serious problem with structural and sustainability dimensions. In this context, recycling and zero-waste approaches, which are designed to redefine the material cycle, have gained significant prominence.

Historically, while resource recovery became widespread during periods of war and famine, consumption-oriented lifestyles in times of peace significantly increased waste production. These developments paved the way for heightened social awareness of environmental impacts and the formation of preventive policies. Consequently, both local authorities and institutional structures began to develop recycling strategies and zero-waste policies. These conceptual approaches prioritise holistic models that focus on reduction, reuse, and closed-loop solutions in production and design processes, rather than viewing waste solely as a result that must be disposed of.

Recycling can be defined as the process of converting waste materials into new products and materials. This process has two primary benefits: firstly, it reduces the amount of waste sent to landfill sites; secondly, it contributes to the conservation of natural resources. Other approaches that complement this process include repair and reuse. Repair extends the life of a product by restoring damaged or broken items to a functional state, while reuse aims to prevent waste generation by allowing a product to be used again for its original purpose. Upcycling, on the other hand, differs from these methods in that it aims to transform waste materials into new products with higher added value, thus offering both economic and creative potential. These strategies are evaluated within the framework of the circular economy approach, which aims to reduce the waste burden resulting from overconsumption;

they serve environmental sustainability by increasing resource efficiency.

However, these methods must be used effectively by raising sufficient awareness. Governments are developing environmental policies. These are being implemented on a large scale alongside the sustainability and circular economy plans that governments have begun to implement. However, raising awareness on an individual level also brings about significant changes. A concept that has emerged within this paradigm is that of the circular economy. The linear economic model is not sustainable, as it fails to recognise waste as a problem and leads to resource and energy shortages over time. While the linear economy focuses solely on the continuity of economic gain, the circular economy works towards the use of products for as long as possible or as many times as possible. In the circular economy, the reuse of products that are repaired, recycled, or given a new function, and the minimisation of waste generation are fundamental principles. "The waste management hierarchy is an important guide for conserving resources, preventing environmental pollution, and establishing a sustainable waste management system. Preventing waste generation is the first preferred step in the hierarchy" (Aybike Mısır, 2022, p.70). Before products and materials are considered waste, it should be assessed whether the product can be reused or converted to gain a new function. However, in cases where reuse is not possible, disposal is pursued. When recycling is not possible, different methods are used to dispose of waste. The harmful consequences of methods such as incineration and landfill have also been observed. For example, most waste becomes toxic when incinerated. Due to the harmful contents of the incinerated materials, dioxins and toxic flame retardants are released into the air. Along with the materials, incineration releases dioxins from plastics and toxic flame retardants from televisions, computers, and textiles (Murray, R., 1999). Although new methods have been developed, one reason for attempting to reduce waste as a first step towards sustainability is precisely this. When individual action is required, paying attention to product contents when purchasing, along with consuming only what the individual consumer needs, plays an important role. Subsequently, recycling and reusing waste to adopt a sustainable form of use are also important steps. With the introduction of a charge for shopping bags in January 2019 to reduce plastic use, a 75% reduction in plastic bag use was achieved in 2020 (Aybike Mısır, 2022, p. 73).

Waste, a problem that needs to be solved for society and the economy, can begin to be regarded as a valuable resource requiring a solution (Steffen Lehmann, p. 157) thanks to the zero-waste approach and the effective management of waste conversion processes. The 1960s, when the waste problem was recognised, were a period that saw the emergence of ecological art. Artists, using the powerful and effective language of art, began to produce works related to the subject, and nature began to be used not only as a depicted object (Tan, 2022, p. 23) but also as the material or method of expression itself. In this process, art has

demonstrated the same attitude towards waste that it has shown towards many universal problems that have arisen throughout history. "Although the idea that technology would create problems was put forward in the early 19th century, it failed to reach a wide audience. Addressing the waste problem through art, one of the most effective means of expression, led to the emergence of a different understanding of art. Ecological art projects, which aim to preserve ecological balance in a contemporary sense and demonstrate an activist stance with the goal of raising social awareness, are important in terms of reaching large audiences in a short period of time" (Çınar, 2019). It is evident that artists who are engaged in endeavours to elevate environmental consciousness through the medium of ecological art projects, with a particular emphasis on the symbiotic relationship between humanity and nature, have given rise to a plethora of diverse artistic creations. Artworks such as environmental installations, sculptures, performances, and videos reveal situations and concepts that need to be considered and questioned regarding the relationship between humans and nature, the transformation of this relationship, and its impact on the world and humans (Yazgünoğlu, 2021, p.79).

The Reflection of the Waste Problem in Art and its Relationship to the Project

Art encompasses conceptual frameworks, areas of convergence, and methods of inquiry that are not explored by scientists and engineers, offering opportunities for recognising and synthesising differences beyond traditional approaches to critical thinking (Azamet, 2019, p.1456). In contemporary art, the use of unlimited materials is highlighted using waste. The inclusion of waste in art has been seen since the 1900s. During this period, when George Braque began applying his unique collage technique using pieces of paper, Kurt Schwitters and Pablo Picasso also produced the first examples of the assemblage technique by taking their collage technique created with waste materials into the third dimension (Kocalan & Tunç, 2023, p. 828). The Cubist movement demonstrated that art could be created using materials other than traditional art supplies by using discarded materials (Sağlam & Enginoğlu, 2016, p. 46). Kurt Schwitters' artistic works can be cited as the first examples of art made from discarded materials (Figure 1).



Figure 1. Kurt Schwitters, Merzbild Rossfett, 1919

The creation of artistic installations using every day and discarded materials developed significantly between 1912 and 1913 with ready-made objects by Pablo Picasso and Marcel Duchamp (Hodge, 2022, p. 205). Following Picasso and Duchamp's pioneering use of ready-made objects in many fields, they marked the beginning of what the Dadaists termed unlimited art (Tunç, 2022, p. 10). Since those years, the use of waste materials has continued unabated, becoming a form of expression incorporated into every field of art and almost all techniques. Working with found objects, Robert Rauschenberg created a unique art form by using collage and assemblage techniques, as well as extracting traces of the objects (Taştan, 2021, p. 739). In addition to using the found objects themselves, he developed his own unique style by employing printing and transfer techniques on canvas surfaces (Yılmaz, 2012, p. 123). The style he developed also served as a guide for subsequent movements and artists. The similarity between Rauschenberg's work and this study lies in the use of found materials, which might be considered mere waste, as a means of artistic expression.



Figure 2. Robert Rauschenberg, *Retroactive II*, Oil and Silkscreen Ink On Canvas 213.4 x 152.4 cm, 1963

The use of waste materials is highly versatile, encompassing applications such as dimensional use, affixing to a surface, or extracting their imprints. "Compared to other plastic arts, printmaking can be considered a discipline that is quite rich in terms of technical knowledge, material knowledge, experimentation, and creativity" (Bahar, 2019, p. 3). In the original printmaking technique, it is possible to extract the traces of waste materials by passing them through a press machine. When original printmaking is practised in a sustainable context, it has been found to have positive effects in sensory, cognitive, and social terms (Tosun & Mamur, 2025, p. 103). It has been concluded that original printmaking workshop processes focused on sustainable creativity contribute to teacher candidates in cognitive, emotional, and social contexts.

This project utilises materials and products that have been classified as waste but can be reused. Furthermore, participants will be made aware of methods that they themselves can implement appropriately. The project aims to raise participants' awareness of zero waste, develop their artistic perspective, increase their interest in art, and integrate the artistic values they acquire into their scientific and social lives. Beyond this, the second key objective is the elimination of waste through art, with a view to enhancing the environment aesthetically. As part of nature, humans share common characteristics with all living beings. All living beings

consume throughout their lives to meet their needs (Dal, 2017, p. 4). However, unlike animals, humans have not only physical but also psychological and social needs. To meet all these needs, they consume, use, or destroy services and goods (Bakır & Çelik, 2013, p. 47). These psychological and social needs are at the centre of efforts to encourage consumption.

The project aims to raise participants' awareness of waste issues by enabling them to realise what kind of artistic work can be created from collected waste, thereby encouraging them to take an active role in the project. A systematic waste management approach is required to minimise the environmental impact of waste. With the increase in excess consumption, products are being discarded as waste before the end of their useful life, leading to the emergence of the waste problem. Waste emerged with the Industrial Revolution, when factories were established and production increased. The term 'waste' can be defined as materials that have lost their function and are no longer in use (Çınar, 2019, p. 208). However, activities carried out to increase production have necessitated continuous consumption, and efforts have been made to keep the public in a state of constant consumption. The first steps have been taken towards an era of rapid consumption where shopping has become a priority beyond what is needed (Özeskici, 2022, p.61). Products deemed old have been discarded as waste without losing their functionality to purchase new products. Recycling involves transforming objects classified as waste into usable items by altering their form or completely converting them. Increasing waste and certain waste disposal methods have caused serious damage to nature. Consequently, because of an accelerating consumer culture, the habitats of biological diversity have shrunk. The emergence of land art in the 1960s was no coincidence (Özeskici, 2022, p.60). The effects of waste have become an increasingly global problem, going beyond being a local issue (Çınar, 2019, p.205). Various solutions have been proposed for the many problems that negatively affect the environment and human life.

The first step that can be taken individually is to refrain from purchasing surplus products. The next step is to reuse the product by giving it different functions. Sending unusable products to recycling centres to be reused or converted into energy contributes significantly to sustainable waste management. If waste cannot be recycled in any way, it must be disposed of (Aybike Mısır, 2022, p. 70). There are many methods used for waste disposal. Some of these methods can have harmful effects on nature and humans. One of the aims of this study is to recycle and reuse waste through art, thereby minimising the damage waste causes to nature. In our country, while some studies are being conducted on zero waste, individual awareness is of great importance. Furthermore, the aim of this study is to develop individuals' artistic perspective by making production an art form, to increase their interest in art, and to ensure that they integrate the artistic values they acquire into their scientific and social lives.

The Aim of the Research

This research, which focuses on the project process, centres on the evaluation of recyclable and reusable waste generated by consumption for artistic purposes. Concepts such as rubbish, waste, and recycling constitute current issues in modern society. Production methods, which changed particularly with Industry 1.0, have shaped human life for approximately 200 years. While production was limited to meeting human needs prior to the 1800s, over the following centuries, it went beyond meeting needs and transformed into a system of trade and monetary relations. With this transformation, more than what was consumed was produced, and subsequently, a consumption pattern was established. Rapid consumption beyond necessity led to the emergence of consumed, unused waste. Many of these waste materials, which are reusable and recyclable, have become one of the world's pressing issues. The current concept that has emerged at this point is the "circular economy". The circular economy is an economic system that aims to eliminate waste and pollution by keeping products, components, and materials in use for as long as possible. This is the opposite of the traditional linear economy based on the take-make-dispose model.

This study involves the recycling and reuse of materials considered waste within the scope of sustainability, resulting in the creation of an art product. In contemporary ecological art, production materials are sourced from nature and used as objects of nature art, or productions are exhibited in public spaces, becoming objects of nature art. "The reasons why artists use nature can be explained in the context of "art in public spaces", which they prefer not only because the concept itself is to be conveyed, but also because it reflects society's place in the ecosystem (Tan, 2022, p. 37)". In this project, waste recycling will be achieved through artistic means. The use of waste objects in artworks can be seen in the attitudes and approaches of artists. For example, numerous artists, including Yong Ho Ji Ha Schult (1978-), Jason Mecier (1968-), Sayaka Kajita Ganz (1976-), Ptolemy Elrington (1965-), Charles Nassar (1965-), Pascale Marthine Tayou (1967-), and Durul Bakan, have created various works in response to popular culture, environmental pollution, and uncontrolled consumption (Kocalan & Tunç, 2024). Within the scope of this project, as in the artworks found in the literature, waste materials found in the environment will be brought together to create works based on original printing techniques. The reason for choosing original printing techniques is that they are artistic techniques suitable for working with waste materials.

Method

As a method, the liberating/developmental/critical action research design, a type of qualitative research method, was used. Action research is a research approach that involves systematic data collection and analysis by a practitioner directly involved in the application, such as a manager, teacher, or education specialist working in a school, either by themselves

or with a researcher, to identify problems related to the application process or to understand and solve an existing problem (Yıldırım & Şimşek, 2006). Since the project is application-based, the methods and research techniques were selected accordingly. These choices were made to provide the practitioner with new knowledge, skills, and experience, thereby fostering a critical perspective.

Project Process and Findings

The project began with participants collecting waste they saw in their immediate surroundings. First, announcement posters (Figure 2) were hung in various areas of the Faculty building. Participants were asked to bring the waste they collected to the designated drop-off area indicated on the poster.



* Bu etkinlik KBÜ Bilimsel Araştırma Projeleri tarafından desteklenen KBÜBAP-24-ABP-062 no.lu "Sıfır Atık ile Baskı Resim Yapımı, Özgün Baskı Resim Atölyesi" projesi kapsamında gerçekleştirilmektedir.

Figure 3. Event Announcement Poster

On June 5, 2024, all equipment was prepared in the faculty cafeteria and a temporary original printing workshop was set up. Participants who were invited and brought their waste to

the application area were explained how the process would work, and original printing work began.

The steps began with collecting waste from the environment, followed by painting the collected waste in a specific order for original printing and passing it through the printing machine. This process was carried out in a specific order, taking into account artistic values. One of the aims of the project was to draw attention to waste and transform waste from the environment into a means of artistic expression through original printing. Individuals who were hesitant in the first minutes of the event became more eager to participate as they observed the process of their peers. Within a short time, many individuals began collecting waste from their immediate surroundings and waiting in line to create their own unique prints. This situation, observed by researchers, can be seen as an important sign that awareness increased rapidly among individuals.



Figure 4. Activity area

The collected waste is colored as desired, arranged into a composition, placed on paper, and then passed through a printing press. The color applied to the waste with a roller is transferred to the paper by the force of the printing press, and then the waste on the paper

surface is carefully removed. The traces of the waste are removed from the paper press machine and taken to a separate area to dry. The dried prints are ready for display. In this work, participants began to see waste not just as waste but as a valuable object, and during the printing process, they were encouraged to experiment with different waste materials that could leave their mark.

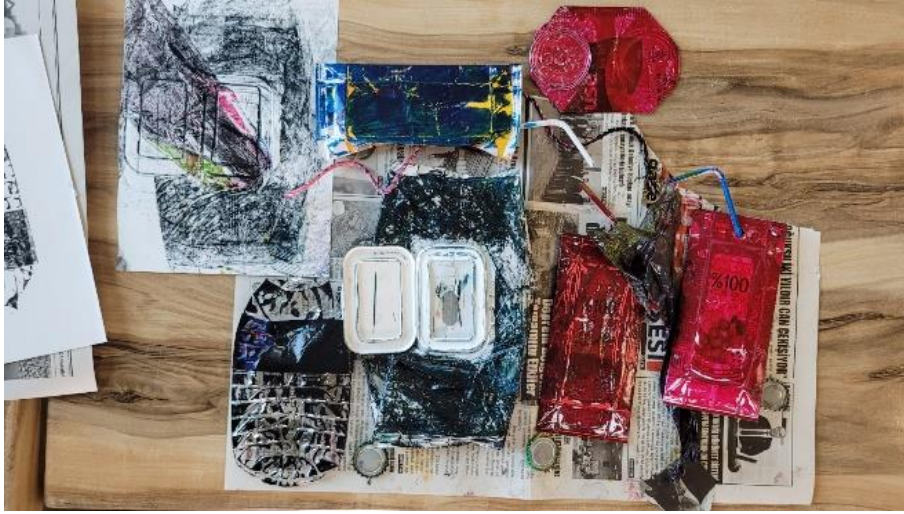


Figure 5. Waste objects



Figure 6. Printing examples made with waste objects



Figure 7. Interpretation of project outputs together with the researcher and participants



Figure 8. Project outputs

Within the scope of our zero-waste project, single-color prints created by using discarded materials such as gloves, PET bottles, and juice boxes as printing plates have revealed that waste objects—initially perceived as worthless—can be transformed into tools of artistic expression and aesthetic potential. By exploring the unique textures, surface qualities, and color transitions of these materials, students discovered the distinctive character of each piece; this transformation fostered both physical and mental awareness. The process dramatically

demonstrated the power of material to transcend its existing form and evolve into an entirely new artistic dimension. Similar studies emphasize that recycling and upcycling projects not only address environmental issues but also help waste materials gain aesthetic and functional value, encouraging society to question consumption habits and fostering environmental consciousness. Moreover, projects and research conducted by various institutions and universities have shown that waste materials are not merely subjects of recycling but also integral components of social interaction and collaborative creative processes (URL-1).

In these projects, the artworks created through the inclusion of materials in the creative process have offered viewers new perspectives on issues such as sustainable living, conscious consumption, and environmental responsibility, demonstrating how effective an artistic act can be in raising social awareness (Gülüm & Dilmaç, 2016). As a result, the findings of our study reveal students' ability to use waste materials as a means of artistic transformation, their creative problem-solving approaches, and the development of their environmental awareness. These studies parallel the results obtained in similar research, proving that re-associating art with the concept of waste in everyday life contributes to both individual and social levels of sustainability and aesthetic perception.

Conclusion and Recommendations

The evaluation of findings from the research project, which aimed to recycle and reuse materials considered as waste and ultimately to produce an artistic creation within the scope of sustainability, has led to several key conclusions.

The project demonstrated that individuals perceive waste materials not merely as physical objects but as tools for learning, expression, and social transformation. It revealed that participants transformed discarded materials into means of communication and reflection, thereby expanding their understanding of sustainability beyond environmental concerns to encompass social and cultural dimensions.

Our project enhanced students' creativity, critical thinking, and collaboration skills—competencies that directly align with the United Nations Sustainable Development Goal (SDG) 4: Quality Education, particularly the target of "ensuring that all learners acquire the knowledge and skills needed to promote sustainable development." Participants who voluntarily engaged in the project developed creative, analytical, and cooperative abilities while working with waste materials, thereby gaining knowledge and competencies that contribute to sustainable development through education.

Artistic production using waste materials transformed learning into a hands-on process, facilitating the integration of sustainable habits into everyday life. Through art-based pedagogies, individuals strengthened their capacity for empathy, inquiry, and participatory

learning. These practices encouraged teamwork, sharing, and communication, leading to tangible improvements in learning outcomes. Moreover, the transformative role of art—through its aesthetic and reflective dimensions—enhanced environmental awareness and social responsibility, prompting changes in both individual attitudes and collective behavioral intentions.

In alignment with UNESCO and similar international frameworks, art education in our project reinforced creativity, social cohesion, and sustainability awareness. The outcomes demonstrated strong parallels with international research findings that highlight the role of art in fostering critical engagement and ecological consciousness.

Our initiatives focusing on waste reduction and reuse encouraged audiences, through exhibited artworks, to question their consumption habits and to consider practical solutions promoting recycling and reuse. The exhibition prompted viewers to reflect critically on patterns of consumption, illustrating how art can serve as a catalyst for behavioral change. These outcomes support the United Nations Sustainable Development Goal (SDG) 12: Responsible Consumption and Production, particularly the objective of reducing waste generation and increasing recycling and reuse.

Art-based interventions within the project raised awareness of sustainable consumption and production, initiating measurable reflections and attitudinal shifts among audiences. The project also introduced a local model that can be linked to environmental integrity and policy development, providing a feasible framework for collaboration among schools, local governments, and civil society. Such partnerships can develop community-based, policy-aligned solutions that promote behavioral change and make tangible contributions to sustainability goals at the local level.

Ultimately, our project revealed that recycling waste materials not only contributes to reducing environmental pollution but also strengthens social awareness and responsibility through the power of artistic expression. This methodology stands out as an inspiring model in educational contexts, revitalizing environmental consciousness and incorporating aesthetic and sustainable perspectives into the learning process.

To make concrete contributions to the United Nations Sustainable Development Goals—particularly SDG 4 (Quality Education), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action)—it is recommended that this model be disseminated widely, integrated into educational policies as an art-based sustainability program, and supported through scalable pilot projects developed in collaboration with local stakeholders.

REFERENCES

AZAMET, A., & Karahan, Ç. İ. (2019). 21. Yüzyılda biyosanat [In the 21st century bioart]. *İdil*, 63, 1455-1462. doi.org/10.7816/idil-08-63-05

BAHAR, T. (2019). Güzel sanatlar eğitimi bölümlerinde uygulanan geleneksel yüksek baskıresim tekniklerine alternatif olabilecek teknik önerileri [Technical recommendations that might be an alternative to traditional relief printing techniques applied in fine arts education departments]. *İnönü Üniversitesi Kültür Ve Sanat Dergisi*. 5 (1), 1-17. doi.org/10.22252/ijca.562369

BAKIR, U & ÇELİK, M. (2013). Tüketim toplumuna eleştirel bir yaklaşım: kültür bozumu ve yıkıcı reklamlar [A critical approach to society of consumption: culture jam and subvertising]. *Selçuk İletişim Dergisi*, 7 (4), 46-63.

ÇINAR, S. (2019). Ekolojik sanat projeleri'nde okyanus atıklarının sanatsal nesnelere dönüşümü [Artistic object conversion of ocean wastes in ecological art projects]. *Uluslararası Disiplinlerarası Ve Kültürlerarası Sanat*, 4 (9), 203-215.

DAL, N. E. (2017). Tüketim toplumu ve tüketim toplumuna yöneltilen eleştiriler üzerine bir tartışma, Sanat Tasarım ve Mimarlık Araştırmaları Dergisi. *Mehmet Akif Ersoy Üniversitesi Sosyal Bilimle Enstitüsü*, 9 (19), 1-21.

GÜLÜM, B. & DİLMAÇ, O. (2016). Kamusal alanda atık malzemelerle yapılan sanatsal çalışmaların sürdürülebilir kent hayatına katkıları [Contribution of artistic works using waste materials to create sustainable urban life in public spaces]. *Sanat ve Tasarım Dergisi*, 18, 77-95.

HODGE, S. (2022). Modern Sanatın Kısa Öyküsü. Deniz Öztok (Çev.). İstanbul: Hepkitap.

KOCALAN, M., & TUNÇ, M. (2024). Gölge sanatında atık nesne kullanımı: Sue Webster ve Tim Noble'in saklı imgeleri [Use of waste objects in shadow art: hidden images of Sue Webster and Tim Noble]. *Art-E Sanat Dergisi*, 16 (32), 827-846.

MISIR, A., & ARIKAN, O. (2022). Avrupa Birliği (AB) ile Türkiye'de döngüsel ekonomi ve sıfır atık yönetimi [Circular economy and zero waste management in European Union (EU) and Türkiye]. *İTÜ Dergisi-e*, 1 (1), 69-78.

ÖZESKİCİ, E. (2022). Biyo ve ekolojik sanat bağlamında yedinci kıta [The seventh continent in the context of bio and ecological art]. *ARTS: Artuklu Sanat ve Beşeri Bilimler Dergisi*, 9, 59-74.

SAĞLAM, F., & ENGINOĞLU, T. (2016). Atık nesnelere sanat eğitiminde kullanılması [The

Mustafa Tunç, Evrim Çağlayan, Hilal Sansar, Meryem Duran, İrem Çıtcı, Elif Ocakcı, "The Artistic Conversion of Waste for a Sustainable Future: Printmaking with Zero Waste", **ART/icle: Journal of Art and Design**, 6 (1), June 2026, pp. 85-102.

use of waste objects in art education]. *Batı Anadolu Eğitim Bilimleri Dergisi*, 07 (14), 45-58.

TAN, Y. (2022). Doğanın sanata yansımaları ve ekolojik sanat. *İnsanat: Sanat Tasarım ve Mimarlık Araştırmaları Dergisi*. 2(2), 21-41.

TAŞTAN, R. T. (2021). Robert Rauschenberg'in kombine serisi'nde (1954-1964) buluntu nesnelerin dönüşümü. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi*, 10(1), 728-753.

TOSUN, D., & MAMUR, N. (2025). Özgün baskı atölye eğitiminde sürdürülebilir odaklı yaratıcılığın geliştirilmesi: bir eylem araştırması [Fostering sustainability-focused creativity in printmaking studio: an action research]. *Mersin Üniversitesi Eğitim Fakültesi Dergisi*, 21 (1), 85-108.

TUNÇ, M. (2022). *Sanat eğitiminde asambraj tekniğiyle sıfır atık projesini eğitim öğretime uyarılama*. (Unpublished Ph.D. Dissertation). Marmara Üniversitesi Eğitim Bilimleri Enstitüsü. İstanbul.

URL-1. *Sıfır atık iyi uygulama örnekleri*. 30 nisan 2025 tarihinde <https://sifiratik.comu.edu.tr/sayfa/iyi-uygulama-ornekleri-r7.html> adresinden alınmıştır.

URL-2. *United nations in Türkiye. sustainable development goal 4: quality education | united nations in ...* <https://turkiye.un.org/en/sdgs/4>

URL-3. *Unesco uk. arts for transformative education*. https://unesco.org.uk/site/assets/files/13333/arts_for_transformative_education_-_a_guide_for_teachers_from_the_unesco_associated_schools_network_2024.pdf

URL-4. *United nations. the global goals goal 12: responsible consumption and production - the global goals* <https://globalgoals.org/goals/12-responsible-consumption-and-production/>

URL-5. *UNEP - Un environment programme. goal 12: responsible consumption and production*. <https://www.unep.org/topics/sustainable-development-go>

URL-6. <https://sifiratik.gov.tr/> (Erişim tarihi: 3.05.2025)

URL-7. <https://www.meisterdrucke.com.tr/fine-art-baski/Kurt-Schwitters/694632/%C4%B0simsiz-%28Merzbild-Rossett%29.html>

URL-8. <https://www.rauschenbergfoundation.org/art/artwork/retroactive-ii>

YAZGÜNOĞLU, K. C. (2021). İnsan çağında çevresel estetik: güzelin ve çirkinin ötesinde "doğasonrası" ekolojiler. *Doğu Batı Düşünce Dergisi*, 83.

YILDIRIM, A. & ŞİMŞEK, H. (2006). *Sosyal bilimlerde nitel araştırma yöntemleri* (6. Baskı). Ankara: Seçkin Yayıncılık.

Mustafa Tunç, Evrim Çağlayan, Hilal Sansar, Meryem Duran, İrem Çıtcı, Elif Ocakcı, "The Artistic Conversion of Waste for a Sustainable Future: Printmaking with Zero Waste", **ART/icle: Journal of Art and Design**, 6 (1), June 2026, pp. 85-102.

YILMAZ, S. (2012). 1950 sonrası sanat akımlarının gelişiminde Robert Rauschenberg'in etkileri. *Sanat ve Tasarım Dergisi*. 1 (10), 113-127.