Original Paper

The aesthetics of recycling as an entry point for innovative artwork related to environmental issues

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Abstract. *This research examines the aesthetics of recycling as an entry point for creating innovative artwork related to environmental issues. It explores the relationship between art and the environment, highlighting the importance of environmental protection and sustainable processes. The study*

also addresses challenges in producing sustainable artwork and innovative methods for transforming old materials into usable ones. The research emphasises the role of recycling in preserving the environment and reducing pollution while promoting awareness of this issue through art. The research suggests that innovative artworks produced using recycling techniques can serve as a sustainable and innovative solution for environmental design. This research aims to promote recycling as an entry point for artists and designers to create innovative artworks, raising awareness of environmental protection and sustainable development. It seeks to enhance societal and environmental culture and study the impact of artworks in decoration and interior design on the environment. Future research can explore improving the environmental quality of homes and public buildings using recycling techniques and materials.

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1. Introduction

Recycling has become an important focus of global interest in intersecting economic and environmental issues. It presents a substantial investment opportunity with low costs and profitable returns, making it accessible to various societal segments, particularly those unable to afford high-cost investments (Rahimi & Ghezavati, 2018). It involves processing waste materials whether household, industrial, or agricultural to reduce their environmental impact. Since the 1990s, indirect recycling, which repurposes waste into new products using the same materials, has gained prominence. This benefits consumers who cannot afford new products and plays a vital role in waste management.

Visual arts are a primary medium for expressing environmental issues. Artists can significantly raise public awareness about environmental protection by demonstrating how recycled materials can be used creatively. Recycling in visual arts involves reusing materials from daily life and subjecting them to new shaping techniques to create innovative artistic works. This practice is crucial for achieving sustainability by reducing resource exploitation, mitigating pollution, enhancing financial sustainability through raw material provision, and creating

job opportunities. Socially, recycling can promote environmental awareness and job creation (Anjum et al., 2016).

Artworks, defined as creations reflecting the artist's creativity and expression, vary in forms, sizes, styles, and content. They encompass various techniques, including sculpture, painting, drawing, textile art, ceramics, and mixed media (Lucie-Smith, 2003; Sampah et al., 2024). They can reflect environmental issues and promote awareness of challenges like climate change and environmental protection (Edwards, 2022).

2. The research framework

The limited use of sustainable techniques in the art industry, specifically in the design of artistic creations, has led to increased consumption of natural resources and environmental pollution. Art is greatly affected by climate change, particularly in terms of resource availability and quality. This research focuses on how to benefit from the aesthetics of recycling in the design of innovative artistic creations in the face of environmental issues. It delves into the significance of recycling within sustainable art practices and its positive environmental impact. It emphasises the crucial role of sustainability in artistic production, particularly in light of global challenges such as climate change, and advocates for adopting sustainable methods and techniques that conserve natural resources.

The research objectives are:

1. To study the challenges of climate change and its impact on art production in general and artistic creations, and how to transform these challenges into opportunities for developing sustainable art.
2. To identify sustainable design methods, techniques, and recycled materials and how to use them to produce sustainable art creations.
3. To apply these methods and techniques in designing and producing a sustainable artistic creation and evaluate the experimental results.

The vision for sustainability presented involves showcasing how art can act as a catalyst for environmental awareness by repurposing waste into innovative artworks. An approach is proposed that not only showcases the creative possibilities of recycling but also fosters dialogue about environmental stewardship. The contribution to sustainability discourse lies in connecting the realms of recycling and art, providing insights into how recycled materials can be

transformed into meaningful expressions that resonate with audiences on both aesthetic and ecological levels.

3. Theoretical and practical aspects of recycling's aesthetics

This section is divided into three parts. First, it investigates the concept of recycling and its relationship to sustainability, sustainable art, and the significance of recycling in relation to environmental issues. Second, it studies the relationship between recycling and artistic craftsmanship, investigating how recycled materials contribute to new artistic craftsmanship as well as the aesthetics of recycling's impact on artistic expression. The third part considers the obstacles that artists face while creating sustainable art. It examines works by global artists such as David Buckland, Alice Chappel, and Stephanie Kilgast and their approaches to recycling and sustainable art.

3.1 Recycling, artistic craftsmanship and the environment

Recycling can offer a way of effectively addressing environmental issues by providing a sustainable means of resource management. It repurposes old materials, reducing waste and the need for new resource extraction, thereby minimising environmental damage (Yu et al., 2019). Recycling significantly reduces carbon emissions, improves air quality, and preserves natural resources (Unescwa, 2020). By using eco-friendly and recycled materials, sustainable art merges creativity with environmental stewardship, balancing artistic expression with sustainability principles like environmental protection, social justice, non-violence, and democracy. As defined by Maja and Robin Fox, it challenges societal norms, proposes alternatives, respects cultural and biological diversity, and fosters interaction between artist and audience (Fox, 1983).

Art made from recycled materials reflects environmental and social values, encouraging change and conveying messages about sustainability. Such works engage audiences, highlight environmental challenges, and stimulate thinking about climate change (Gorsegner, 2016). Artists showcase creative transformation by reimagining recycled materials and promoting sustainable and aesthetically pleasing future visions through recycling.

According to Tadesse & Melesse (2022), handicrafts are considered an art form that encompasses artistic, aesthetic, and functional values through techniques that align with the nature of each material or medium used to produce the artwork. Materials are fundamental to an artwork's structure, embodying the

artist's vision. Artists have long experimented with and recycled various materials, combining intellectual and technical innovations. In artistic crafts, materials hold both structural and aesthetic values, making them central to the production process. Consequently, recycling materials in art has become a modern trend, emphasising the reuse of recyclable materials to create innovative artworks. This trend seeks to balance artistic creativity with environmental sustainability by using recycled or biodegradable materials. Artists leverage recycled materials to communicate their vision, crafting unique works. For instance, recycled plastic sculptures highlight environmental impact, urging responsible consumption. Similarly, colourful designs crafted from recycled paper promote recycling and waste reduction and promote responsible consumption and sustainable waste management (Bahrami & Jafari, 2020; Mansour et al., 2020).

Upcycling, a practice of creatively reusing waste, has ancient roots. From prehistoric times, humans crafted tools and shelters from available materials. Today, millions worldwide, with limited resources, rely on upcycling for survival, often creating "informal housing" from discarded items (Das, 2012). Recycling encompasses processing various materials like paper, plastic, glass, metals, fabrics, clothing, and tires. Paper is converted into pulp for new paper production, while plastic is moulded into items like bottles and furniture. Glass is melted and reshaped, metals are used for cans and tools, and fabrics for carpets and apparel. Tires find new life as shoes, flooring, and furniture.

Recycling adds aesthetic value by redefining classic art in novel ways. Diverse and unique artworks repurpose materials that were previously wasted, including plastic, glass, paper, metals, and more. Recycling gives artworks new meaning and original creative ideas. The artwork has a visually appealing quality due to the different forms, colours, and textures of the recycled materials. Repurposed glass, for example, can be used to create colourful installations, and textiles can be used to make one-of-a-kind garments or provide visual coherence to artwork.

Recycling enhances artwork by transforming it into a story from recycled materials, bringing its history and unique narrative to life. This enhances the artistic and spiritual value of the artwork. Viewers can interact with the recycled artwork, learning about the materials and their transformation, fostering communication and interaction between the artist and the audience. Recycled artworks balance aesthetics and message, inspiring viewers to think and act to bring about change.

3.2 The visual artist and sustainable artistic craftsmanship

The visual artist plays a crucial role in promoting sustainable art, as they can be pioneers in using sustainable and recyclable materials in their artwork. Their role is evident in shedding light on sustainability and environmental issues and raising environmental awareness through their artistic works. Several aspects can be explored regarding the relationship between the visual artist and sustainable art.

Choosing sustainable materials

Choosing sustainable materials is key to producing sustainable artwork. The visual artist can use recycled materials such as paper, upcycled glass, or reused metals. This choice can help reduce the use of environmentally harmful materials and contribute to the preservation of natural resources.

Balancing aesthetics and sustainability

Balancing aesthetics and sustainability is an important challenge in producing sustainable artwork. The visual artist should combine artistic beauty with sustainable materials to reflect the intended message and captivate the viewers' attention. This balance can have a powerful impact on the viewers, encouraging them to think about sustainability and work towards increased environmental consciousness (Lineberry & Wiek, 2016).

Innovation and experimentation

The visual artist inspires innovation and experimentation in sustainability. By experimenting with different sustainable materials, the visual artist can create new techniques and methods for producing sustainable artwork. This encourages innovative thinking and advancements in the field of sustainable art.

Social and environmental messaging

Artists can use sustainable artwork to address social and environmental issues, like climate change. These pieces convey powerful messages, raising awareness and inspiring action for environmental preservation. They motivate viewers to engage in positive change efforts (Barrett, 2016). Adopting the concept of sustainability in visual art represents a significant shift toward environmental conservation and sustainable development. Creating sustainable artwork requires the visual artist to face challenges that may arise from working sustainably and its impact on their artistic work.

Choosing sustainable materials

Selecting sustainable materials is one of the main challenges for the visual artist. They may struggle to find materials that align with sustainability and meet their artistic needs. The artist may need to explore alternative sustainable materials such as recycled or organic natural materials.

Sustainable production techniques

The visual artist may encounter difficulties applying sustainable production techniques in their artistic work. They may need to acquire new skills and learn innovative techniques that integrate sustainability into production.

Balancing artistic message and sustainability

Visual artists face a challenge in balancing the artistic message with sustainability. They must consider how to express their artistic vision using sustainable materials and focus on sustainability-related topics.

Awareness and engagement with the audience

Visual artists face the challenge of promoting sustainability through their work, necessitating clear communication of their vision and role. Achieving sustainable art involves research, learning, and innovation to master recycling aesthetics. The article discusses global artists' contributions to raising awareness of environmental issues, highlighting art's potential to drive change beyond institutional policies.

3.3 Works by global artists

Global artists with innovative visions of recycling and sustainable art provide opportunities for creativity and artistic expression, setting clear examples and serving as role models for all visual artists concerned with environmental issues. The following renowned artist's artworks provide some significant examples.

David Buckland

David Buckland is an artist, director, writer, and curator. He is the founder and director of the international project "Cape Farewell," which brings together artists, scientists, and educators to build collective awareness and cultural response to climate change and its environmental impact. His artistic works utilise photography, video, and installations to illustrate the human impact on the environment and the challenges it faces. The "Cape Farewell" project aims to unify science and art to create positive actions in addressing climate change. Buckland uses art as a communication tool to convey his messages, collaborating

with artists, scientists, and creatives to create artworks that reflect the effects of climate change, enhance awareness, and inspire action (Farewell, 2023). Buckland utilises diverse art mediums such as drawing, photography, installation, and performance to address climate change, emphasising art's role in raising awareness and driving social change. He encourages audience engagement with environmental issues and promotes collaborative efforts for engaging with sustainability.

Buckland's works are in permanent collections at the National Portrait Gallery in London, the Centre Pompidou in Paris, and the Metropolitan Museum of Art in New York. Some of his notable works include:

Figure 1. "Discounting the future" (2008).

Ice Texts series: In this work, he uses light and shadow to write messages on the ice at the North Pole.

Figure 2. "Internal combustion" (2012)

Carbon 13: In this work, he uses an old car engine and pipes to show the amount of carbon emitted by a single car per hour.

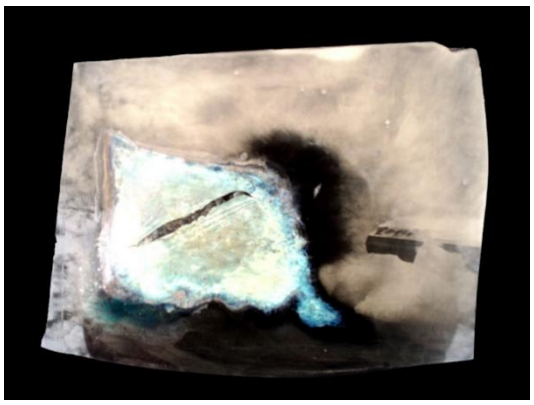

Figure 3. "Ice Shards" (2005)

Ice Shards: In this work, he uses sculpted and illuminated ice shards to create a stunning visual effect and remind viewers of the threat faced by ice due to climate change. (Figure no.3)

Source: Art, 2023; Farewell, 2023

Alice Chappel

Alice Chappel is a creative contemporary artist known for her sustainable and artistic works that utilise recycled materials to create unique art pieces. Her work combines her passion for art with her interest in sustainability and recycling. The artist's unique pieces, incorporating recycled materials like plastic, glass, old metals, and electronic waste, reflect artistic vision and environmental themes. Chappel's innovative techniques transform recycled materials into stunning pieces, inspiring and educating audiences about recycling and preserving natural resources (Wiguna et al., 2021). The artist has exhibited her work in international and local exhibitions, earning widespread recognition and acclaim in sustainable art. Notable works include winged insects in Figures 4, 5, 6, and 7.

Figure 4

Figure 5

Figure 6

Source: Sayidaty, 2023

Figure 7

Stephanie Kilgast

Stephanie Kilgast is a French visual artist and painter who primarily works in the field of sustainable and environmental art. Her work focuses on recycling and using recycled materials in her artistic creations. She transforms everyday discarded objects and waste materials into colourful, innovative pieces, using materials like plastic, paper, metals, glass, and old coins. Her pioneering work aims to create a positive environmental impact and raise awareness about recycling and preserving the environment (Wiguna et al., 2021). Kilgast's art prompts reflection on the interplay between creativity and sustainability, crafting marine organism-inspired pieces from waste. Her innovative collection garners global acclaim, illustrating Art's power to convey environmental messages and promote conservation awareness.

Figure 8

Figure 9

Figure 10

Figure 11

Figure 12

Figure 13

Source: Petitplat, 2022; Sayidaty, 2023

Kilgast's works have inspired the applications of this research in the field of recycling and sustainable Art. Using recycled materials in her artistic creations, she provides a living example of how to sustainably utilise discarded materials and reimagine things that may seem useless, transforming them into innovative art pieces. Her artworks showcase innovation and creativity in recycling, using recycled materials like plastic, paper, metals, and glass (Wiguna et al., 2021). The vibrant artworks convey messages of sustainability and environmental preservation by transforming old items and waste into new creations. Her creativity highlights the aesthetic and creative potential of recycled materials, stimulating individuals to reconsider disposability and embrace recycling for environmental and economic benefits.

4. Research applications

This section describes the results of an applied experiment conducted with a group of students, utilising various waste materials such as paper and plastic, and

recycling them through different artistic techniques, including heat, fusion, and additive shaping. Each shaping technique could be used individually, combined in pairs, or incorporated altogether to create a unique artistic style. This approach enriched the artworks and emphasised the aesthetics of recycling. The transformation process rendered the original raw materials, thereby foregrounding the aesthetics and underscoring the value of recycling and sustainable art. The applied works produced during the experiment are presented as follows:

First artwork

Figure 14

The artwork title is "Marine Coral". The materials used were tin plates, threads, papers, and colours. The artistic technique used for this artwork was fusion, additive, and paper pastes.

Second artwork

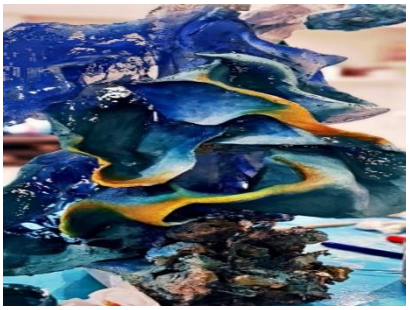

Figure 15

The artwork title is "Marine Invertebrates". The materials used were nylon plastic wrappers, paper pastes, and colours. Fusion and additives were used as an artistic technique.

Third artwork

Figure 16

The artwork title is "Fish". The materials used were clear nylon bags, colours, heat shaping, and additives were used as an artistic technique.

Fourth artwork

Figure 17

The artwork title is "Coral Reefs". The materials used were tin plates, and fusion and additives were used as artistic techniques.

Fifth artwork

Figure 18

The artwork title is "Jellyfish". The materials used were plastic bottle colours. Fusion and heat shaping were adapted as artistic techniques.

Sixth artwork

Figure 19

The artwork title is "Marine Invertebrates". The materials used were plastic bottle colours, and fusion, heat shaping, and additives were used as an artistic technique.

Seventh artwork

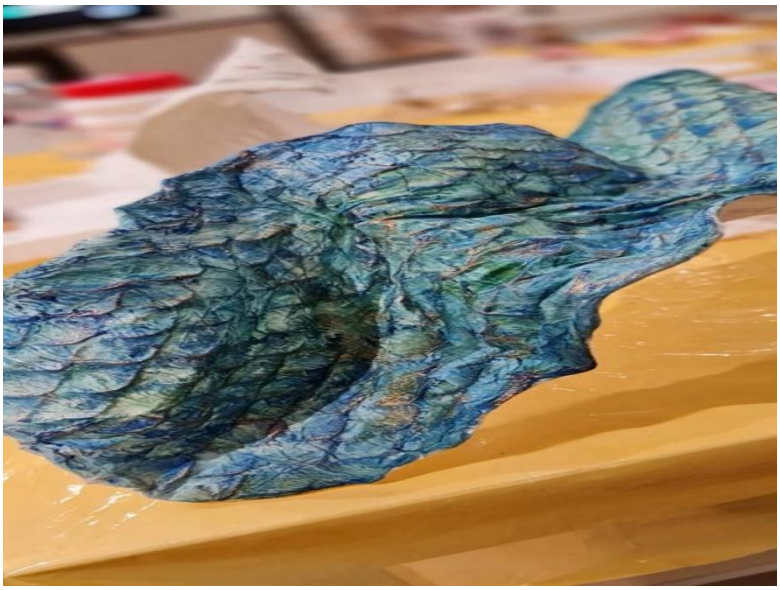

Figure 20

The artwork title is "Fish". Materials used for the artwork were metal window wires, paper pastes and colours. Fusion and additives were used as an artistic technique.

Eighth artwork

Figure 21

The artwork title is "Marine Invertebrates". Materials used were nylon bag colours, whereas fusion and additives were used as an artistic technique.

Ninth artwork

Figure 22

The artwork title is "Marine Animal Structure". Materials used metal window wires, paper pastes, colours. Fusion and additives were used as an artistic technique.

5. Discussion

The research examines the aesthetic impact of recycling as a creative approach to producing artistic creations, particularly in the face of climate change challenges. It seeks to explore how recycling can be used as a tool for artistic expression and addressing environmental and sustainability issues, as well as the artistic concept of recycling and its application in art. The research highlights using recycled materials and resources to create new and unique art pieces. It focuses on the beauty of this process and how artists can transform old and neglected materials into innovative artworks that reflect artistic and environmental value.

This aligns with existing literature on sustainable art practices and the role of art in environmental education. Previous studies have demonstrated that incorporating recycled materials in art can effectively raise awareness about environmental issues and promote sustainability. The outcomes of this study support these conclusions, revealing that students not only engaged creatively with the materials but also developed a deeper understanding of recycling and sustainability (Afriyie et al., 2022; Rahimi & Ghezavati, 2018).

The experiment conducted in the transformation of waste materials into aesthetically pleasing art pieces highlights the potential of art as a medium for environmental education. The inability to recognise the original raw materials in the final artworks emphasises the transformative power of art and the concept of reimagining waste. This finding resonates with the work of other researchers who have noted the capacity of art to shift perceptions about waste and resourcefulness (Brown & Green, 2019).

The artworks produced serve as practical examples of how artistic practice can be integrated into environmental education. The first artwork, "Marine Coral", demonstrates the student's ability to reimagine waste materials into complex and visually appealing structures, echoing the intricate forms of coral reefs. The use of tin plates and threads in fusion processes highlights how discarded materials can gain new life and value through artistic intervention. Following this, "Marine Invertebrates" exemplifies the integration of diverse materials to mimic the delicate forms found in marine ecosystems. The choice of nylon plastic wrappers emphasises the potential to reuse common waste products in a way that is both meaningful and educational (Bertoli et al., 2022).

"Fish", demonstrates the student's capacity to employ heat-shaping techniques to transform mundane materials into fluid and dynamic forms. The use of clear

nylon bags, typically seen as waste, in the creation of an aesthetically pleasing and environmentally themed artwork underscores the educational aspect of the project. In addition, "Coral Reefs" showcases the potential of metal waste to be repurposed into intricate and beautiful art pieces. The student's ability to manipulate tin plates into forms reminiscent of coral structures highlights the versatility and creative potential of recycled materials. "Jellyfish" highlights the fluidity and transparency of plastic bottles, transforming them into organic, ethereal forms. The application of heat-shaping techniques to create the delicate tentacles of the jellyfish demonstrates the innovative use of everyday waste in art.

"Marine Invertebrates" reflects the complexity and diversity of marine life, using plastic waste to create intricate forms that mimic natural structures. The combination of multiple techniques showcases the students' ability to experiment and innovate with recycled materials. "Fish" illustrates the potential to transform industrial waste into art. The use of metal wires to create the skeletal structure of the fish emphasises the durability and versatility of recycled materials.

"Marine Invertebrates" reflects the delicate and intricate forms of marine life, using everyday waste materials to highlight the beauty and complexity of underwater ecosystems. The student's ability to transform nylon bags into detailed art pieces underscores the educational impact of the project. "Marine Animal Structure" highlights the potential of combining industrial and organic waste materials in art. The intricate design demonstrates the students' skill in reimagining waste materials as components of complex and aesthetically pleasing structures.

Ellison et al. (2018) examine projects that bring together diverse expertise from fields such as science, engineering, and the visual arts to create environmentally conscious artworks, demonstrating the creative possibilities that emerge from this interdisciplinary approach. This experimental application provides an opportunity to explore a diverse range of artists and their approaches to using recycling as a gateway to artistic creativity. It sheds light on the creative potential of sustainable materials and provides innovative responses to environmental challenges.

6. Conclusions

The research presented in this paper aims to explore the aesthetics of recycling and sustainable art in the context of climate change and its impacts. The aim has been to show how studies of this kind can contribute to understanding and developing strategies to mitigate and adapt to these impacts. Future research can

concentrate on developing ways in which recycling techniques and materials in art is practiced as a significant means for addressing climate change challenges by balancing aesthetics and sustainability, integrating creativity with environmental responsibility and quality in homes and public buildings, increasing the positive impact on the environment of artworks in decoration and interior design. Supporting artists to help them create unique works that use recycled materials and embody sustainable values through promoting public participation and providing funding is essential for this development.

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