

Materials Responsibility and Design for Sustainability: The Role of the Arts

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ABSTRACT

This project is to investigate the significant contribution the arts can do to motivate architects and designers to be conscious of their influence on the choice of construction materials as well as to support environmentally friendly practices. Integration of sustainable approaches into all domains of production and consumption is rather essential considering the damage of the surroundings that surround us. The arts provide a dynamic stage for these events and let one alter opinions, initiate discussions, and suggest innovative methods to reduce human involvement with the natural environment. Artists and designers may influence governmental judgements in support of ecologically friendly practices and consequently raise awareness of the importance of expressing these assessments by means of their visual, spatial, and sensory features. This study aims to investigate the function of sustainability as a moderating factor in the relationship between creative expression with due respect and the material choice with suitable consideration. This study project investigates how creative professionals are using circular design models, reducing waste by means of design thinking, and utilising recycled or low-impact materials and thus improve environmental principles using case studies and qualitative analysis. The findings imply that if they meet sustainability criteria, innovative ideas have the power to enhance the surroundings and also provide visually beautiful products. Direct outcomes of the higher awareness and devotion given by creative inventions include greater environmental responsibility in purchasing choices. In the end, this study reveals that the creative arts are quite successful tools for environmental campaigning and change in addition to being a medium of expression. Combining sustainable goals with artistic innovation generates not only the encouragement of a better future but also more conscientious design and everyday living habits.

Keywords: Architects, Construction Materials, Sustainable Approaches, Environmental Campaigning, Innovation Generates.

1. INTRODUCTION

Especially in front of challenging global concerns like over consumption of material goods and environmental harm, the creative arts have a significant impact on the attitudes, behaviours, and general public understanding. The rising trend of sustainability in the creative sector over the last several years has impacted not just the practical choices decided concerning production, design, and resource management but also the visual presentation of ideas. Materials that minimise environmental harm, reduce waste, and promote renewability have been selected by artists, designers, and architects that may infuse environmental awareness into their work. This demonstrates how imaginatively they might include environmental issues into their work. These sites depend on both conceptual and material innovation and experimentation, so they find themselves at a juncture between the cultural influence and environmental responsibility they are answerable for. Thanks to sustainable development—which has evolved into a required middle ground in this process—artists and other creatives may now harmonise their work with future environmental goals. By increasing awareness of the need of utilising recyclable, biodegradable, ethically manufactured, and low-impact items, the creative industries have been rather crucial in encouraging sustainable practices and persuading consumers to use conscientious materials. Not something that has sprung from thin air; sustainability is a response to environmental calamities, improved educated standards, and greater public demand for ethical company operations (Kadyirov et al., 2021). This integration has had a quantitative effect wherein using environmentally friendly products becomes increasingly critical. This is the result of the degree of influence sustainability has on the planning and execution of creative endeavours. In this work the researcher investigates the interactions between environmental responsibility and the arts and concludes that sustainability is the theoretical and pragmatic

connection connecting artistic vision with actual environmental effect. This study seeks to make clear how demand for environmentally friendly products and services might be influenced by artistic expression. Analysing case studies in the fields of visual arts, design, and architecture, this study helps businesses as well as people to adopt more ecologically responsible behaviour (Cleries & Rognoli, 2021).

2. BACKGROUND OF THE STUDY

Since public opinion and behaviour have long been recognised to be shaped by the arts, this is especially relevant in light of the global expansion of environmental concerns throughout the last several decades. Reacting to the growing number of global challenges like pollution, resource depletion, and climate change, environmental concerns and sustainable solutions began to find their way into the work of creatives in a variety of areas. Along with graphic arts, this included architectural design, fashion, and visual arts. Many creative persons have in the past sought to use their art to educate the general public about the detrimental consequences of human activities on the environment. This has so proven useful in motivating viewers' and customers' personal responsibility. Larger environmental movement characterised by important principles like sustainable development and responsible use of resources paralleled this propensity towards eco-awareness in the arts (Caruana et al., 2021). More and more artists were exploring many options in order to minimise their influence on the environment. Among these replacements were manufactured procedures with energy economy, recyclable materials, natural colours, and biodegradable ingredients. These events started to show as people became more conscious of how their decisions about their consumer products impacted the surroundings and that the arts might be a strong instrument for promoting sustainable living. Sustainability evolved as a fundamental concept tying responsible creative output with environmental preservation. This was done to close the gap separating ethical considerations and artistic expression. From a sustainability perspective, the arts have evolved from mostly emphasising aesthetics to providing venues for contemplation of material consumption, resource depletion, and the effects of human involvement on these concerns. This shift generated more artistic environmental sensitivity. Furthermore made feasible by this combination were more ethical and circular design concepts, more sustainable materials, and that which underlined environmental care, reuse, and durability (Stoll et al., 2022). This approach immediately resulted in a move towards more cautious decision-making within creative activities, including environmental responsibility in the use of resources, arose as a tangible outcome. The creative arts inspired a trend towards sustainability in product creation and curriculum, therefore influencing a spectrum of stakeholders including companies, educational institutions, and consumers. This dynamic shift made it abundantly evident how successfully the arts may increase awareness of environmental preservation and motivate individuals to take action in that direction. Thus, in order to better understand the more general cultural and practical trends towards sustainable living, it was essential to investigate the effect of creative arts on environmental responsibility in material choices via the lens of sustainability. This understanding makes it rather evident that the arts reflect environmental challenges and actively encourage sustainable material choices, therefore influencing behaviour in two directions. It underscored how art and design may inspire environmental responsibility by bridging the gap between ecological principles and pragmatic application in an educated, creative, ethical manner. This let environmental responsibility flourish (Micklethwaite, 2022).

3. THE PURPOSE OF THE RESEARCH

The purpose of this study was to evaluate how the arts may perhaps encourage environmental stewardship in material choice. This was done using sustainability as a middle ground between creative expression and wise decision-making. The project sought to find how environmental concerns connected to creative arts. Ideas generation, fresh material introduction, and community impact experienced helped one to reach this. Creative endeavours in disciplines like architecture, visual arts, and design have produced fresh ideas on the usage of materials. Their use emphasised these methods, ethical sourcing, recyclability, and a minimal influence on the environment. This research sought to explore these ways in which these methods reflected and promoted ideas of sustainability as well as the ways in which such concepts aided designers and artists in making careful and ethical material choices thereby supporting ideals. As it offered a framework for both aesthetic innovation and ecological understanding, sustainability was able to transform creative purpose into ecologically conscientious behaviours. The construction sustainability offered made this possible. The researcher looked at many scenarios illustrating how the idea of sustainability affected artistic processes and the final products designed to be environmentally friendly. This study complied with the guidelines of this kind.

It then looked at how artists and other creatives acted morally at work as models as well as the consequences this had on changes in cultural and economic norms. This study was conducted to look at how the decision-making process on material resources interacted with artistic expression, sustainability ideas. This study clarifies the power of the arts to encourage environmental responsibility as well as personal responsibility in the course of choosing material objects. This goal attracted attention on the dynamic part the creative process performs in the development of activities benefiting the surroundings.

4. LITERATURE REVIEW

Many studies meant to investigate the link between the arts and sustainability have shown that the creative disciplines are strong motivators that greatly influence the environmentally aware material choices. Concerned about the environment, researchers in the fields of visual arts, architecture, and design changed traditional manufacturing methods to make them more environmentally friendly. One factor that ran consistently throughout all the assessments was the need of adopting locally made, recyclable, environmentally benign materials. In order to address resource depletion and provide a remark on the environment, artists sometimes used recycled materials, organic dyes, natural fibres, and biodegradable components in their work. Reflecting a shift in the overall aim of the artistic endeavour, these creative activities evolved beyond merely aesthetic innovation to environmental responsibility (Fan, 2025).

The findings of the study reveal that the arts may provide a way to augment programs aimed to promote sustainability. Embedded practice affected not just the production but also the development, perception, and presentation of art; sustainability was more than simply a concept integrated into the created work. Artists and designers embraced ideas like circular design, life cycle thinking, and the development of the lowest possible waste. These sustainability models inspired ethical creative activities that in turn enabled the material decision-making process to run smoothly. Researchers find that schools training painters and other creatives are increasingly including sustainability into their curriculum. These groups are educating aspiring artists to begin their creative process considering the environment. Public art sites, art schools, and creative communities all supported this movement and began conversations on the consequences on the environment and moral usage of resources from materials.

Research investigations conducted showed that environmental action and creative objective interacted via sustainability as a mediator. Through sustainable initiatives, the creative arts altered people's views and conduct. As these works of art tackled pollution, waste, and climate change, viewers were prompted to rethink their consumption habits and environmental values. The books cite many events with an eye towards the surroundings including performances, displays, and installations. Many real achievements were made as a consequence of these initiatives: the promotion of resource recycling and potentially harmful products were reduced. These achievements were not isolated incidents; rather, they were components of a larger professional and cultural movement wherein contemporary art methods included sustainability as a required component (Chen, 2022).

Materials responsibility was one main outcome of these forward-looking and ecologically sensitive activities. The researchers believed that awareness and education mostly determine the degree of environmental responsibility in the choosing of materials. Knowing their choices might affect the environment, artists were increasingly concerned about the materials they used and how they disposed of them. Often described as the knowledge of a material's history, impact on the environment, and eventual destiny, "material literacy" was a subject of significant interest in the literature. By openly sharing their ideas and the evidence supporting them, the creative professionals helped to disseminate this literacy, therefore inspiring their peers to likewise present their results. The case studies presented demonstrated how principles of sustainable design were used in the domains of architecture, industrial design, and fashion, thereby highlighting the fact that environmental preservation and creativity are not incompatible (Cleries & Rognoli, 2021).

5. RESEARCH QUESTION

What is the effect of Creative arts on Environmental Responsibility in Material Choices through Sustainability?

6. METHODOLOGY

6.1 Research Design

The quantitative data analysis was performed with SPSS version 25. The odds ratio and 95% confidence interval were used to determine the degree and direction of the statistical association. The researchers established a statistically significant criteria at $p < 0.05$. A descriptive analysis was conducted to identify the main features of the data. Quantitative methods are often used to assess data acquired via surveys, polls, and questionnaires, together with data altered by computing tools for statistical analysis.

6.2 Sampling

Research participants filled out questionnaires to provide information for the research. Using the Rao-software programme, researchers determined that there were 480 people in the research population, so researchers sent out 600 questionnaires. The researchers got 650 back, and they excluded 40 due to incompleteness, so researchers ended up with a sample size of 510.

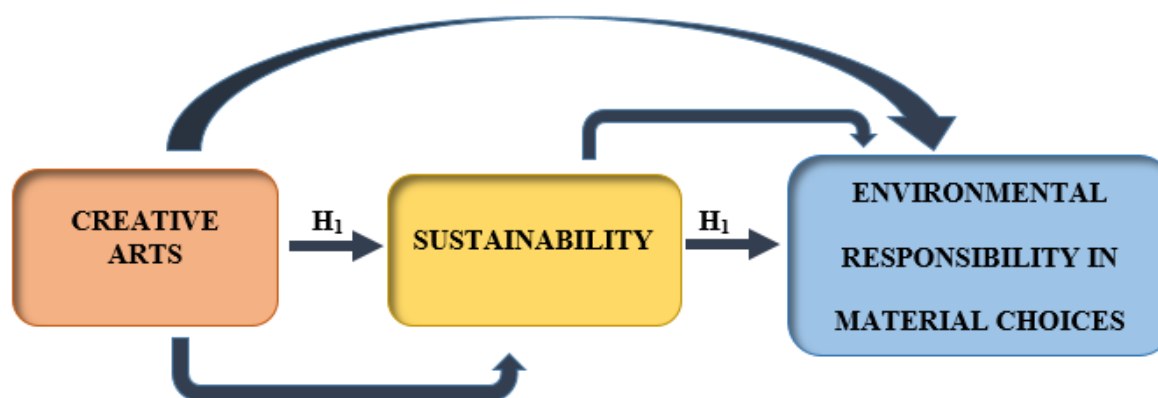
6.3 Data and Measurement:

A questionnaire survey served as the principal tool for data gathering in the study. The survey had two sections: (A) General demographic information and (B) Responses on online and offline channel variables assessed using a 5-point Likert scale. Secondary data was obtained from many sources, mostly on internet databases.

6.4 Statistical Software: The statistical analysis was conducted using SPSS 25 and MS-Excel.

6.5 Statistical Tools: To grasp the fundamental character of the data, descriptive analysis was used. The researcher is required to analyse the data using ANOVA.

7. CONCEPTUAL FRAMEWORK



8. RESULT

• Factor Analysis

The process of verifying the underlying component structure of a set of measurement items is a widely used application of Factor Analysis (FA). The observed variables' scores are believed to be influenced by hidden factors that are not directly visible. The FA technique is a model-based approach. The primary emphasis of this study is in the construction of causal pathways that connect observable occurrences, latent causes, and measurement inaccuracies.

The appropriateness of the data for factor analysis may be assessed by using the Kaiser-Meyer-Olkin (KMO) Method. The adequacy of the sampling for each individual model variable as well as the overall model is assessed. The statistics quantify the extent of possible common variation across many variables. Typically, data with lower percentages tends to be more suited for factor analysis.

KMO returns integers between zero and one. Sampling is deemed adequate if the KMO value falls within the range of 0.8 to 1.

It is necessary to take remedial action if the KMO is less than 0.6, which indicates that the sampling is inadequate. Use the best discretion; some authors use 0.5 as this, therefore the range is 0.5 to 0.6.

If the KMO is close to 0, it means that the partial correlations are large compared to the overall correlations. Component analysis is severely hindered by large correlations, to restate.

Kaiser's cut offs for acceptability are as follows:

A dismal 0.050 to 0.059.

0.60 - 0.69 below-average

Typical range for a middle grade: 0.70–0.79.

Having a quality point value between 0.80 and 0.89.

The range from 0.90 to 1.00 is really stunning.

Table 1: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.812
Bartlett's Test of Sphericity	Approx. Chi-Square	3252.968
	df	190
	Sig.	.000

The overall significance of the correlation matrices was further confirmed by using Bartlett's Test of Sphericity. A value of 0.812 is the KMO sampling adequacy. By using Bartlett's sphericity test, researchers found a p-value of 0.00. A significant test result from Bartlett's sphericity test demonstrated that the correlation matrix is not a correlation matrix.

❖ INDEPENDENT VARIABLE

• Creative Arts:

The wide and always changing discipline of creative arts encompasses a great range of artistic endeavours. By means of the creation of distinctive and creative goods, these activities help individuals to express their ideas, emotions, and cultural values. "Visual arts" includes the broad range of creative expressions including painting, drawing, sculpture, and photography. Performing arts include music, dance, and theatre as well as others. Poetry and narrative are two of the genres falling within the purview of the literary arts. Applied arts include a broad spectrum, including design, fashion, and architecture but not just these. Transmission of social information and ideas via spoken or written language might be challenging or maybe impossible. The creative arts are thus vital as they let individuals transmit society messages and express themselves artistically. The creative process consists mostly on conceptualising, emotional involvement, and technical understanding. These three components used together usually produce works that challenge assumptions, arouse strong emotions, or inspire action. Programs emphasising the creative arts have a really good influence on education, community development, identity building, and other spheres of society in many different civilisations. These exercises inspire children to participate in chores including critical thinking, group projects, and expression of their creative abilities (Vaisvaser et al., 2024). Apart from their indispensable nature for public awareness and cultural dialogue, they are also useful tools for addressing issues related to politics, society, and the surroundings. The creative arts have evolved with technological innovations by means of digital media, interactive

installations, and multimedia storytelling. These developments have made new chances for audience involvement and creative expression accessible. Though they apply a broad spectrum of techniques and get inspiration from a great range of sources, the search of uniqueness and self-expression is fundamental in all creative professions. Apart from helping to create an atmosphere fit for the growth of many points of view and experiences that individuals bring, the creative arts span decades and civilisations using the media of performances, publications, exhibitions, and public art. The creative arts aim to inspire people to participate in deep reflection, develop empathy, and create a culture in which individuals are more inclined to express their ideas than merely providing aesthetically pleasing or entertaining performances (Haeyen, 2024).

❖ **MEDIATING VARIABLE**

• **Sustainability:**

When it comes to sustainability, the objective should be to meet the requirements of the present without compromising the capacity of future generations to take care of the same demands. To be successful in reaching this objective, it is necessary to strike a careful balance between the requirements of society, the economy, and the environment. Eventually, the encouragement of acts that prevent damage to the environment, make responsible use of natural resources, and eventually preserve ecological balance is an essential component of this notion. Practices that are sustainable for the environment include things like the utilisation of renewable energy sources, the reduction of pollution and carbon emissions, and the preservation of biological diversity. These are the fundamentals of living in an environmentally responsible manner. Utilising resources in an effective way, producing products in an ethical manner, and being innovative while simultaneously supporting businesses and communities that are environmentally aware are all gratifying from an economic standpoint. There are several aspects of society that contribute to sustainability, including the availability of health care, education, and community agency over decisions that have an effect on their environmental and lifestyle choices (De Giovanni et al., 2023). It was the United Nations' Sustainable Development Goals that first brought the idea to the attention of people all around the world. These aims helped bring the notion to the attention of people all around the globe by laying out a framework for attaining sustainability in a variety of disciplines, such as sustainable energy, sustainable agriculture, sustainable infrastructure, and sustainable urban planning. There are many examples of sustainable activities, including recycling, organic farming, green building, ethical consumption, and corporate social responsibility. In addition to this, one's perspective has to change in order to reflect a common duty to the earth, its inhabitants, and the generations who will come after them. It is currently the core philosophy that guides decision-making in areas such as resilience, regeneration, and efficient use of resources for governmental administrators, corporate leaders, and educational institutions. Sustainability is the foundational premise. It is imperative that governments, organisations, and people that embrace sustainability as a fundamental principle collaborate in order to construct resilient systems that can effectively address urgent global concerns such as climate change, the depletion of resources, and social inequity. A dedication to justice, a desire to live in harmony with the environment, and the long-term objective of ensuring that development benefits both people and the planet are the defining characteristics of sustainability. Sustainability is more than simply a collection of behaviours. If one want to be sustainable, they must go beyond merely doing that Voulvoulis et al., 2022).

❖ **DEPENDENT VARIABLE**

• **Environmental Responsibility in Material Choices:**

Starting with the methods of extraction and production and working through the use and disposal of the materials, one might choose materials with least detrimental impact on the environment across their whole life cycle. This would be an instance of environmental conscience material choice. This concept emphasises the need of investigating the manner in which components affect ecosystems, the availability of resources, the degrees of pollution, and the environmental sustainability of a particular scenario. The choice of materials that are non-toxic, recyclable, biodegradable, and renewable is of more relevance than the choice of goods that are detrimental to the environment, help to generate waste over an extended period of time, or so reduce the availability of natural resources. Everything depends on figuring out how much carbon dioxide, energy, and water the process of resource collection and processing uses. Environmentally friendly choices abound for the creative sectors—design, fashion, architecture, and the visual arts—that call for environmental sustainability. Among these are the low-impact colour choices, fabric

upcycling, the identification of sustainable lumber, and the purchase of goods confirmed to be environmentally benign (Patel, 2023). Simultaneously expanding the ideas of a circular economy, the goal is to minimise the environmental effect. A circular economy is one in which materials are reintegrated into the production cycle either reusing or repurposing them. Lessening the effect on the surroundings is the goal. Choosing materials that are favourable for the environment calls for careful evaluation of many factors. These factors include support of ethical labour standards, awareness of the social consequences of material production and waste, and appreciation of the transparency of operations all along the supply chain. Given the growing number of problems like climate change, deforestation, ocean pollution, and resource depletion, it is more critical than ever to make wise, moral decisions on the goods the researcher purchases. Realising that sustainable material consumption is required to minimise the damage humans have on the environment and ensure that ecosystems remain in good health, governments, companies, and individuals are changing their behaviour. Professional organisations and academic institutions are including these concepts into design criteria and training courses in order to promote the use of environmentally friendly solutions. Long lastingly, in terms of the available material possibilities, environmental responsibility is moving towards the main objective of sustainability. This may be achieved by ensuring that every decision taken throughout the manufacturing or creative process advances the general state of the earth and the welfare of next generations (Paliwoda et al., 2024).

- **Relationship Between Creative Arts and Environmental Responsibility in Material Choices through Sustainability :**

Within the creative arts, there is a dynamic junction where aesthetic creativity and environmental consciousness coexist. Furthermore, there is a meeting point where environmental responsibility in material decisions satisfies environmental duty from the perspective of sustainability. The creative arts may inspire individuals to create positive changes, challenge attitudes and habits, and rethink the function materials serve in everyday life. Apart from encouraging personal expression and cultural interaction, the artistic creations have the power to alter perceptions and behaviour. Artists, designers, and manufacturers increasingly have to help to promote sustainable methods and a larger society movement towards responsible material use. This is achieved by including ideas of environmental consciousness into their work. Among the alternative, low-impact materials that may be looked at using creative methods orientated on sustainability are recycled paper, biodegradable fabrics, salvaged wood, natural colours, and digital media. Upcycling is also promoted. The above stated activities highlight the importance of environmental stewardship by proving that creative genius and environmental ethics are not incompatible with one another. People that are creative often review long-standing habits and adopt new ones that are more ecologically friendly to help to minimise the negative impacts on the surroundings (Papavasileiou et al., 2021). Sustainability becomes more relevant and accessible when creative people—such as designers and artists—use their works to raise awareness of environmental problems and involve viewers on an emotional and intellectual level. Creative people abound in artistic and design professions. One of the many ways arts education might reinforce this message is by educating next generations to see sustainability as a necessary component of creative integrity. Furthermore, sustainability serves as a middle ground between the goals of artists and the choices of environmentally responsible, pragmatic materials, manufacturing, and lifetime management taken. This promotes ecological awareness and moves away from consumerism that is disposable at the same time encouraging a change from careless manufacture, repair, and reuse. Growing popularity of eco-friendly clothing, environmental artwork, and green design shows how the arts have the power to grab people's attention to environmental, resource, and climate change issues and inspire them to act. When these components interact, there is a chance that they might cause systematic change. Companies and government agencies will react by being more ecologically conscious; individuals will have greater knowledge and drive to make decisions that help the surroundings. In this way, by encouraging a culture of environmental responsibility in all financial decisions, the arts have the great power to contribute to positive change. This thus helps to protect the planet for next generations (Çebi, 2025).

On the basis of the above discussion, the researcher formulated the following hypothesis, which was analyse the relationship between Creative Arts and Environmental Responsibility in Material Choices through Sustainability.

- “*H₀₁: There is no significant relationship between Creative Arts and Environmental Responsibility in Material Choices through Sustainability.*”
- “*H₁: There is a significant relationship between Creative Arts and Environmental Responsibility in Material Choices through Sustainability.*”

Table 2: H₁ ANOVA Test

ANOVA					
Sum					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	39588.620	199	5743.518	996.101	.000
Within Groups	492.770	310	5.766		
Total	40081.390	509			

This investigation yields remarkable results. The F value is 996.101, attaining significance with a p-value of .000, which is below the .05 alpha threshold. This signifies the “*H₁: There is a significant relationship between Creative Arts and Environmental Responsibility in Material Choices through Sustainability*” is accepted and the null hypothesis is rejected.

9. DISCUSSION

Using a quantitative research approach based on simple random sampling, this study aimed to evaluate how creative expression influences material choices with an eye towards environmental responsibility. Research was conducted under the mediation of sustainability. The findings revealed that by way of the support of environmentally friendly business practices among the creative sectors and among consumers of creative goods, the creative arts had a considerable influence on rising degrees of environmental awareness. Engaging in creative arts activities helped the participants grasp sustainability ideas, which affected the materials they choose. The arts compelled individuals to consider how various materials affected the surroundings, therefore inspiring a trend towards more ecologically friendly but also more responsible solutions. By concretising the ideas and inspiration acquired from creative expression, the notion of sustainability became essential in bridging the link between creative expression and activities that are environmentally conscientious with the use of materials. This mediation allowed us to see how notions of sustainability merged artistic expression with actual environmental action. Decisions were so adopted stressing waste reduction, recycling, and preservation of the resources of our world. Moreover, the findings revealed that creative people—such as artists and other creative types—were more likely to include environmentally friendly practices into their work and that they frequently gave ethical and ecological concerns high importance when selecting materials. The researcher recognised there were challenges, including a dearth of fairly priced, ecologically friendly items; however, the researcher also understood that innovative ideas derived from artistic traditions often took centre stage over these hurdles. The study also showed how understanding of sustainability concepts and ideas helps to accentuate the positive influence creative arts have for environmental preservation. Among other findings, the research yielded this. Basically, the results revealed that creative arts promote sustainability significantly and that adding sustainability into artistic processes results in more environmental responsibility in material choices. They also demonstrated the extent of assistance the creative arts provide for environmental sustainability. Given this relationship, it would seem that helping creative expression in accordance with sustainability education might have a major impact on the acceptability of environmentally conscious methods in the manufacturing and design sectors. On the other hand, this might support sensible resource usage and assist to reach more ambitious environmental objectives.

10. CONCLUSION

The results of this research show that the creative arts significantly encourage material responsibility with regard to the surroundings. This was found by means of sustainability's mediating action. Engaging in creative arts increases

one's degree of sustainability consciousness, which therefore motivates one to use materials with less impact on the surroundings. The data of the research confirmed this. Encouragement of recyclable, ecologically benign, and efficient use of resources helps the idea of sustainability to essentially combine artistic expression with tangible environmental action. Regarding materials, the participants showed that they give environmental concerns equal weight with aesthetic and utilitarian factors. Their experiences in the arts helped to demonstrate this. Using creative ideas helped us to overcome obstacles such as the high cost and limited availability of sustainable resources, thus opening the path for more responsible consumption as well as fresh kinds of invention. The results of the research indicate that combining sustainability education with creative areas is crucial to raise the impact of this effort even more. Encouragement of creative practices may lead to more responsible material choices and significantly help efforts to preserve the environment because the overall emphasis of the research on the important function of creative arts in the process of building sustainable attitudes and behaviours.

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