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INVESTIGATING THE POTENTIAL OF WASTEPAPER AND TRANSFORMING TRASH INTO TREASURE-A PEDAGOGICAL APPROACH THROUGH A CONDUCTIVE WORKSHOP

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ABSTRACT

In the modern search for a sustainable future, wastepaper upcycling stands out as an important method of transforming discarded materials into valuable assets. This research article delves into the transforming experience of a group of first-year university design students of Interior Design who actively participated in a sustainability-focused workshop centered on the creative repurposing of waste material. The students of the interior design field demonstrated a strong commitment to environmental preservation by creating aesthetically pleasing interior/art pieces such as wall hangings, wall art, and various other home decor items. This research emphasizes the importance of wastepaper upcycling as a practical skill and in addressing serious environmental issues. The research presented in this paper revolves around a three-day workshop in Interior design students actively participating in the art and practice of wastepaper upcycling. In this context, apart from formal education, informal studies such as workshops have an undeniable contribution to students' design thinking techniques. In addition to a theoretical understanding of sustainable design principal concepts and resource conservation, participants gained proactive hands-on experience with the transformation of wastepaper like old newspapers, old magazines, cardboard, etc into visually alluring interior architectural elements. This practical hands-on learning technique from the workshop helps participants gain a better knowledge of sustainability design concepts and pushes them to consider the larger implications of waste reduction and innovative reuse in their daily lives. This transformative journey concluded with an exhibition of the student's creative works. Its goal is to inspire visitors with real examples of how wastepaper upcycling may result in attractive and environmentally friendly products in interior aesthetics. Also, the purpose of the study is to investigate the impact of workshops on formal education as a method of informal learning.

Keywords: Wastepaper Upcycling, Sustainability, Creative Reuse, Interior Architecture, Workshop, Aesthetics, Resource Use Reduction

1. INTRODUCTION

Sustainable development and environmental awareness are the most crucial and important aspects of today's world (McDonough & Braungart 2013). The term Upcycling is considered the most effective approach for converting waste materials into gainful, aesthetically attractive, and functional items for effective measures of environmental concern (Singh, 2015). This trend of upcycling and a turn toward sustainability and creative reuse of waste materials is gaining acceptance in Design institutions, where these notions are increasingly being included in the curriculum (Singh, 2015). This research article investigates the transformative potential of a workshop focused on wastepaper upcycling in the design sector, stressing its role in

supporting informal education, integrating workshop environments with design studies has thus become critical in providing students with a full educational experience that goes beyond standard classroom settings (McDonough & Braungart, 2013). Paper waste is considered one of the important components of global waste production, which is worsening our environmental ecology worldwide (Owen, 2023).

The growing number of wastepaper results from widespread paper consumption in factories, industries, organizations including health institutions, the education sector, communication, packaging, and office activities. As a result, this wastepaper upcycling not only offers an environmental benefit to landfilling, composing, and burning, but it is also beneficial to the global economy, which encourages resource efficiency, sustainable growth, and environmental safety (Singh, 2015). This research article digs into the varied field of wastepaper upcycling, looking at its potential to transform waste into interior products and accessories. For this, a methodology should apply many qualitative methods, techniques, and technologies to upcycle the wastepaper to measure its environmental and economic benefits, by discussing its limitations and other implications. This study aims to emphasize the possibility of wastepaper upcycling as a sustainable result by conducting in-depth & day-wise documentation with the help of existing literature and case studies. Therefore, a researcher or a designer must envision working and looking at the heaps of wasted paper on the desk, wondering where they would end up in throwing them away, Figure 1 (Owen, 2023).

Figure 1

Figure 1 Tracing the Hidden Path of Unwanted Pages
Source Owen, 2023 www.miro.medium.com

Even if we can recycle some of these used sheets into origami or lovely room decorations, it is impractical to convert every stack of used paper into an ornament. Sensibly talking, it is impossible to make all 100-200 pages into different folding of paper creations or Origami (Owen, 2023). Therefore, it requires highly advanced solutions such as upcycling and converting wastepaper into valuable products in a sustainable way through a three-day workshop as an informal learning method over formal classroom teaching on formal education as an informal learning tool.

1.1. UPCYCLING INSTEAD OF RECYCLING

The extensive use of paper greatly contributes to waste and deforestation due to the need for virgin pulp to produce high-quality white paper (Cabalova et al., 2011). In design disciplines, where high-quality physical presentations like printed research papers, and assignments are important for marking, paper is a staple in

design schools and universities of Fine arts, Fashion design, and Interior design, paper is considered one of the vital resources for these design schools and it relies heavily on paper (Brooks et al. 1999). Despite paperless drives in some schools, the College of Architecture, Design, and Fine Arts at some Universities relies heavily on paper. A key solution to this problem is "Upcycling," the process coined by (McDonough et al., 2010), also described in the book “Cradle to Cradle: Remaking the Way We Make Things” to turn waste products into products of equal or greater value in the second life (McDonough & Braungart, 2010).

Upcycling, the method of recycling in the process of "reduce, recycle, and recycle" involves repurposing discarded materials to provide value, utility, or aesthetic appeal is great (McDonough & Braungart, 2010). This process has been going on for centuries, exemplified using rice husk, straw, jute, and wastepaper (McDonough & Braungart, 2010). Resource efficiency and the subsequent lifecycle of materials can have benefits both physically like using wastepaper as soil fertilizer and psychologically like turning paper into art or materials (Sung, 2015). The simplicity of the new accessories makes them easy and appealing, as they do not require complicated processes (Sung, 2015). This may include retrieving items from landfills, thrift stores, or recycling packaging and paper products. As stated by the WELL Institute, upcycling also promotes local commerce, where upcycled goods are exchanged, and encourages information dissemination and education, for example, handmade and environment-friendly products made from recycled newspaper into art and other interior accessories like coasters, baskets, Jewelry items, wall arts, frames, Christmas ornaments, colorful Mache figurines, handcrafted handbags, other products, etc. developed.

This workshop allowed first-year students of the multidisciplinary field from the University Institute of Design to learn about upcycling which focuses on paper waste and recycling of old magazines through the process of upcycling. Therefore, these types of workshops play a significant role in creating informal teaching-learning activities in design, where students are actively involved in hands-on and experiential learning.

1.2. WORKSHOPS AS AN INFORMAL LEARNING ENVIRONMENT

From the traditional form of classroom teaching, these informal programs push them to explore, and create, in a creative and hassle-free environment. Informal education like workshops, activities, and hands-on practice in academic institutions improves knowledge transmission by focusing on practical skills and competency development (Ciravoglu, 2003). They are intended to unlock creativity, excite imagination, and foster empathy, all in an environment that encourages freedom, confidence, and flexibility during the learning process (Sung, 2015). The backdrop for the research paper on the workshop focused on wastepaper upcycling within the area of interior design by emphasizing the rising significance of sustainable interior design practices through innovative products. The workshop as an informal educational tool can be defined as "an educational meeting where a small group explores a subject, develops a skill or technique, completes a creative project, etc. "workshops are considered one of the most vital informal learning programs, as it provides an outstanding short-term practical teaching technique that can be linked in a variety of situations and on an infinite number of subjects (Brooks-Harris & Stock-ward, 1999).

1.2.1. PROGRAM DESCRIPTION AND CONTEXTUAL FRAMEWORK

The workshop was held in August 2023 at the University Institute of Design, Department of Interior Design, Chandigarh University, conducted in three different phases. "The dual purpose of the workshop was to not only raise awareness about the importance of sustainable practices but also to build the capacity of students to transform discarded materials into new products. Focusing on indoor architecture, participants were encouraged to think creatively and come up with ways to turn wastepaper into useful products on decorative surfaces, to enhance the appeal of the interior environment and their space with decorative artworks covering the façade. The functionality and details of the proposed method are as follows for a description of such a facility.

WORKSHOP TITLE: "Transforming Trash into Treasure: The art of upcycling"

DURATION: 3 days

As part of the Workshop program mission, students will undertake the following tasks focused on wastepaper upcycling: This workshop program offers a structured, but creative, method to teach paper upcycling, that reflects its inherent meaning in the field of sustainability while inviting its important aspect of creative expression

1) **Workshop Module 1:** Understanding Upcycling, Sustainability, and Paper Waste as a Material
2) **Workshop Module 2:** Hands-on Upcycling technique
3) **Workshop Module 3:** Group Activities and Showcasing the Exhibition

2. RESEARCH METHODOLOGY

The research detailed in this paper is based on a three-day workshop as a qualitative research method in which first-year university design students were actively engaged in the art and practice of processing wastepaper. In addition to a theoretical understanding of the principles of sustainability and conservation, this experiential learning approach provides workshop attendees with hands-on experience in the transformational process of diverting paper waste and old magazines into visually appealing architecture.

It encourages them to think of a combination of qualitative and quantitative research methods that can be used to better address the research questions and objectives stated in the study, See Figure 2. for the characteristics of the research methodology applied for the workshop and its impact on paper waste management in indoor design.

Figure 2

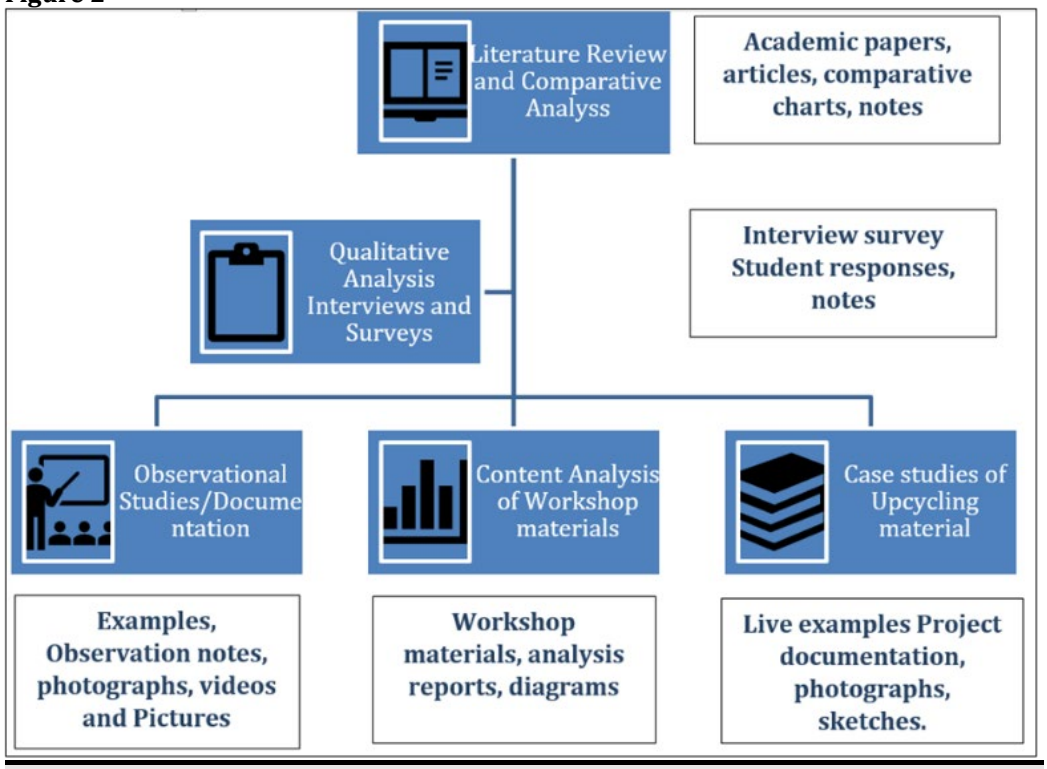


Figure 2 Qualitative Research Methodology
Source Author

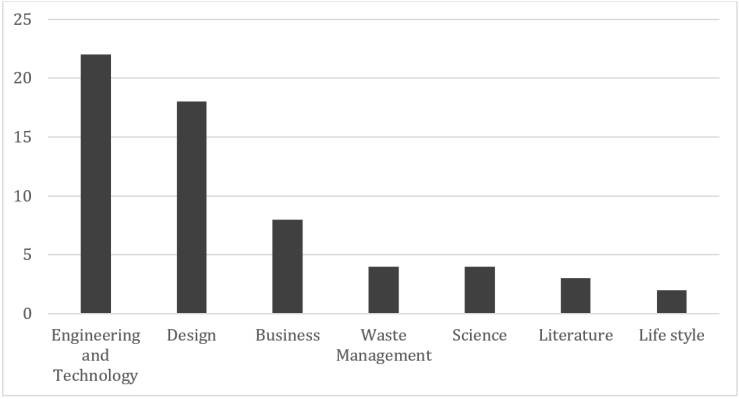
2.1. LITERATURE REVIEW

2.1.1. UPCYCLING

Upcycling is the practice of converting materials previously considered waste into higher-value products in consumer goods. This concept, first proposed in the book “Cradle to Cradle: Reinventing the Way We Make Things” (Braungart and McDonough, 2009), aims to transform food products into products that are equal or better in terms of the use of assets. Upcycling has been recognized as a promising method of reducing material and energy consumption (Sung, 2015). - This is an umbrella term that includes repair design (e.g. repair), reuse (e.g. rebuilding and recreating clothing), renovation (e.g. upholstery), refurbishment (e.g. IKEA furniture), and entertainment (e.g. fashion). pieces of clothing) etc. (Sung et al., 2017).

Upcycling increases the value, usefulness, or beauty of waste materials and involves a "repurposed" component that is believed to effectively "reduce, reuse, and recycle" unlike recycling, which often uses more energy or materials to recycle different wastes. "A review of upcycling: existing literature, knowledge, and the way forward," he says that the concept of upcycling has attracted attention from many business practitioners, researchers, craft professionals, and enthusiasts of many colours in recent years (Sung, 2015). Most studies focus on engineering, technology, Design, and business, followed by waste management, science, literature, and lifestyle, See Graph 1.

Graph 1



Graph 1 Subject Areas of Sample Publication

Source Sung,2015, A review on Upcycling: Current Body of Literature, Knowledge Gaps and Way Forward

This strategy not only reduces trash but also helps to avoid resource overconsumption. As a result, upcycling offers a fantastic opportunity for design schools to experiment with novel ways to reuse discarded paper and other materials. So why should we upcycle? Upcycling breathes new life into waste materials, distinguishing itself from recycling by conserving energy and promoting environmental sustainability, while both techniques of Upcycling and Recycling benefit nature and natural resources, Upcycling is significantly more energy efficient (Admin, 2023).

2.1.2. ENVIRONMENTAL WISE

The excessive waste pressure on nature stresses the environment and contributes to global warming. Upcycling materials are usually environmentally friendly and capable of returning materials to their original form, creating a new product each time (Caine, 2010). This circular approach can significantly reduce waste such as worn furniture and chairs, See Figure 3. With their imagination, they can recycle these discarded items into new products, thus giving them new life (Sung, 2017).

Figure 3

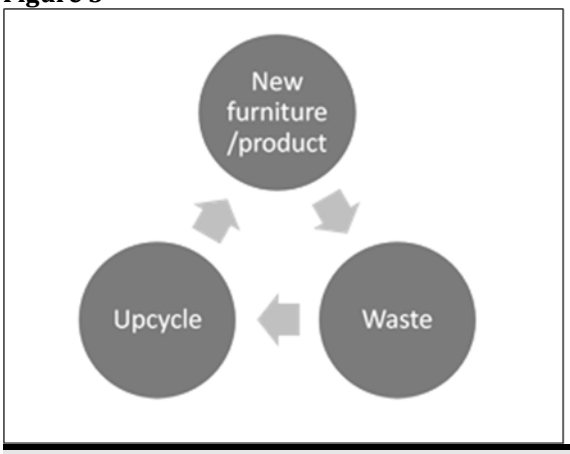


Figure 3 The Cycle of Upcycling Process

Source Caine, 2010

Based on it, the upcycling process is repeatable indefinitely, exhibits its environmental benefits. This strategy is a wiser approach to creating things within the framework as it efficiently minimizes the amount of domestic solid waste entering the waste stream, therefore minimizing the global product market (Richardson, 2011.). This continual cycle demonstrates the effectiveness and sustainability of upcycling in trash management efforts.

2.1.3. SUSTAINABILITY- OUTSMART WASTE

Sustainable upcycling requires innovation and creativity, as well as reducing environmental impactover time. Upcycling promotes sustainable living by using waste materials such as paper, wood, glass, old bottles, metals old furniture, and other waste materials. Upcycling of products as one of the most sustainable recycling solutions because it generally requires little energy input and will eliminate the need for new products from virgin materials (Szaky, 2014). Home upcycling is more environmentally friendly than commercial upcycling because it avoids the environmental impact and costs of transporting the waste to the upcycling company and shipping the upcycled product back (Sung, 2017).

The author (Szaky, 2014) proposes a process called the intelligence of waste, which transforms the waste from useless garbage into useful resources and evaluates the progress of all other waste disposal operations See Figure 4. The safest way is to buy it and the least safe way is to send it to the landfill (Caine, 2010). Upcycling is a solution for reusing and recycling, by managing all the waste we create. Upcycling encourages innovation and reduction in research design. This study examines the use of waste and considers it to be one of the most important teaching tools in informal education (Richardson, 2011).

Figure 4

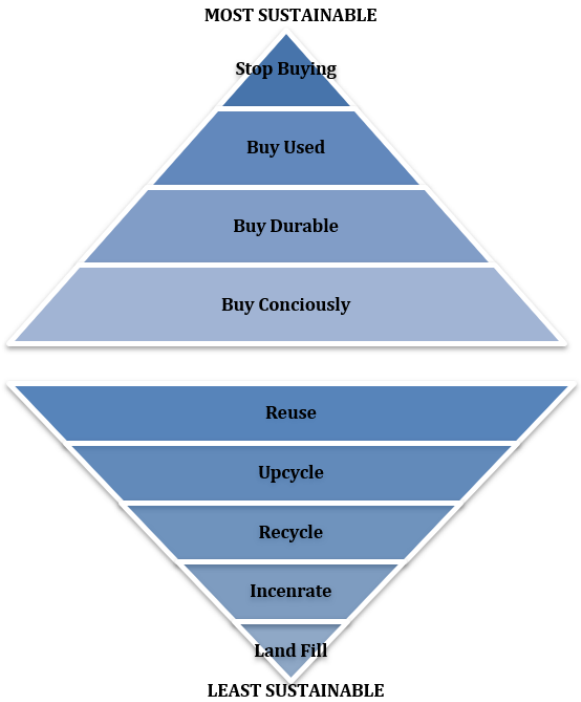


Figure 4 Ways of Outsmart Waste
Source Szaky, 2014

2.2. CASE STUDIES-UPCYCLING

CASE STUDY 1- WELL PAPER, AUROVILLE, T.N, INDIA

The Well Paper Institute is in Kottakarai Village of Auroville, which was designed by Sreevatsa Tapasya Design Studio and was founded in 2005. This is one of the prominent social enterprises, with a spanning area of 225 square meters, its main objective focuses on women's empowerment through sustainable and eco-friendly design methods. WELL, the full form is "Women, Empowerment, Local, and Livelihood", which symbolizes the institute's main objective of training local women to develop self-sufficient and self-sustained business units. These women are now conducting workshops themselves to share their talents and knowledge with others.

Figure 5

Figure 5 Women's Empowerment Through Local Livelihood
Source www.files.auroville.org

Figure 6

Figure 6 Innovative Designs from Recycled Newspapers
Source www.files.auroville.org

The institute offers special programs in paper Mache, cup coiling, and basket weaving, where participants learn how to make usable and decorative products out of recycled newspapers see figure 6. The products of WELL Paper include baskets, cabinets, bowls, Jewellery items, and paper Mache figures, see figure 7 & 8. All

products are handmade, environmentally eco-friendly, and follow a zero-waste approach. With the help of local indigenous materials and resources, they promote environmental sustainability. Participants learn how to make art from used paper like newspapers in three-hour classes offered by Auroville's WELL institute by women. The campaign raises environmental awareness and provides direct income for the women involved. The WELL Paper Institute shows how upcycling and sustainable design can support community development and environmental safety.

Figure 7

Figure 7 WELL Women's Team
Source www.files.auroville.org

Figure 8

Figure 8 Unique and Appealing Eco-Friendly Products.
Source WWW.guestservice.auroville.org

2.2.1. CASE STUDY 2-ARIELE ALASKO

(Ariele Alasko) recycled reclaimed furniture made of salvaged wood and reconstructed into new furniture with her distinctive patterns and the designer sourced her materials from her immediate surroundings see figure 9. Her respect for these waste materials, as well as the fact that she employs materials that are frequently ignored, uncared for, and obsolete and gives them a new purpose, has awakened the minds of many people, not just designers, while also giving these waste materials new hope (Ariele Alasko).

Aside from using natural refuse to produce beautiful furniture, she also contributes to environmental conservation. She demonstrates that outdated, useless materials can be appreciated as someone's trash which can turn into someone else's treasure.

Figure 9

Figure 9 Designer Ariele Alasko with her Reclaimed Furniture Shown
Source www.themakersproject.com

2.2.2. CASE STUDY 2-WOODEN PALLETS

Wooden pallets are one of the most utilized materials in interior design. there are numerous ways to create a room that costs less yet seems more expensive. this material can be used to create a wide range of items, depending on how far you go in the process. Figure 10 shows a few examples of patterns constructed from wooden pallets these three images demonstrate how to build and repurpose these wooden pallets for use in interior design see Figure 10. There are no restrictions to inventiveness; it may be used on the floor as a platform or flooring, on the wall as display racks, or transformed into furniture that can be used daily instead of purchasing things that lack personality and are typically mass made.

Figure 10

Figure 10 A Few Examples of Designs Made from Wooden Pallets
Source www.pinterest.com , Ali et al., 2013

The case study on wooden pallets highlights the great social benefits of upcycling. Training and empowering women in the community provides economic growth and encourages community development. Overall, the study demonstrates the effectiveness of a structured, iterative approach to upcycling, leading to sustainable innovation at Well Paper Institute, Auroville. It demonstrates the significant social and environmental impact of upcycling by demonstrating how community training and empowerment can foster sustainable economic development growth and environmental awareness. This holistic approach not only improves the efficiency of manufacturing processes but also promotes a positive attitude towards sustainability and raw materials.

2.3. PRACTICE-LED RESEARCH

Through practice-led research Versatile strategies have been developed for craft-based upcycling practice in the design field in five iteration stages see figure 11. Imagination is the first stage where ideas arise freely and uncritically. Stage 2 begins with an inspiration round where visual inspiration, such as sketches, doodles, infographics, diagrams, words, and pictures, is created to create a collection of ideas and strategies And then Experimental Prototypes: Quick, small prototypes have been developed as a test concept, incorporating pieces from previous phases to find issues and solutions Then in Next phase Product Development starts, The prototype results are used to build a finished product with market potential and market. The final lesson is to consider ways to integrate the disciplines and identify future development directions to ensure continuous improvement and change.

Figure 11

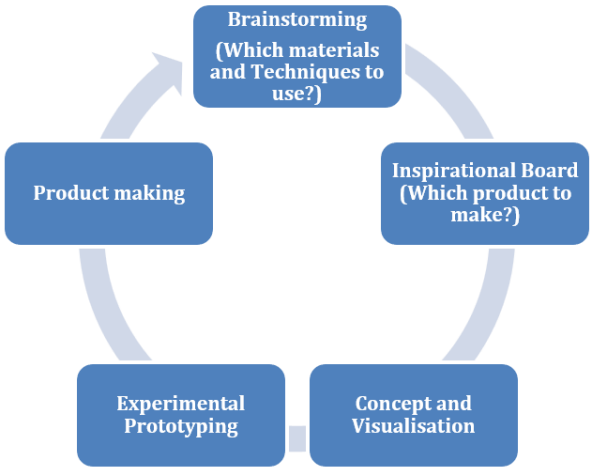


Figure 11 Five Phases of Methodology for Practice Led Research
Source Author

This comprehensive approach ensures a deep understanding of upcycling and its practical applications in design.

Figure 12

Figure 12 Own Practice with Waste Material
Source Author

2.4. POTENTIAL RESEARCH AREA

Upcycling, according to (Sung, 2015) is the process of repurposing waste materials into valuable and high-quality goods through imaginative repair, reuse, refurbishment, upgrading, and recreation. Sung's analysis highlight's upcycling growing popularity among business professionals, researchers, and amateurs, notably in fields such as engineering, technology, design, business, waste management, science, literature, and lifestyle. So, the Three-Day Workshop demonstrated the transforming power of upcycling.

Students transformed wastepaper and old magazines into a variety of creative pieces, including wall art, murals, coasters, baskets, and bags. This event proved upcycling's ability to instil creativity, environmental awareness, and practical abilities in design students. The domains of interior and sustainable design are ideal for upcycling study and application. Integrating upcycling processes into interior design can help to create more environmentally responsible and aesthetically pleasing living environments.

Table 1

Table 1 Potential Research Area

Research Area	Description
Innovative Material and Upcycling Techniques	The search for innovative materials and new ways of making materials that are sustainable, functional, and visually appealing.
Waste Management	Research into circular strategies to reduce environmental impact through waste reduction, reuse, and recycling.
Consumer Perception and Market Acceptance	Analyze consumer behavior toward interior design upgrades and identify factors that influence purchase decisions.
Educational Policy and Curriculum Design	to ensure that the curriculum is effective in upcycling and promoting sustainable design principles.
Environmental Impact Assessment of Use of Upcycled Products.	The ecological consumption, energy consumption, and carbon emissions of renewable resources.

Source Author

2.4.1. PROS OF UPCYCLING PAPER

Upcycling has many benefits (Sung, 2015). The reproduction of upcycled materials eliminates the need for new products. It thus reduces the use of new materials, saves natural resources, and reduces energy and electricity consumption, all of which reduce greenhouse gas emissions. exhale. When upcycling is done locally, it is more environmentally friendly than commercial upcycling due to the avoidance of transportation of products. Similarly, upcycling as a small and decentralized process can save more energy than a centralized process (Sung, 2015).

The benefits of craft-based upcycling as shown in Table 2:

Table 2

Table 2 Benefits of Craft-Based Upcycling

Environmental Benefits	Upcycling Helps in Reducing carbon footprints, despite being biodegradable, the paper manufacturing process produces greenhouse emissions, especially if the raw materials are derived from fossil fuels. To reduce deforestation and

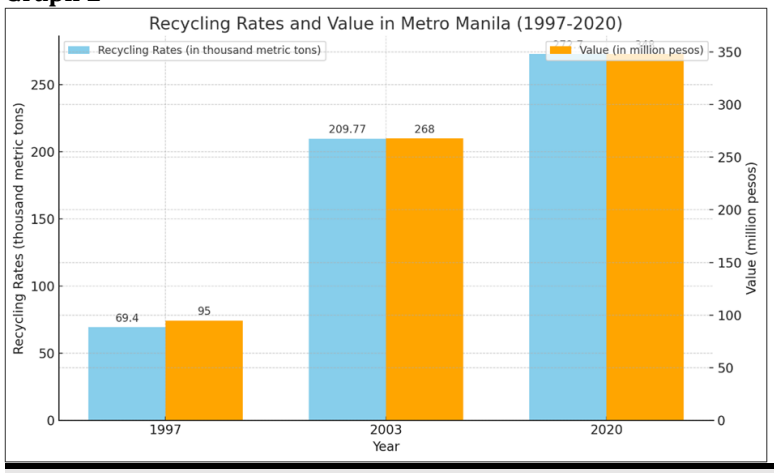
	the use of raw materials. besides chemicals, papermaking requires water (for washing palm oil), electricity, and wood.
Social Benefits	To promote DIY and Craft based activities through paper waste
Economic Benefits	To provide opportunities for new ventures and saving the cost by use of raw materials
Emotional Benefits	Active participants of Students in the Workshop instead of Being viewers. Generate happiness from goal-oriented activities.
Creative Benefits	The making of something useful, pleasing, and authentic from waste materials.
Further Benefits	Upcycling further helps in learning in teams and creating products that are very relaxing and satisfying

2.4.2. REDUCE, REUSE AND RECYCLE

The National Solid Waste Management (NSWM) Metro Manila's recycling rates increased by 25% between 1997 and 2003. During this time, the federation of multipurpose cooperatives in Metro Manila, which represents rubbish dealers, reported tremendous development in the trading of recyclable materials (Basbas, 2014). The volume of recyclables handled increased from 69,400 metric tons to 209,770 metric tons, with the monetary value increasing from p95 million to p268 million. Recycling activities have made similar progress across the country, thanks to better compliance by local government units under Republic Act No. 9003 (Basbas, 2014). By 2020, Metro Manila's recycling rates will have increased 30% from 2003, reflecting a continued improvement in waste management.

The authority emphasized that the success of implementing waste diversion, recovery, and other activities strongly relies on the collaboration of supporting agencies, especially small businesses such as waste centers. NSWM is dedicated to increasing trash reduction via sophisticated recycling technology. Most examples include recycling Styrofoam into synthetic boards, changing glass waste into beautiful things, recycling batteries, converting discarded materials into bags and pouches, recycling tin cans, and repurposing leftover garbage into building materials such as hollow blocks. These technologies make a substantial contribution to waste reduction and improved sustainability practices. The NSWM continues to strive for a 25% yearly growth in waste diversion efforts such as recycling, (Basbas, 2014) with a three-year target see Graph 2.

Graph 2



Graph 2 Bar chart illustrating the recycling rates in Metro Manila

Source Bennagen et al., 2002 www.12.emb.gov.ph

This bar chart illustrates the recycling rates and their monetary value in Metro Manila from 1997 to 2020. The chart highlights the substantial increase in recycling rates (measured in thousand metric tons) and the corresponding rise in value (in million pesos) over the years, demonstrating ongoing progress in waste management practices.

2.4.3. UPCYCLING AND (CRADLE-TO-CRADLE)

The Book "Cradle to Cradle: Remaking the Way We Make Things," (McDonough & Braungart, 2010) introduced the term "upcycling" to describe the systematic plan of the Cradle-to-Cradle process. It focuses on technology management in the manufacturing industry which produces a lot of garbage and waste. However, because resources were plentiful and unsophisticated technology at that time, most of the waste and garbage produced was biodegradable. Metal, dubbed the first "technical nutrient" by (McDonough & Braungart, 2010), was scarce due to technological limitations.

Throughout the Industrial Era, technological advancements led to lower manufacturing costs and improved availability of goods, which in turn changed the pattern of consumption. People began to consider everything as disposable, resulting in a consumerist culture based on disposability. Because of mass production technologies, this age saw the emergence of non-biodegradable products. This led to the "cradle-to-grave" dilemma, in which outdated technology and products were soon abandoned. The Cradle-to-Cradle concept was developed to promote environmentally friendly manufacturing processes as well as advanced material research and development in the industrial sector (Smith & Green, 2023) See Figure 13.

Figure 13

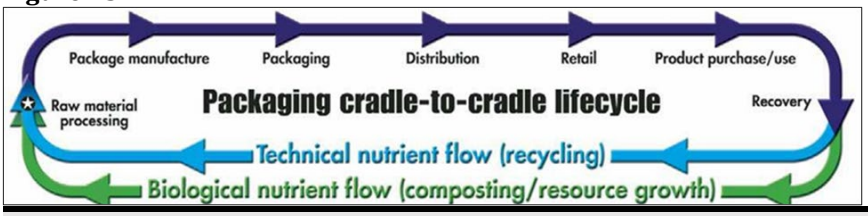


Figure 13 Cradle to Cradle Lifecycle Process
Source Smith J, & Green L, 2023

This approach does not deny the economic necessity and benefits of consumerism; it provides jobs, generates income for long-term development, and encourages the development of environmentally friendly technologies. Most importantly, the concept strives to re-establish the value of preindustrial culture's sustainable resources, which were biodegradable, biological, and reusable. It implied that waste might become something of equivalent or higher value in its second life and become a consumer good (McDonough & Braungart, 2013).

2.5. INTERVIEW ANALYSIS AND DATA FINDINGS

Workshop was participated by 40 participants and out of this Interviews were conducted with 15-20 participants. The interviews comprised 12 open-ended questions designed to elicit detailed responses about their experiences and insights.

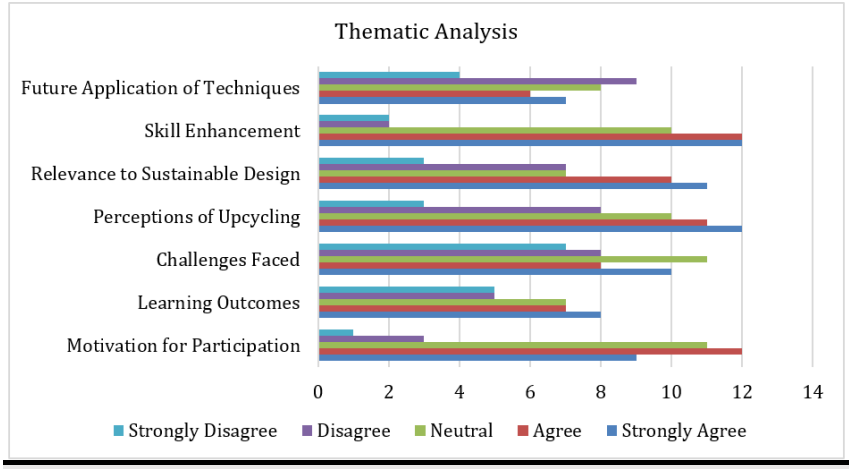
ANALYSIS A. Understanding and Recognition of the Concept of Upcycling and its Process Based on the various definitions of upcycling, five main components were derived for this analysis.

1) An upcycled product must be:
2) Created essentially from waste material
3) Must be usable and productive
4) Aesthetically pleasing
5) Less embodied and low in energy consumption, including power, electricity, gas, and water
6) A consumer good that can be marketable.

Out of those, the ten products selected for this study were all made of wastepaper. Scratch papers like used newspapers, old magazines, articles, used tracing papers, cardboard, packaging box materials, tissue rolls, napkins, etc. were most of the waste material that was upcycled. These materials are all used and recovered from various locations on the campus. In the upcycling activity, most of the newspaper was taken from used or replotted drawings from their design subjects.

ANALYSIS B. Thematic analysis was employed to identify 7 key themes see graph 2 and patterns from the interview Questionnaire (Refer to Appendix A). Responses were coded and categorized to highlight common themes which are mentioned in the Bar chart below see graph 3 and Responses framed on a 5-point Likert scale see Table 3.

Graph 3



Graph 3 Sample Survey Data Responses From 15 Students
Source Author

Table3

Table 3 Student Responses on the 5-Point Likert Scale

Themes	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Future Application of Techniques	2	3	4	5	3
Skill Enhancement	1	2	4	6	4
Relevance to Sustainable Design	2	3	5	4	3

Perceptions of Upcycling	1	4	5	6	3
Challenges Faced	2	3	6	4	4
Learning Outcomes	1	3	5	4	6
Motivation for Participation	2	2	4	6	3

Source Author

2.5.1. DISCUSSION AND FINDINGS

An in-depth analysis of the interview review data, valuable perceptions, and implications were extracted from the Interview that contributed to a deeper understanding of the impact of the workshop on promoting sustainable design practices catering to the protection of the environment and fostering creative encouragement in an informal teaching-learning process in the field of interior design. The findings show that the workshop effectively pushed participants to adopt sustainable, low-cost, eco-friendly design practices for Upcycling. Participants enjoyed the hands-on experience and collaborative learning, which helped them understand upcycling and its applications in interior design. These findings suggest that upcycling workshops can be a useful tool for developing sustainable design practices. Interior design academics and industry leaders should consider including more sustainable practices and upcycling projects in their programs.

From the questionnaire assessment (Refer to Appendix-A), a survey has been coded with student responses on a five-point Likert scale, see Table 3 above based on selected 7 themes and they were also asked to explain why their product is considered upcycling. This question was posed to determine their grasp of upcycling and the value it offers, and their responses provided various clues as to how well they understood the notion of upcycling.

1) Some of the cue words derived from all their responses:
2) To provide new products with the help of upcycling which will generally be a reinvestment.
3) very low-cost and eco-friendly products can be made from it.
4) Upgraded look with price.
5) High value and good aesthetics.
6) Transforming something of greater use and value.
7) Make it into something functional and aesthetically pleasing.
8) Something very functional, creative, and useful things can be made.
9) Aesthetic enhancement and greater aesthetic value.
10) Three values were derived from their responses: value for the environment, value for cost, and value for function and aesthetics.

2.5.2. SUMMARY

This report presents the findings from interviews conducted with participants of a workshop on wastepaper upcycling for interior design. The objectives of this workshop were to gain an in-depth understanding of their motives, experiences, and the overall impact on the participants' perspectives and future behaviors about sustainable design. They were motivated by the urge to learn sustainable methods, and the program delivered valuable hands-on experience and ideas.

They identified upcycling as a critical activity for the reduction of environmental impact and acquired practical skills and knowledge that will be

useful in their professional practice in the future. Evidence is, therefore, created that the workshop may positively influence the interior design business in terms of the development of sustainable practices with lower impacts on the environment, where upcycling becomes part of interior design education and practice. (Sung 2015, p.3) perceives many problems that she calls "outcomes" of upcycling use of domestic craft methods, these are listed as:

1) Producing something useful and more valuable.
2) Making objects safe to recycle and organic materials safe to use.
3) Upgraded quality/value in the final product.
4) A better incarnation of objects or raw material with new life.
5) Allowing products multiple life cycles through remanufacturing or via 10% recyclability.
6) Economically and environmentally improved performance material.

APPENDIX A

INTERVIEW QUESTIONNAIRE

1) What inspired you to participate in a workshop on wastepaper upcycling during Prarambh week 2.0?
2) How do you define the term upcycling and what is its relationship to sustainable design practices?
3) What were the key takeaways from the three-day workshop on wastepaper upcycling and its use in interior design?
4) What limitations did you learn in this workshop and how did you overcome them?
5) What possibilities do you see for upcycling wastepaper to integrate into interior design projects?
6) How has this workshop developed an understanding of sustainable building practices in central locations and their role in protecting the environment?
7) How can recycling paper contribute to the environmental impact of interior design?
8) What are the key skills and resources for this workshop to develop an understanding of waste management and sustainable building principles in indoor design?
9) What skills or knowledge did you gain from the workshop that will help your future career in interior design?
10) How do you plan to incorporate wastepaper upcycling processes into your interior design project or business strategy?
11) Based on your workplace experience, what recommendations would you make for the implementation of sustainable design practices and upcycling initiatives in the interior design industry?
12) Please describe your overall workplace experience, including hands-on and co-curricular activities.

2.6. DOCUMENTATION: UPCYCLING IN INTERIOR DESIGN

Documentation through a workshop on Wastepaper upcycling has been organized and conducted, See Figure 14 showing a poster for the workshop conducted for Design students of Multidisciplinary fields to provide a thorough program that includes both theoretical understanding and hands-on practical experience.

Figure 14

Figure 14 Workshop Poster
Source University Institute of Design

As part of the workshop program's purpose, students will do the following wastepaper upcycling tasks: workshop activities are:

1) 40-minute lecture Introduction on "Upcycling". See Figure 15 below
2) Presentation of course activity through various conceptual designs with material introduction.

Figure 15

Figure 15 Introductory Session
Source Author

3) Demonstration and ideas deliver on Paper Folding, Paper Rolling, and Paper weaving with some prototype examples. See Figure 16

Figure 16

Figure 16 Demonstration Session
Source Author

4) Exploration of various types of waste material like: - News Paper, Sheets, Old magazines, Cardboard Etc.
5) Proposal of Conceptual design and rationale that will be done according to groups.
6) Groups are composed of 2-4 members. See Figure 17

Figure 17

Figure 17 Student Group Work
Source Author

7) Products can only be of the following: Wall Art, Basket, Mural, pen or brush holder; brush stand, furniture, Accent Furniture, Wall panel, Interior accessories like Lampshades, Sculptural pieces for display, etc. See Figure 18

Figure 18

Figure 18 Products Made of Paper Upcycling
Source Author

8) Showcasing of Products in the exhibition for display and selling purposes. See Figure 19

Figure 19

Figure 19 Display of Products
Source Author

2.6.1. WORKSHOP LEARNING MODULE

DAY 1: INTRODUCTION TO UPCYCLING AND SUSTAINABLE DESIGN

This Day 1 activity begins with a warm welcome focussing on the outline of the aims, and objectives of upcycling by emphasizing the sustainable design practices and the importance of upcycling by giving an introductory lecture on the application of Wastepaper upcycling and its benefits for lowering environmental impact. Students will explore the comparison between upcycling and recycling, by emphasizing adding value to the product and its environmental benefits. Also, it encourages creativity, ingenuity, and mindful consumerism in addition to profits.

Various sorts of waste, like old magazines, newspapers, and cardboard, can be recycled into functional and visually appealing things. Some prototype examples shown in Figure20 have been shown to demonstrate wastepaper upcycling using examples such as wall art, cabinets, lampshades, coasters, basket weaving, and other interior items.

The day will end by encouraging participants to reconsider waste, investigate new ways to repurpose everyday materials and talk about the educational and environmental benefits of incorporating upcycling processes into design education.

Figure 20

Figure 20 Prototype Models
Source Autho

DAY 2: HANDS-ON PAPER UPCYCLING ACTIVITY

The second day of the workshop will involve participants in hands-on experience in creativity that will demonstrate the use of paper for upcycling techniques such as folding, rolling, making tubes, paper cutting, collage, and weaving of paper with the help of paper tubes to create both decorative and utilitarian items see Figure 21. Participants who were involved in this workshop will start learning how to make paper tubes of various sizes and shapes from old brochures, newspapers, magazines food packaging boxes cardboard, etc.

With the help of these paper tubes, they made interior products that are aesthetically pleasant, sustainable, and functional see Figure 22. The activity's goal is to transform the proposed design concepts into functional, unique, and high-quality products while exhibiting the versatility and potential of reused materials in the field of interior design through the process of upcycling.

Figure 21

Figure 21 Student Activity
Source Author

Figure 22

Figure 22 Student Activity
Source Author

DAY 3: REFLECTION AND EXHIBITION SHOWCASE

On the 3rd day of the workshop, the program starts with the engagement of participants joining in a group of 2-4 students to practice upcycling techniques for creating decorative functional products such as Wall Murals, bowls, baskets, furniture cabinets, organizers, wall art, lampshades, Tea Coasters and other interior accessories See Figure 23. The activity on the third day of the workshop began with a response and criticism session on the proposed conceptual design where participants shared their experiences, feedback, tasks, designs, and other valuable insights. This, exhibition titled "Trash into Treasure" with many possibilities to display its design and detailed information about each item, including the concepts, and materials used that are Eco-friendly, and sustainable environmental concerns.

The exhibition attracted students and staff of other departments, encouraging community dialogue and collaboration on sustainable design practices. The session will conclude by showcasing the designed products in an exhibition giving a user experience of marketing and consumerism, emphasizing the transformative power of wastepaper upcycling in promoting an environmentally conscious approach to interior design.

Figure 23

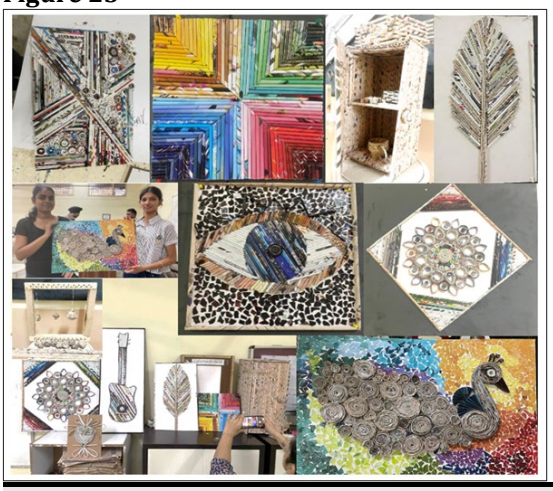


Figure 23 Final Products Made of Upcycling
Source Author

This documentation, which includes participant reflections and the exhibition display Figure 24, will be a significant resource for future workshops and educational projects encouraging sustainable design principles.

Figure 24

Figure 24 Final Products made of Upcycling
Source Author

3. FEEDBACK AND REVIEW'S

The study highlights the potential of wastepaper upcycling as a valuable sustainability education tool suggesting that design students, even at the beginning of their academic careers, may contribute to the environment by nurturing their creativity. The workshops encouraged self-paced, hands-on learning while encouraging teamwork and collaboration, allowing students to develop, broaden, and enlighten critical skills in Architectural and Interior design studies, widen their perspectives, and enrich their knowledge. Feedback and Reviews emphasize the workshop's important function in informal education, which enhances students' performance and builds confidence.

The study proposes an integrated curriculum based on a formal-informal education network that integrates academic knowledge skills and practical experience to enhance creativity, communication, and problem-solving abilities. This process assures that the end products are creative, sustainable, and marketable. Reflection periods provide critical input for continuing improvement, while performance provides participants with insights while representing their work. So, the study highlights the importance of a systematic organized approach to upcycling design to promote sustainability and resources, as well as highlighting the importance of wastepaper upcycling as an essential tool for sustainability education.

3.1. KEY FINDINGS OF UPCYCLING WORKSHOP

1) Learn how to turn waste materials into profitable goods with sustainable design practices
2) Material Knowledge: Use paper, sheets, magazines, and cardboard.
3) Design Development: Create and present upcycling-related designs.
4) Prototype creation techniques include folding, rolling, and weaving.
5) Benefits Discussion: Consider the benefits of upcycling after manufacture.
6) Exhibition Showcase: Display finished projects and discuss workshop findings.

4. SYNTHESIS & RESULTS

Qualitative research on wastepaper upcycling in the workshop documentation revealed high levels of participant engagement and interest, as well as in sustainable design strategies and growing awareness of the impact of paper waste on the environment. The program encouraged creativity and innovation as participants actively participated in designing innovative design concepts, methods, and approaches, transforming wastepaper into aesthetically pleasing interior design products. this workshop positively raised mindfulness of sustainable design concepts while inspiring critical design thinking and creative problem-solving with participants by indicating a desire to integrate these sustainable design principles into future ventures. the identified problems and limitations demonstrated the importance of proper resources, infrastructure, and coordination with local communities.

Future projects should prioritize comprehensive training programs, workshops, resource-sharing networks, and joint strategic planning to address these issues and foster further commercial sustainable development of upcycled products in interiors. analysis of these results provides useful information for future policies and facilities and aims to promote alternative wastepaper reuse and sustainable design practices.

5. CONCLUSION

“The Wastepaper Upcycling- trash into Treasure” workshop for first-year design students at the University Institute of Design demonstrates how informal studies such as workshops can supplement modern interior architectural instruction. it demonstrated how discarded waste materials may be converted into stunning interior architectural objects, imbued with new vitality and purpose. Students who actively participated in the course not only improved their practical upcycling skills but also developed a greater respect for sustainability and resource conservation. wastepaper upcycling goes beyond artistic expression; it promotes responsible consumption and environmental responsibility. In today's world, where environmental challenges loom large, the students have proved that transforming rubbish into treasure is both possible and profoundly important.

Their projects reflect the untouched potential of waste and the infinite imagination to make a positive impact on the environment. Paper waste upcycling is more than just a workshop; It signals a shift towards a greener and more sustainable future. The three-day wastepaper upcycling workshop and subsequent exhibition at the University Institute of Design demonstrated the potential of creativity, education, and community engagement to promote sustainability. The event exhibited first-year students' artistic abilities and demonstrated the tremendous impact that upcycling can have on environmental awareness and resource conservation. Attendees left the exhibition with a renewed respect for waste paper's potential and the beauty of upcycled designs. They brought with them a shared commitment to minimizing resource consumption and turning rubbish into treasure.

Finally, the workshop and exhibition highlighted how sustainable practices may be integrated into everyday living, making it both environmentally responsible and visually beautiful. With innovation and deliberate work, we can all contribute to a greener and more beautiful world.

CONFLICT OF INTERESTS

None.

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I am profoundly thrilled to have gotten the Certificate of Appreciation for leading the workshop, which demonstrates the university's dedication to encouraging innovative and environmentally responsible activities among its students.

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