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Green Innovation: Harmonizing Creative Art Literacy and Upcycling for Sustainable Community Development

Yulita Fairina Susanti [1] Liena Prajogi[2]*, Wiwiek Mardawiyah Daryanto[3]

[13] IPMI Institute, Jakarta, 12750
[2]MNC University, Jakarta, 11520

A B S T R A C T

The global environmental crisis, marked by escalating plastic waste and climate instability, demands a transition from linear consumption to a restorative circular economy. This paper analyzes the "Green Innovation: Literasi Creative Art" program—a collaborative community development initiative led by MNC University and IPMI Institute. By integrating the "Sustainability Mindset" framework with practical upcycling literacy, the project transformed household waste into high-value creative products. This research employs a participatory workshop methodology to bridge the gap between environmental awareness and actionable "Green Behavior." Findings indicate that creative art serves as a powerful mediator for Sustainable Development Goals (SDG) 12 (Responsible Consumption) and SDG 8 (Decent Work and Economic Growth). The study concludes that fostering a Sustainability Mindset through tactile creative literacy is essential for empowering Micro, Small, and Medium Enterprises (MSMEs) and ensuring long-term ecological stewardship.

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*Corresponding Author E-mail:
lienaprajogi72.ppm@gmail.com

INTRODUCTION

The dawn of the Anthropocene has brought about unprecedented environmental challenges, most notably the global waste crisis and the systemic threat of global warming. In response, the United Nations established the 2030 Agenda for Sustainable Development, comprising 17 Sustainable Development Goals (SDGs) intended to harmonize economic prosperity with environmental protection. In Indonesia, the challenge is particularly acute; urban centers struggle with massive plastic waste accumulation, which remains a significant barrier to achieving national sustainability targets.

While environmental awareness is rising, a "literacy gap" persists. Many community members understand the theory of global warming but lack the practical tools to implement change within their immediate environments. Traditional community development often focuses on top-down policy rather than bottom-up behavioral transformation. The "Green Innovation" project, addresses this by positing that a "Sustainability Mindset" is the missing link.

This project seeks to redefine waste not as a liability, but as a "goldmine of possibility." By merging creative arts with upcycling literacy, the initiative aims to catalyze a circular economy at the grassroots level (de Moraes et.al, 2026). This paper explores how creative literacy can empower individuals to transform low-value waste into high-value artistic products, thereby supporting the dual goals of environmental remediation and economic empowerment for local MSMEs.

LITERATURE REVIEW

The Paradigm Shift: From Waste to Resource

The global waste crisis, characterized by nearly 2 billion tons of municipal solid waste generated annually, necessitates a move away from the linear "take-make-dispose" model (Jain & Patharia, 2026). Within this framework, upcycling has emerged as a superior alternative to traditional recycling (Boonpracha et.al, 2024). While recycling often involves "downcycling"—breaking materials down into lower-quality raw inputs—upcycling leverages design thinking to transform discarded objects into products of higher quality or artistic utility (Park & Lin, 2020; Adom et al., 2025; Adom, 2024). The ability to develop innovative circular economy is one of the key toward sustainable competitive advantage (Laszlo, C., & Zhexembayeva, 2022).

Comparable initiatives reinforce these findings. Jain and Patharia (2026) highlight up cycling as a superior alternative to linear “take make dispose” models, emphasizing design driven value addition. Creative reuse is winessing the impact artmaking has on raising environmental consciousness (Girak et.al, 2019).

The SCAMPER based scrap art process further illustrates how systematic idea generation transforms waste cans into functional objects, underscoring the role of structured creativity in sustainability (Perez, J. E. (2025).

Bentz et al. (2022) argue that embodied, arts based practices generate climate change meaning making through metaphor and local embedding. Further more, this research suggesting that the arts can play a critical role in engaging people with new perspectives on climate change and sustainability issues by offering opportunities for critical reflection and providing spaces for creative imagination and experimentation. Such processes may be important for contributing to the changes needed to realize transformations to sustainability. Šírová & Zbránková (2024) link plastic bottle up cycling to the EU Green Deal’s circular economy targets. This up-cycling work also inspires Indonesian innovative circular economy endeavours. And Vervoort et.al (2019) has also developed nine dimensions for evaluating how art and creative practice stimulate societal transformations.

SDG 12: Responsible Consumption and Production

Sustainable Development Goal 12 focuses on decoupling economic growth from environmental degradation. Boonpracha et al. (2024) argue that upcycling is a primary tool for achieving this goal. Their research highlights that the upcycling process must involve specific stages: waste

selection, conception, and the SCAMPER technique through Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, Reverse (Perez, J.E, 2022). By applying these methods, low-value waste, such as aluminum cans and PET bottles, can be converted into functional art, such as lamps and floral sculptures, thereby diverting them from landfills and reducing the carbon footprint associated with virgin material extraction.

The Sustainability Mindset Framework

A critical component of community development is the psychological transition toward environmental leadership. Indrajaya and Rimanoczy (2021) define the Sustainability Mindset as a holistic integration of values, systemic logic, and action.

- Being: Developing a personal connection to nature and a sense of purpose.
- Thinking: Understanding the complexity of global ecosystems and the "limitless" nature of creativity.
- Doing: Implementing practical skills, such as creative upcycling, to solve localized problems.

Recent studies suggest that for sustainability to move from theory to habit, individuals must engage in "tactile literacy"—the physical act of creating value from waste (Kassel & Rimanoczy, 2018).

SDG 8: Decent Work, Economic Growth, and the Creative Economy

For sustainability to be permanent, it must be economically viable. The "Sustainable Creative Economy" (SCE) relies on "Innovation Behavior" (IB) to turn upcycled art into marketable goods. Research in Indonesia (MDPI Sustainability, 2023) indicates that green creativity significantly contributes to a "Green Competitive Advantage" for Small and Medium Enterprises (SMEs). When community members are taught to upcycle, they gain the skills necessary to identify market demands for eco-friendly products, providing a low-barrier entry point for artisanal entrepreneurship (Setyaningrum et al., 2023).

RESEARCH METHOD

Program Design

The "Green Innovation" initiative was implemented through a participatory and interactive workshop methodology. The program targeted 30 participants per batch, including faculty, staff, students from the IPMI Institute and MNC University, and members of the public. This "Triple Helix" interaction between academia, community, and potential industry players ensured a diverse range of perspectives.

Phase I: Theoretical Foundation (Mindset Building)

The first phase involved intensive seminars focusing on the concept and scope of the 17 SDGs. The goal was to build environmental awareness by connecting local waste problems to global climate change. This stage utilized the "Sustainability Mindset" indicators to move participants from passive knowledge to an "intentional" state of being.

Phase II: Creative Technical Training (Literacy)

The core of the methodology was the hands-on workshop, where participants learned specific upcycling techniques:

1. PET Bottle Transformation: Using cutting and heating techniques to create durable floral art pieces.
2. Bottle Cap Upcycling: Converting high-density polyethylene (HDPE) caps into aesthetic keychains and accessories.

Material Selection: Participants were taught to identify the chemical and physical properties of various waste streams to determine their best creative use.

Phase III: Mentoring and Collective Commitment

The final phase included interactive coaching and discussion sessions. Participants were encouraged to formulate a collective commitment to implement "clean work" processes in their homes and workplaces. This phase also involved basic business modeling, showing how creative products

can be scaled into MSME ventures.

RESULTS AND DISCUSSION

Transformation of Mindset and Behavior

The workshop, conducted at the MNC University lobby, resulted in 100% of participants successfully completing at least two upcycled art pieces. However, the more significant result was the cognitive shift. Pre-workshop surveys showed that 80% of participants viewed plastic waste solely as a disposal problem. Post-workshop evaluations showed that 95% now viewed waste as a "raw material" for innovation. This confirms the "Connecting Being, Thinking, and Doing" model (Kassel et al., 2016).

Impact on the Circular Economy

Participants demonstrated “Green Innovation” by creating products that could potentially be sold in the local creative market. The discussion sessions highlighted how these practices directly support several SDGs:

- SDG 12: By reducing the volume of waste sent to Jakarta’s landfills.
- SDG 13 (Climate Action): Through the reduction of carbon emissions associated with waste incineration and new plastic production.
- SDG 8: By equipping students and community members with vocational skills in the “Green Economy.”

The Role of Academia in Community Development

The collaboration between IPMI and MNC University proved that educational institutions could act as hubs for social innovation. By providing the space for "Limitless Creativity," the universities facilitated a "Green Culture" that transcends traditional curriculum. This synergy is essential for scaling community development projects from small workshops to regional movements (Yuningsih & Zen, 2021).

Economic Challenges and Opportunities

While the technical success was high, the discussion revealed that "Digital Empowerment" is needed to turn these crafts into viable MSMEs. Participants identified the need for training in digital marketing and "green storytelling" to reach environmentally conscious consumers willing to pay a premium for upcycled art.

CONCLUSION AND RECOMMENDATION

Conclusion

The "Green Innovation: Literasi Creative Art" program effectively demonstrated that creative literacy is a foundational tool for sustainable community development. By fostering a "Sustainability Mindset," the initiative successfully transitioned participants from awareness to action. The transformation of recycled products into marketable art provides a tangible pathway for individuals to contribute to the UN’s Sustainable Development Goals while fostering economic resilience through the creative economy.

Recommendations

To ensure the sustainability of these impacts, the following recommendations are proposed:

1. Institutional Continuity: Future programs should be conducted periodically and integrated into the university's community service (KKN) mandates to evaluate long-term skill application.
2. Digital Scaling: There is an urgent need for workshops on digital branding and e-commerce for upcycled products to ensure they reach the "Green Market."
3. Policy Support: Local governments should provide "Green Incubation" spaces for upcycling artisans to collaborate and share resources.
4. Supply Chain Integration: Establish partnerships with local waste banks (Bank Sampah) to provide a steady stream of cleaned and sorted raw materials for creative MSMEs.

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