



Plastic Colony: tutur limbah, tutur laku, tutur langkah stories about waste, stories about behavior, stories about movement

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ABSTRACT

Plastic waste is one of the most urgent environmental challenges due to its non-biodegradable nature and long-lasting ecological impact. In Indonesia, the rising volume of plastic pollution highlights the need for innovative approaches beyond conventional waste management. This study introduces the concept of the plastic colony as a metaphor for ecological threat and develops a philosophical framework, Tutur Limbah, Tutur Laku, Tutur Langkah, to narrate the progression from awareness of plastic's dangers to the erosion of local ecological wisdom and toward collective action. Using participatory art, particularly installation art made from plastic waste, this approach integrates cultural insight with visual and sensory experience to foster deeper emotional engagement. The findings suggest that art-based interventions offer novel pathways to inspire behavioral change, reduce single-use plastics, and promote sustainable living.

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1. Introduction

Over the past few decades, plastic waste has escalated into one of the most pressing global environmental threats. Plastics, which take hundreds to thousands of years to degrade, continue to contaminate soil, water, and air, posing serious health risks to humans and wildlife (Adolf, 2010). In Indonesia, plastic waste is particularly critical due to its enormous volume, while public awareness and effective management remain limited (Achmad, 2024). Data from the Ministry of Environment and Forestry (KLHK), as reported by *Kompas.id*, shows that plastic waste generation reached 9.2 million tons in 2017 (13.98% of total waste volume) and is projected to reach 9.9 million tons by 2025. The COVID-19 pandemic further increased plastic waste, especially from packaging materials linked to online shopping (LIPI, 2020). The United Nations Environment Programme (UNEP, 2024) estimates that without preventive action, plastic pollution in aquatic ecosystems could triple by 2040. While these environmental reports highlight the urgency of the plastic crisis, most research is dominated by environmental policy and waste management. The artistic and cultural dimensions of plastic as material and metaphor remain underexplored. In contemporary art, *recycled art* and *installation art* have demonstrated how discarded objects can be transformed into works that challenge consumerist values and ecological neglect. Gablik (1991) emphasizes that art must move beyond modernist autonomy to embrace a "reenchantment" with the world, where artistic practice reconnects with ethical and ecological responsibility. Similarly, Lippard (1997) argues that art grounded in everyday materials and local contexts can foster a deeper sense of

place and responsibility toward the environment. Eco-art scholarship further reinforces this perspective. Kagan (2014) highlights that sustainable art practices embody "patterns of complexity" that make visible the interdependence between humans and ecosystems. Such approaches suggest that plastic waste, when recontextualized through installation art, can operate both as representation and as intervention—provoking sensory, emotional, and cognitive awareness.

From a cultural theoretical standpoint, Hall (1997) explains that representation is not a neutral reflection but a constitutive process that shapes meaning. Thus, plastic can be read as a cultural signifier of modern consumerism and ecological alienation. Likewise, Geertz (1973) suggests that symbols are vehicles of meaning in social life; interpreting plastic through artistic practice means interpreting the cultural logic of disposability itself. This study introduces the concept of the *plastic colony* as both a literal accumulation of plastic waste and a metaphorical "monster" symbolizing ecological threat. It applies a philosophical and cultural framework, *Tutur Limbah*, *Tutur Laku*, *Tutur Langkah*, to narrate the progression from awareness of plastic's dangers to the erosion of local ecological wisdom and toward collective action. The novelty of this study lies in bridging environmental discourse with artistic and cultural theory, positioning installation art not merely as aesthetic practice but as a participatory method of environmental education. Research Gap: Despite extensive literature on the environmental impacts of plastic, few studies have examined how artistic and cultural frameworks can function as alternative forms of environmental education and social engagement. Previous research has rarely integrated ecological data with cultural theory and artistic practice in the Indonesian context. This paper seeks to fill that gap by offering a holistic framework that connects environmental science, cultural analysis, and installation art.

2. Method

2.1. Plastic Colony: A Symbol of Waste and a Threat to the Earth

The *plastic colony* is a symbol of the relentless accumulation of plastic waste caused by a lack of human awareness in caring for the environment. Plastic, a product of industrial society, is composed of various polymers such as PETE (Polyethylene Terephthalate), HDPE (High-Density Polyethylene), PVC (Polyvinyl Chloride), LDPE (Low-Density Polyethylene), PP (Polypropylene), and PS (Polystyrene). These plastics are inseparable from modern life, particularly in packaging consumer products, practical but ecologically damaging. Each type of plastic has distinct physical and chemical properties, but they all share a high resistance to biodegradation. This makes them a long-lasting environmental threat, as they persist in nature for centuries, polluting land, seas, and air, and causing widespread harm to human and non-human life alike.

Fig. 1 depicts the comprehensive status of trash management across different regions of Indonesia, highlighting the national problem of garbage accumulation. Figure 1(a) illustrates the Bantar Gebang Landfill, recognized as one of the largest garbage processing and storage facilities, with waste accumulation indicative of the magnitude of urban consumption. Figure 1(b) illustrates the state of the Sente Landfill in Pikit Village, Klungkung, Bali, highlighting the difficulties of waste management in a region characterized by significant tourism and residential activity. Additionally, Fig. 1(c) illustrates the Pasuruhan Landfill in Magelang, exemplifying a comparable challenge in a semi-rural region with inadequate processing capacity. Meanwhile, Fig. 1(d) illustrates the Piyungan Landfill in Yogyakarta, which frequently attracts attention due to its surpassing capacity. Figures 1(a-d) collectively underscore the imperative of sustainable waste management and furnish a visual framework for the ecological discourse presented in this study.



Fig. 1. Waste management conditions and final disposal sites in various regions of Indonesia: (a) TPST Bantar Gebang (source: [Wikipedia](#)); (b) TPA Sente, Pikat Village, Klungkung, Bali (source: [Detik](#)); (c) TPSA Pasuruan Magelang (source: [Magelang News](#)); and (d) TPA Piyungan, Yogyakarta (source: [Detik](#)).

Growing plastic colonies have become monstrous entities, threatening Earth's ecosystems. In marine environments, plastic pollution disrupts food chains, leading to mass deaths of sea animals that ingest or get entangled in plastic. Microplastics, resulting from the breakdown of larger plastics, have even been found in drinking water and food, raising alarms about long-term human health effects. Without strong efforts to reduce usage, increase recycling, and seek eco-friendly alternatives, this "plastic monster" will continue to grow, jeopardizing ecosystem balance and the planet's future (Kent, 2020; Maskun *et al.*, 2022). This study employed a practice-based and art-based research methodology, integrating artistic creation with participatory observation and environmental education. The focus was on the development of an installation artwork titled *Plastic Colony*, which symbolically represents the relentless accumulation of plastic waste as a threat to Earth's ecological balance.

2.2. Research Site and Duration

This study was carried out in Palakali Creative Art Space in Depok, West Java, Indonesia, which functions as a community-oriented laboratory for ecological art activities. The complete set of activities spanned four and a half months, from February to June 2024, encompassing the phases of preparation, creation, exhibition, and reflection. This project engaged 30 participants, comprising 20 kids aged 10–15 from Citra Alam School, five local citizens from the vicinity of Palakali Creative Art Space, and five artists or facilitators who guided the collaborative production process. Participants were selected using a purposive sample technique to guarantee equitable representation among the younger generation, community people, and artists.

2.3. Research Procedure

The research process comprised four primary, interrelated stages. The initial phase was the collecting of plastic waste, during which people gathered refuse from residences, educational institutions, and local markets during a two-week duration. The gathered plastics comprised bottles, packaging, bags, and containers, reflecting prevalent polymer categories

including PETE, HDPE, PVC, LDPE, PP, and PS. The second stage involved the collaborative fabrication of the installation, during which participants, aided by artists, transformed the plastics into the artwork Plastic Colony. This phase highlighted co-creation methodologies, ecological dialogues, and material experimentation. The final step involved exhibition and public engagement, during which the installation was showcased for two weeks at Palakali Creative Art Space, accessible to the public and supplemented with workshops, artist conversations, and community dialogues. Visitors were prompted to contemplate the significance of the "plastic monster" as a metaphor for garbage accumulation. The concluding phase involved reflection and documentation, executed via participant observation, reflective journals, photographic and video documentation, and semi-structured interviews with chosen participants and guests.

2.4. Data Collection Methods

The data for this study were gathered using various complementary qualitative methodologies. Observations were carried out by recording diverse interactions that transpired during the development process leading to the display stage, enabling a contextual understanding of participation and collaborative dynamics. Additionally, semi-structured interviews were conducted with 10 participants, comprising five students, three residents, and two facilitators, to investigate their experiences, perceptions, and the meanings they derived during the creative process. To enhance the data, artistic artifacts, including completed installations, sketches, and workshop notes, were examined as qualitative data to illustrate the creative process and artistic insights that developed during the research.

2.5. Indicators of Effectiveness

The installation's efficacy as an artistic-educational medium was evaluated using three primary indicators. Cognitive awareness was first measured by looking at how much participants learned about different types of plastic and their effects on the environment, comparing what they knew before and during the experiment. Secondly, emotional engagement was evidenced through reflective journals, interviews, and audience response, indicating an increasing sense of empathy and concern regarding the issue of plastic waste. Third, behavioral intention was evident in participants' expressed commitment to minimizing single-use plastic consumption in their daily lives, reflecting the internalization of the ideals imparted by the installation.

2.6. Ethical Considerations

All participants provided informed consent, and for minors, parental approval was obtained. Personal identities were anonymized. All plastic materials used in the installation were responsibly managed, with part of them recycled or repurposed after the exhibition.

3. Results and Discussion

3.1. Story about waste (Tutur Limbah): The Plastic Waste Paradigm

Plastic is a durable contaminant with an extensive disintegration period, spanning from decades to millennia; so, its existence should be seen not merely as garbage but as a continuous environmental liability. Within the waste discourse framework, plastic is perceived as a hazardous byproduct of consumer culture, posing significant threats to ecosystems and the sustainability of life. Indonesia, a nation characterized by elevated plastic consumption, encounters considerable obstacles in its endeavors to mitigate plastic pollution. Despite the enactment of legislation prohibiting single-use plastics in various countries, the challenges of policy enforcement and altering public behavior persist as significant impediments. The acute urgency of this issue is increasingly apparent in the protracted decomposition periods of various plastics, including plastic bags that necessitate approximately 10–500 years for degradation, plastic straws around 20 years, plastic cups about 50 years, sachet packaging approximately 50–80 years, PET plastic bottles up to 450 years, and plastic rings that may endure in the environment for roughly 400 years.

Various plastic varieties exhibit distinct features and hazards based on their resin codes and applications. PETE plastic (1) is typically a transparent material utilized for beverage containers, including drinking water bottles, soft drinks, oils, and sauces; nonetheless, it is recommended for single use only, as it may emit carcinogenic compounds when subjected to heat. HDPE plastic (2), which is opaque, is extensively utilized for milk bottles and shampoo packaging; nonetheless, it may emit hazardous chemicals, such as antimony trioxide, over time. PVC plastic (3), prevalent in pipes, window frames, and children's toys, poses recycling challenges and environmental pollution risks. Low-Density Polyethylene (LDPE) plastic (4) is utilized in the production of press bottles and frozen food packaging; despite its relative chemical stability, this material poses significant challenges for natural decomposition. Polypropylene (PP) plastic (5) is extensively utilized for food containers, such as Tupperware, due to its heat-resistant and robust characteristics. Simultaneously, PS plastic (6), or styrofoam, which includes styrene associated with neurological and reproductive diseases, has been prohibited in numerous nations. The Other (7) group encompasses mixed plastics, including polycarbonate, which frequently contains hazardous BPA and has significant recycling challenges.

3.2. Story about Behavioral (*Tutur Laku*): The Shift from Local Wisdom

Behavioral discourse highlights how the massive use of plastic has replaced more sustainable traditional practices. Historically, individuals employed natural materials like leaves, fabric, and woven bags, which are biodegradable and ecologically sustainable. However, since plastic was mass-produced after World War II and began to dominate in the 1960s and 1970s due to its low cost and versatility, a major shift has occurred in packaging systems and lifestyles. The advancement of the packaging sector and the modernity of daily life have led to plastic supplanting traditional materials, significantly affecting the ecosystem. This change has affected material culture and reshaped people's environmental values, as seen in the shift from traditional packaging such as banana leaves, teak leaves, and natural fiber bags to modern packaging such as Styrofoam boxes, plastic film, and snack wrappers. Fig. 2 illustrates many conventional food packing methods utilizing natural and eco-friendly materials. Fig. 2(a) illustrates conventional food packaging from earlier times, representing the everyday habits of societies prior to the prevalence of plastic, whereas Fig. 2(b) depicts the utilization of teak leaves as food packaging, frequently observed in local culinary customs. Additionally, Fig. 2 (c) and Fig. 2 (d) illustrate the "sego tonjok" packaging employing teak leaves and head leaves, exemplifying indigenous wisdom in the sustainable utilization of natural resources. Fig. 2(e) shows cassava tape packaging made from natural materials, emphasizing that using leaves for food packaging is not only useful but also reflects environmental and cultural values.

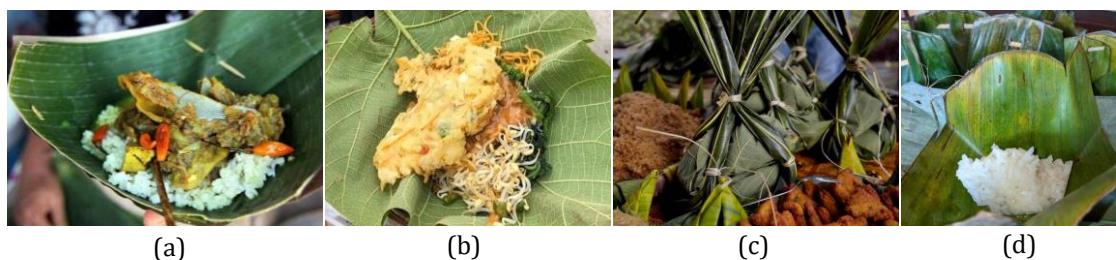


Fig. 2. Various types of traditional food wrappers based on natural materials: (a) old-fashioned food wrappers (source: Sonora.id); (b) teak leaf food wrappers (source: Jadesta – Ministry of Tourism and Creative Economy); (c) and (d) sego tonjok wrappers using teak leaves and head leaves (source: Jadesta – Ministry of Tourism and Creative Economy); and (e) cassava tape wrapping (source: Good News from Indonesia).

Fig. 3 illustrates instances of contemporary food packaging composed of plastic and non-biodegradable substances, indicating the transition in packaging methodologies from natural

to synthetic materials. Fig. 3(a) depicts a rice wrapper constructed from non-biodegradable styrofoam, whereas Fig. 3(b) illustrates a tape wrapper with mica plastic as the primary material. Additionally, Fig. 3(c) illustrates plastic wrappers typically utilized for diverse food items, while Fig. 3(d) depicts snack packaging composed of single-use plastic. Fig. 3 illustrates the prevalence of plastic packaging in contemporary consumer culture and its consequences for escalating trash production and environmental deterioration.



Fig. 3. Illustrations of food packaging composed of plastic and non-biodegradable materials:
(a) rice wrappers fabricated from non-biodegradable styrofoam (photo source: chanelmuslim.com); (b) tape wrappers constructed from mica plastic; (c) plastic wrappers (photo source: Halodoc); (d) snack packaging created from single-use plastic.

Fig. 4 depicts the evolution of shopping bag usage trends throughout time, indicating a transformation in the packaging industry's focus. Figure 4(a) illustrates that historically, shopping bags were predominantly constructed from natural or reusable materials, rendering them comparatively more environmentally sustainable. Conversely, Fig. 4 (b) illustrates contemporary shopping bags, predominantly composed of synthetic and disposable materials. This transition illustrates that the advancement of the packaging business has surpassed environmental safety issues, favoring pragmatism over sustainability and prioritizing aesthetic appeal above long-term ecological consequences.



Fig. 4. Comparative analysis of shopping bags across time periods: (a) historical shopping bags; (b) contemporary shopping bags.

3.3. Story about Action (*Tutur Langkah*): The Power of Conscious Acts

The action discourse encourages the public to contemplate tangible measures for enhanced environmental awareness. Technological advancements, especially within the packaging sector, are unavoidable. Nonetheless, this advancement must be tempered with responsible conduct to prevent compromising environmental sustainability. In the absence of critical understanding, innovation may exacerbate ecological deterioration by generating excessive waste. One of the most essential measures is minimizing the consumption of single-use plastics in daily life. Transitioning to reusable shopping bags, drinking vessels, and utensils constitutes a substantial initial measure. Moreover, rejecting plastic straws, throwaway cups, and shopping bags, while deliberately declining superfluous plastic, might diminish the demand for plastic products.

Efforts in plastic waste management constitute a significant aspect of ecological initiatives. Distinguishing plastic waste from organic waste facilitates more efficient recycling procedures. Active engagement in local recycling initiatives should be promoted; yet, the fundamental premise must continue to be the rejection and minimization of plastic consumption. Recycling is to be regarded as a final option, rather than the foremost alternative. Moreover, the exploration and adoption of eco-friendly alternatives must be pursued sustainably. The utilization of banana leaves, cardboard, or fabric as packaging materials exemplifies traditional methods pertinent to re-adaptation. Conversely, advancements in biodegradable and plant-based materials present an opportunity to align contemporary requirements with the tenets of ecological sustainability.

Education and public awareness are crucial for fostering long-term behavioral change. Environmental campaigns, community initiatives, and the utilization of art, especially installation art, can effectively communicate the hazards of plastic and the significance of ecological stewardship. This cultural perspective facilitates an emotional and reflective comprehension of environmental challenges. Ultimately, endorsement of environmental policy constitutes the structural foundation of this discourse. Support for governmental restrictions and prohibitions on single-use plastics must be reinforced, alongside the promotion of sustainable packaging systems and designs within the sector. Cooperation among individuals, communities, governments, and the industrial sector is essential for achieving genuine and sustained ecological transformation.

3.4. Methodological Approaches

This project employs an interdisciplinary methodology that synthesizes fine art, environmental science, visual communication design, and cultural studies in the creation of artwork. This approach aims to create works that are both aesthetically pleasing and communicative, addressing environmental challenges through emotional engagement and sensory experiences. Installation art was selected as the principal media due to its capacity to generate immersive visual and emotional experiences. The work is presented as a reflection space that fosters deeper audience engagement with the imparted ecological message through compositional processing, material selection, spatial arrangement, and technical display tactics, both indoors and outdoors. Utilizing plastic garbage as the principal media establishes a connection between creative activity and environmental and ecological awareness. This material is recognized not merely as a visual component but also as a subject of examination that includes the type of plastic, its characteristics, its degradation rate, and its environmental impact. The installation is crafted according to visual communication design principles, ensuring the message is potent, lucid, and readily comprehensible to a varied audience. This method is anticipated to cultivate critical awareness and promote contemplation regarding consumption behaviors and sustainable living practices.

This research employs a participatory strategy that highlights the community's or audience's active engagement in the creative process. Participation is regarded as a fundamental methodological component, facilitating group inquiry, collaborative experimentation, and co-creative activities. In this scenario, individuals transition from passive observers to active contributors directly engaged in the creation and evolution of the exhibit. Figure 5(a) illustrates the participative approach, showcasing community engagement in the creative process. Additionally, Fig. 5(b) illustrates an art installation composed of plastic garbage by Ary Okta, exemplifying the integration of a participative methodology and environmental consciousness in modern artistic endeavors. By engaging directly in the creative process, participants are encouraged to establish personal connections with environmental challenges, enabling the artwork to serve not merely as a visual depiction but also as a conduit for discourse and communal ecological consciousness.

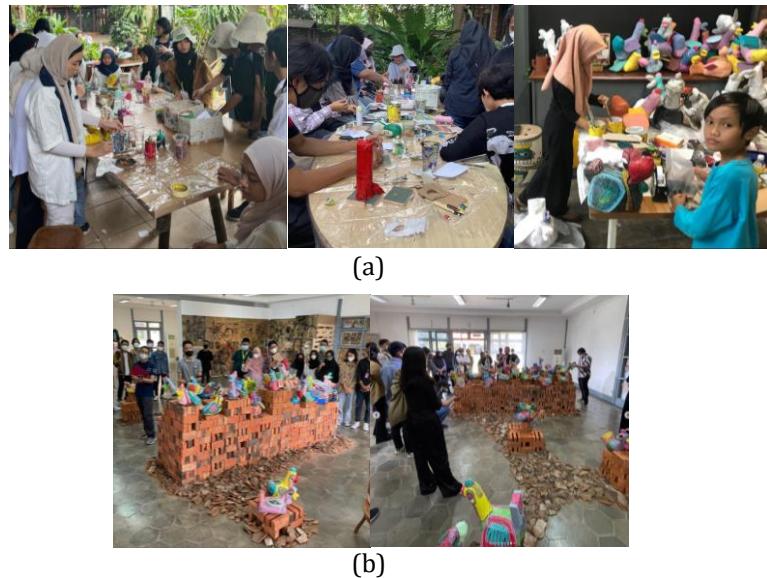


Fig. 5. Application of a participatory approach in environmental-based installation art: (a) participatory approach process in community involvement (source: @palakalicreative); (b) installation artwork made from plastic waste by Ary Okta (source: @ry.okta).

4. Conclusion

Plastic waste remains a severe and growing threat to Earth's ecosystems and to human survival. Despite policy interventions and environmental campaigns, behavioral change at the community level remains limited. Through the philosophical framing of Tutur Limbah, Tutur Laku, Tutur Langkah, stories about waste, stories about behavior, and stories about movement—this study has demonstrated how artistic practice can offer an alternative pathway for ecological reflection. The participatory installation Plastic Colony proved to be more than an aesthetic object; it functioned as a dialogical space where participants and audiences were encouraged to reconsider their relationship with plastic. This resonates with participatory art theories (Kester, 2004; Bishop, 2012), which emphasize dialog, co-creation, and collective meaning-making as essential strategies in expanding art beyond the gallery and into lived social practice. The process of changing old plastic into a symbolic "colony" also shows ideas from visual communication theory, where signs, symbols, and materials are used to create emotional connections, raise awareness, and highlight the importance of environmental issues. Nevertheless, this research has limitations. The scale of participation was relatively small (30 participants), with limited representation across wider demographics. The project was also context-specific, conducted within the community of Depok, and thus its findings may not be fully generalizable to other regions or cultural settings. Furthermore, while qualitative data indicated positive shifts in awareness and attitudes, the study did not include longitudinal or quantitative measures to assess whether such changes were sustained in the long term. Future research could expand on this work by incorporating larger and more diverse communities, integrating cross-disciplinary collaborations with environmental scientists, policymakers, and educators, and developing mixed-method approaches that combine qualitative insight with quantitative metrics of behavioral change. Another important avenue would be exploring the potential of digital media and virtual platforms to extend participatory art practices into broader networks, amplifying their communicative and educational impact. In conclusion, the Plastic Colony installation illustrates how participatory and visual communication strategies can enrich environmental discourse, transforming art into both a symbolic critique and a practical tool for ecological awareness. By bridging artistic practice, theory, and community engagement, this research affirms that installation art can not

only represent the plastic crisis but also foster small but meaningful steps toward reimagining sustainable futures.

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