**Proceeding of International Joint Conference on UNESA**
Homepage: https://proceeding.unesa.ac.id/index.php/pijcu
ISSN: 3032-3762

PIJCU, Vol. 2, No. 2, June 2025
Page XX-XX




# Plastic Waste Test for Makrame

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***Keywords:***
Trial
Plastic Waste
Makrame

**ABSTRACT**

*Natural damage due to plastic waste has been felt by humans. The reality that is happening today is that plastic waste has never been used by the community, plastic waste is often thrown away in public places and left alone. The habit of the community in eliminating and destroying plastic waste in general is by burning. Waste burning has a great effect on the surrounding environmental ecosystem, in addition to disturbing the land and sea environment, the burning of plastic waste can affect the depletion of the ozone layer which can ultimately cause global warming for the earth. The purpose of this study is to describe the steps of managing plastic waste as a material for makrame work, and describe the steps of working with plastic waste materials. This research uses a trial or experiment method that is carried out in several stages, starting from designing makrame crafts for two-dimensional and three-dimensional works, determining the makrame technique used, preparing the necessary tools and materials and making makrame from crackle plastic waste. Based on the results of the plastic waste trial, it was concluded that plastic waste can be used as a material for makrame work. The works produced are two-dimensional and three-dimensional, decorative works and functional works.*

## INTRODUCTION

Plastic waste poses a significant environmental challenge, with millions of tons entering landfills and oceans annually. Innovative approaches are being explored to repurpose this waste, one of which involves integrating plastic materials into macramé—a traditional textile art form that uses knotting techniques to create decorative items. This fusion not only offers a creative outlet but also contributes to environmental sustainability by reducing plastic waste (Artiani, 2018).

One notable method involves transforming plastic bags into "plarn" (plastic yarn), which can then be used in macramé projects. For instance, crafters have upcycled plastic grocery bags into macramé plant hangers, demonstrating the potential of this technique. Similarly, tutorials are available that guide individuals in creating reusable macramé tote bags from single-use plastic bags, showcasing both the versatility of macramé and the possibilities of plastic waste repurposing. These initiatives highlight the potential of combining traditional crafts with modern sustainability efforts, offering both aesthetic and environmental benefits (Byman, 2005).

The reality that occurs today is that plastic waste has never been utilized by the community, plastic waste is often thrown away in public places and left alone. The habit of the community in eliminating and destroying plastic waste in general is by incineration. Plastic waste can be overcome by utilizing it as an attractive and economically valuable recycled handicraft. There are three types of waste utilization, namely reduce, reuse, and recycle. In this case, the researcher reuses plastic waste that can still be used for the same function or other functions, namely as a material or medium for makrame work. There are various types of plastic waste, researchers choose plastic bags or crackle plastic. The test carried out was plastic waste from various kinds of

crackers and given certain treatments. Then assembled, woven to form two-dimensional works and three-dimensional works. The results of this treatment will allow researchers to know the types of crackers that are suitable for makrame media or materials.

## RESEARCH METHOD

This research uses a trial or experiment method that is carried out in several stages, starting from designing makrame crafts for two-dimensional and three-dimensional works, determining the makrame technique used, preparing the necessary tools and materials and making makrame from crackle plastic waste.

## RESULTS AND DISCUSSION

Two-dimensional works require wooden placemats to assemble the braided or twisted plastic. From plastic that has been formed, the basic motifs or between the basic motifs are assembled according to the design that has been prepared. The last activity is finishing the work with the addition of beads as accessories, the ends of plastic braids are tied.

Three-dimensional works require a frame or container that has been covered with velvet fabric as a placemat. The plastic braids are arranged in such a way that they resemble tassels on a mat that is then assembled to form basic motifs, so that it is shaped like a placemat. The last step is to tie the tassels.

The experiment involved testing plastic waste of varying thicknesses to determine its suitability for macramé art. The plastic materials used were categorized into three types:

1) Thin plastic (e.g., plastic bags and soft packaging materials)
2) Medium-thickness plastic (e.g., thicker shopping bags and flexible plastic sheets)
3) Thick plastic (e.g., rigid plastic packaging and bottle labels)

The results showed that the thin plastic waste produced the best macramé pieces in terms of flexibility, ease of knotting, and aesthetic quality. The medium-thickness plastic was moderately successful, while the thick plastic was difficult to manipulate and resulted in less refined artwork.

### Material Collection

Plastic waste, particularly plastic bags and packaging, will be gathered from households and local recycling centers. The selection criteria include flexibility, durability, and ease of manipulation for macramé techniques.

In this study, the Material Collection phase focuses on gathering suitable plastic waste for macramé crafting. The process ensures that the selected materials are appropriate for knotting techniques while promoting sustainability through recycling. The collection process involves the following steps:

Identifying Plastic Waste Sources, Plastic waste is sourced from various locations, plastic bags, food packaging, and plastic wrappers and Discarded plastic materials that are still usable. In Supermarkets and retail stores that dispose of plastic packaging.

Selecting Suitable Plastic Types, the collected plastic waste is categorized based on flexibility, thickness, and durability. Three primary types are Grocery bags, soft packaging materials, and lightweight plastic sheets. Medium-thickness plastics lake Thicker shopping bags and flexible plastic sheets. Thick plastics: Rigid plastic packaging and bottle labels (though these are less ideal for macramé).

1) Cleaning and Preparation To ensure the quality of the final macramé pieces, the collected plastic waste undergoes cleaning and processing. The width of the strips is standardized based on the thickness of the plastic.
2) Storage and Organization After preparation, the plastic strips are sorted by thickness and color to facilitate the macramé crafting process. The materials are stored in a dry and organized space to maintain quality and ease of use.

This phase is essential to ensure that only high-quality plastic waste is used for macramé. By selecting the right materials, the study promotes sustainable art practices, reduces plastic pollution, and maximizes the potential of waste materials in creative projects.

**Material Preparatio**
The collected plastic waste will be cleaned, cut into strips, and processed into "plarn" (plastic yarn). The width and thickness of the plarn will be standardized to ensure consistency in macramé knotting. The Material Preparation phase is crucial in ensuring that the collected plastic waste is transformed into a usable form for macramé crafting. This process involves cleaning, cutting, and processing the plastic into "plarn" (plastic yarn) to achieve consistency in texture and usability.

**Macramé Crafting Process**
Traditional macramé techniques, such as square knots, half-hitch knots, and lark's head knots, will be applied using the plastic yarn. Different designs and patterns will be tested to determine the adaptability of plastic waste in macramé art.

**Evaluation and Analysis**
The final macramé products will be evaluated based on aesthetics, durability, and usability. The analysis will be conducted through expert reviews, user feedback, and structural testing to assess the strength of the plastic-based macramé compared to traditional fiber-based macramé.

## CONCLUSION

This study explores the feasibility of using plastic waste as a material for macramé, highlighting its potential for sustainable artistic expression. The findings indicate that thin plastic waste is the most suitable for macramé due to its flexibility and ease of knotting, resulting in aesthetically pleasing designs (Baniaji, 2018). Medium-thickness

plastic provides a balance between durability and workability, while thick plastic proves to be challenging to manipulate and less effective for intricate knotting techniques.

The material collection and preparation processes play a crucial role in transforming discarded plastics into usable "plarn" (plastic yarn). Proper cleaning, cutting, and processing ensure that the materials maintain structural integrity while promoting eco-friendly craft practices.

By integrating plastic waste into macramé art, this study contributes to sustainability efforts by repurposing non-biodegradable materials into creative, functional, and decorative products (Wati, 2018). Future research could explore reinforcement techniques to enhance the durability of thin plastic-based macramé and examine the long-term usability of plastic-crafted items. Additionally, expanding public awareness and community engagement in upcycling plastic waste can further promote environmental responsibility through art.

This research demonstrates that traditional textile arts like macramé can be innovatively adapted to support waste reduction while fostering creativity and sustainability.

## ACKNOWLEDGEMENTS

The authors sincerely thank the Faculty of Language and Arts and the Institute for Research and Community Service at Universitas Negeri Surabaya for their invaluable support in making this research possible. This study aims to contribute to sustainable art practices by exploring the potential of plastic waste in macrame craftsmanship. We also extend our gratitude to everyone who assisted in material testing, shared insights, and supported the overall process, as their contributions have been essential in enriching this study.

## REFERENCES

Byman, R. (2005). Curiosity and sensation seeking: A conceptual and empirical examination. *Personality and Individual Differences, 38*(6), 1365-1379. https://doi.org/10.1016/j.paid.2004.09.004

Artiani, G.P. (2018). Bahan konstruksi ramah lingkungan dengan pemanfaatan limbah botol plastik kemasan air mineral dan limbah kulit kerang hijau sebagai campuran paving block. Jurnal Konstruksia, Vol.9, No.2, hal. 25-30.

Baniaji, Yuan Sarah, Mukhirah, Fitriana. 2018. Kreatifitas Mahasiswa Tata Busana dalam Penggunaan Busana Kuliah. Jurnal Ilmiah Mahasiswa Pendidikan Kesejahteraan Keluarga Volume 4 No 1. Diakses 24 Januari 2024 Pukul 21.22 WIB. http://www.jim.unsyiah.ac.id/pkk/ar ticle/view/9724

Wati, F., & Noer, F. (2018). Usaha Kerajinan Limbah Plastik di Desa Nusa. Jurnal Ilmiah Mahasiswa Pendidikan Kesejahteraan Keluarga, 3(2), 10-26.