

Empowerment of Karang Taruna through Training on the Upcycling of Container Wood Waste into Wall Lamps

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Abstract: Karang Taruna of RT. 10 RW. 005 Kedoya Selatan Village, Kebon Jeruk District, West Jakarta, is a platform for the development of the youth with the objective of promoting social welfare within the community. The results of field observations indicate that Karang Taruna RT. 10 RW. 005 Kedoya Selatan Village does not currently have any productive activities that are focused on the development of the potential of its members and the community in its vicinity. The Community Service team at the Faculty of Fine Arts and Design (FFAD) Trisakti University is motivated by this circumstance to offer training in order to empower the Karang Taruna in the region. The training is designed to instruct individuals on how to create wall lamps by upcycling container wood waste. This activity also seeks to educate participants on the process of converting container wood waste into functional products, in addition to developing their creativity and skills. The experimental method was employed in the preparation stage of this community service activity, while the mentoring method was combined with the PAR (Participatory Action Research) approach to actively engage the participants in the activities. The training session, which took place on Saturday, March 02, 2024, at the Materials and Processes Practicum Room at Trisakti University in West Jakarta, was attended by a total of 10 (ten) male participants between the ages of 17 and 26. The training resulted in the production of 10 wall lamps that functioned effectively and the enhancement of the skills, creativity, and knowledge of the members of Karang Taruna Kedoya Selatan regarding the management of container wood waste.

Keywords: container wood waste; upcycling; wall lamps; youth empowerment

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INTRODUCTION

Article 1 paragraph (1) of the Regulation of the Minister of Social Affairs of the Republic of Indonesia Number 25 of 2019, concerning Karang Taruna, states

that Karang Taruna is an organization established by the community as a forum for the younger generation to develop, grow, and progress on the basis of awareness and social responsibility

of, by, and for the younger generation, which is oriented towards achieving social welfare for the community. In accordance with the Minister of Social Affairs' regulations, the empowerment of Karang Taruna must be implemented through a variety of training programs to enhance potential, specifically by optimizing the utilization of existing resources, including human, natural, social, and technological factors, as a self-development initiative for the younger generation. Karang Taruna located in RT. 10 RW. 005 Kedoya Selatan Village, Kebon Jeruk District, West Jakarta, was established to facilitate innovative activities that have the potential to enhance social welfare. Karang Taruna in the RT. 10 RW. 005 Kedoya Selatan Village are currently less productive and their competencies are low, as the village does not yet have activities that are consistent with its obligations to enhance the abilities (potential) of its members.

Kedoya Selatan Village, which spans a total area of 2.29 km², is located in the Kebon Jeruk Sub-district and comprises 5 RT and 73 RW (Amanullah, 2022). Kedoya Selatan Village is home to 45,250 residents, with 22,359 men and 22,891 women, according to data from the 2019 Central Bureau of Statistics. The majority of residents in the region are ethnic Betawi, who are employed as employees, printing entrepreneurs, and laborers. They also work as snack vendors, entrepreneurs, and producers of ready-to-eat processed foods, including *nasi uduk*, meatballs, and chicken noodles. There are no businesses associated with fine arts and design in the Kebon Jeruk Sub-district area, which includes Kedoya Selatan Village. In an effort to enhance the potential of the younger generation and the community in the Karang Taruna of Kedoya Selatan Village, the community service team of FFAD Trisakti University is utilizing the conditions that have been conveyed to

provide a practice of upcycling container wood waste into wall lamps.

This training aims to enhance the talents and creativity of the members of Karang Taruna Kedoya Selatan, in addition to providing education on the management of container wood waste. The environmental consciousness of the society appears to be inadequate, as indicated by the results of field observations. In addition to plastic waste that is disposed without sorting, container wood waste is either discarded or resold by used wood sellers without further processing. Container wood waste is a type of waste that can decompose naturally. However, it necessitates a lengthy process and will consume space if left unattended. Container wood waste is frequently discarded after it has been used up or even burned to eliminate it, as it is deemed to be of no value. This has a detrimental effect on the environment (Beatrice et al., 2018).

The community service team was motivated by the data discovered in the field to empower Karang Taruna in the RT. 10 RW 005 Kedoya Selatan Village by offering training that emphasizes the upcycling of used wood waste. Wood waste material was selected as the primary source material due to its affordability and accessibility (Ariani et al., 2023). Upcycling is a process that involves the transformation of unused goods or objects into new products that offer new benefits and a higher quality, all while preserving the original form of the goods (waste). The objective of the upcycling process is to transform unused items into items that have a use value without undergoing a specialized material processing process (Putri & Suhartini, 2018). Through the training of upcycling container wood waste into wall lamps, it is anticipated that one of Karang Taruna's objectives can be achieved which is to enhance social welfare by improving self-reliance.

METHOD

The training was scheduled to take place on Saturday, March 2, 2024, from 9:00 a.m. to 5:00 p.m. WIB at the Practical Room of Materials and Processes, Faculty of Fine Arts and Design, Trisakti University, Grogol, West Jakarta, as per the agreement. The location is selected based on the location's proximity to the participants' residence and the availability of supporting apparatus for activities in the Practical Room of Materials and Processes.

This community service is divided into three stages: (1) preparation (material experimentation and training concept); (2) training implementation (introduction of container wood waste, wall lamp making practice); and (3) evaluation. The process of creating wall lamps by upcycling container wood waste involved the following steps: material preparation (cutting wood according to the pattern and sanding), assembly (joining parts), finishing (final sanding and coating), and electrical installation.

The participants of this community service were ten members aged 17–26 of Karang Taruna RT. 10 RW 005 Kedoya Selatan Urban Village, Kebon Jeruk District, West Jakarta. Five individuals have completed secondary school, four have completed vocational school, and one individual has completed a bachelor's degree. The participants were students (6 individuals), private employees (2 individuals), and those employed in the informal sector as online motorcycle taxis (2 individuals) at the time of the training.

The community service team was composed of four lecturers, one alumnus, one education staff member, and four students. Nevertheless, the lecturers who were present and served as instructors amounted to two individuals at the time of the training, and the students who were responsible for

assisting the instructors also numbered two. This is a result of the division of work, which ensures that each community service implementer has their own responsibilities. The instructors, who were trained in design science, were responsible for guiding participants during the training (practice) and providing an explanation of the design, form, function, aesthetics, material properties, and processing of container wood waste. In addition, the instructors were responsible for educating the community on the significance of environmental awareness, particularly in the context of container wood waste management.

The experimental method was employed in the preparation stage of this community service, and PAR (Participatory Action Research) was implemented during the training. The experimental technique was implemented to efficiently and effectively transform container wood waste into wall lamps. The community service team also prepared the components of the wall lamp to be manufactured during this preparation stage. During the implementation phase, the participants would assemble the components into a complete product. In order to accomplish the training objectives, the mentoring method was implemented in conjunction with the PAR approach to foster positive interactions with the participants.

An evaluation of work results and activity outcomes was conducted at the conclusion of the training. The wall lamp products generated by the participants were reviewed to assess the work results in terms of neatness, product performance (when activated), and size accuracy (precision level). The training participants also completed questionnaires to assess their abilities at this stage. In conclusion stage, the community service team assessed the activities by engaging in discussions

with the participants and relevant parties in order to obtain valuable feedback for the subsequent community service implementation. Figure 1 illustrates the phases of community service activities.

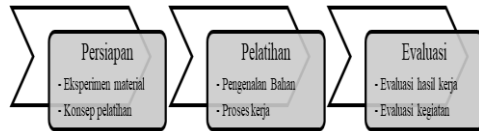


Figure 1 The various phases of community service activities

RESULTS AND DISCUSSION

Karang Taruna contributes to the development of productive young individuals by offering training facilities that enhance the skills of its members in the acquisition of expertise in a variety of disciplines (Suprayoga et al., 2016). In an effort to encourage the youth of Karang Taruna to be more productive and competent, the community service team offers training by selecting materials that are both inexpensive and straightforward to process, but also have the potential to be sold. The concept of training is the primary focus of the community service implementation, which includes an introduction to the upcycling of container wood waste and the process of converting them into wall lamps.

The participants and instructors were present to conduct community service activities at the designated time of 9:00 AM on March 2, 2024. The activity commenced with introductions and was followed by the provision of introductory insights regarding environmental preservation, including the upcycling of container wood waste into functional products. The community service instructor underscored the significance of Karang Taruna's role in the preservation of environmental equilibrium through a variety of practical activities on this occasion. This is consistent with Karang Taruna's mission to cultivate and

enhance the capabilities of its members in order to generate resources that are resourceful, possess a positive attitude, and are able to address social and environmental issues that arise in their surroundings (Hutama et al., 2021). Additionally, the instructor provided an explanation of the material employed, which was container wood waste. In general, basic materials for the production of container wood include planks of Dutch teak (pine wood). Dutch teak wood, which is derived from the pine tree (*pinus merkusii*), is frequently employed in a variety of countries due to its smooth surface, attractive vein pattern, and wood texture. This wood is frequently referred to as Dutch teak, *londo* teak, or container wood waste in Indonesia (Sutanto, 2017).

The instructor initiated the training activities in the community service by providing an explanation of the various methods that can be employed to convert unused container wood waste into valuable products. Upcycling products can be achieved through the use of container wood waste. The 3R procedure, which is a common international agreement, is the foundation of the current approach to waste management: reduce, reuse, recycle. By adhering to the principles of reuse, which prioritize the recovery of goods that are still usable, direct reuse is achieved by manufacturing new products using waste or used goods as raw materials. Wood waste, which was previously used as packaging for goods, can be transformed into repurposed products that are marketable, aesthetically valuable, and functional. By enhancing their aesthetic value and functionality, repurposed products have the potential to generate revenue for the community (Rizali et al., 2022). The application of design aspects is closely correlated with the production of high-quality results. The instructor also underscored this point. Consequently, it

is crucial to provide the participants with a comprehensive comprehension and knowledge of design prior to the design's implementation (Ariani, 2018).

The subsequent phase of the training involved the practice of upcycling container wood waste into wall lamps. After the instructor provided an explanation of the processing of container wood waste, the upcycling technique was implemented by the participants on the materials that were supplied. The unprocessed container wood (as illustrated in Figure 2) had undergone an initial caulking and sanding process prior to the training.



Figure 2 The fundamental components of upcycle products from container wood waste

Consequently, the container wood was prepared for further processing during the training. The purpose of this was to enhance the effectiveness of the instruction. Nevertheless, the instructor explained the process of enhancing the condition of the container wood, which was characterized by numerous defects and fractures. The character of the wood veins with vein "eyes" that are present on the surface is what distinguishes pine wood. If these "eyes" crack and fall off, resulting in the wood's surface becoming hollow, it becomes unsettling from an aesthetic perspective. In addition to knots, nail cavities necessitate treatment by filling them with water-based wood filler or putty.

In the practical phase, the community service instructors initially demonstrated

the operation of the apparatus in the Materials and Processes Practical Room to process wood. Subsequently, the participants practiced with the instructors' guidance. Each participant was provided with a collection of materials and equipment, including plank wood, malls (patterns) of table lamp field components, lamp fittings, cables, 5-watt bulbs, switches, and outlets. The youth of Karang Taruna who participated in the training had, on average, basic skills in wood processing practices, which enabled them to rapidly assimilate the information presented in each stage. The process of creating wall lamps commenced with the trimming of the wood in accordance with the established pattern, as illustrated in Figure 3.



Figure 3 Cutting in accordance with the pattern

The wall lamp is constructed from upcycled container wood and features numerous slits that serve as illumination components. In order to achieve a flat and smooth slit surface, the participants must exercise precision and patient when cutting and smoothing the slits. The edges of the lights that will be glued together must be sliced at a 45° angle in the form of elbows (miter joints), which necessitates a high level of precision and necessitates meticulous construction. Throughout this procedure, a team of instructors provided the participants with assistance in operating the miter saw machine. The wood that has been cut in accordance with the pattern is

subsequently polished manually using sandpaper number 240 to enable the wood fibers that have been covered with putty to reappear. In the Materials and Process Practicum Room (Figure 4), the participants also experimented with the emery machine (belt sander) in addition to the manual technique.



Figure 4 Using an emery mill to smooth the wood surface

The assembly process was conducted by using power glue to join the smoothed-out components of the wall lamp. It is imperative to perform restorations in order to ensure that each component is securely bonded together in the event of an imprecise union between them during the cutting process. It is crucial to obtain precise measurements during the pattern-making process in order to reach this stage. Furthermore, it is imperative that the pattern of the appropriate size be adhered to when cutting timber using manual or mechanical methods. Figure 5 illustrates the assembly process between components.

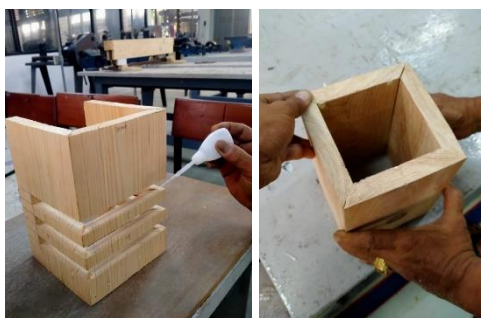


Figure 5 The procedure of assembling components

The assembled wall lamp components are subsequently resmoothed on specific irregular areas. Especially when the 45° angle cutting is less precise, a significant number of these components are located at the corners between joints. After the smoothing process, the timber surface is coated to complete the finishing process. The finishing procedure is a critical phase of the wood production process (Lestari et al., 2016). The appropriate finishing technique is essential for the production of products that are both high-quality and visually appealing (Gunawan & Setiawan, 2014). Products that incorporate container wood waste necessitate finishing. Finishing serves as an additional safeguard against insects that degrade wood, in addition to providing an aesthetic appeal. The transparent varnish coating was selected for this wall lamp design in order to showcase the original color of pine wood, which is bright and has attractive fiber, as illustrated in Figure 6.



Figure 6 Finishing process

The subsequent procedure involved the installation of electrical installations as supporting components, following a wait of approximately one hour, which was punctuated by break time, prayers, and lunch. The electrical installation in issue involves the installation of light fittings on switches and plugs that are connected by cables. Testing is conducted to verify that the electrical installation has been implemented

correctly, specifically by determining whether the bulb in the light fixture is illuminated. The correct installation and arrangement of the electrical installation are indicated by the presence of the light. Figure 7 illustrates the electrical installation, while Figure 8 illustrates the wall lamp lighting test.



Figure 7 The process of electrical installation

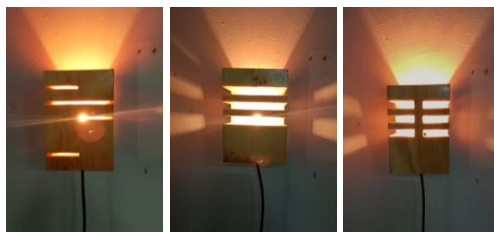


Figure 8 The lighting test of a wall lamp

The participants in this training have created ten wall lamps that are made from upcycled container wood waste. The final results of the training demonstrated that the wall lamp products produced by the participants, who are members of Karang Taruna RT. 10 RW 005 Kedoya Selatan Urban Village, Kebon Jeruk District, West Jakarta, have met the criteria in terms of product performance (when turned on) and neatness. Nevertheless, the accuracy and abilities of the participants are still required in terms of size accuracy (precision level). The instructor team conducted product evaluation by

examining the wall lamp products generated after completing a straightforward testing phase (Figure 9). Evaluation of the implementation of community service activities was conducted in addition to product evaluation through the completion of questionnaires by all training participants.



Figure 9 The product evaluation conducted by the instructor

The questionnaire results indicate that the participants were satisfied with the opportunity to partake in this training. The training participants experienced the advantages of the training in the form of the development of their creativity, skills, and knowledge in the area of upcycling container wood refuse into wall lamps. It is anticipated that the knowledge, skills, and inventive development acquired will mitigate the issue of waste accumulation, which has the potential to cause environmental harm. The cultivation of creativity and skills in a sustainable manner can enhance awareness of the sanitation and orderliness of the environment (Rizali et al., 2023). The results of the questionnaire regarding the participants' comprehension and application of the training materials are illustrated in Figure 10.

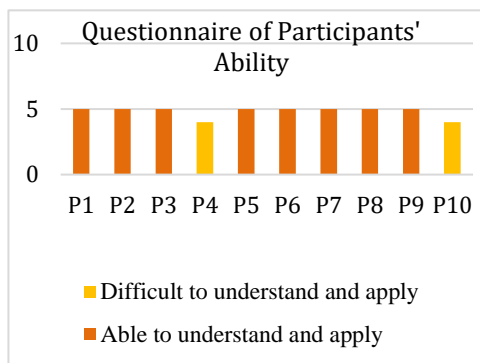


Figure 10 Results of the questionnaire completion

The questionnaire that participants completed to assess their capabilities during the training process yielded the bar chart depicted in Figure 10. The number of participants (10 individuals) who responded to the five queries posed in the questionnaire is represented by P1 to P10. The results of the questionnaire indicate that 8 participants were able to comprehend and implement the practices, whereas 2 participants encountered challenges in comprehending and implementing the practices when working on wall lighting products, particularly during the 45° angle cutting process. When designing wood-based interiors, there are numerous factors that can negatively impact production results. One of them is human error, which is the result of errors in observation and the use of measuring instruments, such as an arc ruler to measure the angle of inclination (Giancoli, 2001). In this instance, the furniture industry and other wood products frequently employ a variety of wood connection angles, such as the 45° angle, due to their attractive appearance and robust construction (Perdana et al., 2017: 2). The participants' challenges with the 45° angle cutting procedure are comprehensible, as they are not accustomed to practicing it. The questionnaire results also indicated that the participants desired equivalent

training to be conducted on additional occasions. As members of Karang Taruna, they aim to align this activity with one of the organization's objectives, which is to foster the development of the character and spirit towards independence among the younger generation through entrepreneurial activities in order to enhance social welfare.

CONCLUSION

The training activities for the community service program were successful in achieving their objectives. For the members of Karang Taruna RT. 10 RW. 005 Kedoya Selatan Village, Kebon Jeruk District, West Jakarta, the training on the upcycling of container wood waste into wall lamps is a novel experience. There was a high level of enthusiasm and seriousness among the participants, and there was positive interaction between the community service team and them during the training. This is comprehensible, as they have never been exposed to activities that develop their creativity and abilities. Consequently, it is anticipated that Karang Taruna will implement comparable training on an ongoing basis in order to enhance its potential by human resources, natural resources, social resources, and technology.

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