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Seedbed: The Use of Traditional Wooden Spoon as an Alternative Way for Supporting Biodiversity

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Abstract: *This study aims to explore the use of wooden spoons as an alternative to plastic disposable spoons to support biodiversity. This will contain finding out the experiences of the people in having problems or difficulties in using plastic cutlery waste, the tools and procedures needed in order to construct the wooden spoon and the seed that will be inserted, the measurement of the invention in terms of acceptability, durability, and efficiency and lastly, the respondents' thoughts regarding the given invention added by their suggestions for its future improvements. The results gathered from five selected respondents revealed the problems and issues being encountered when using plastic cutlery in terms of (a) burning of plastics, (b) mistaken disposal leading to pollution in waterways, and the largest problem is (c) air pollution. In addition, the given benefits of using the wooden spoon in order to possibly solve these issues are (a) good substitute in plastic utensils, (b) can help to manage waste, (c) helping the biodiversity by producing plants or trees, (d) more hygienic, and (d) more durable than plastics.*

Keywords—Traditional Wooden Spoon, Alternative way for Supporting the Biodiversity, Experimental research design, Code and Theme Analysis, Thematic Analysis, Thematic Coding

1. INTRODUCTION

In various countries, rapid urbanization and economic growth have led to a significant rise in plastic production and consumption around the globe. These massive quantities of plastic waste have negative impacts, such as deforestation, degradation of the food chain, breakdowns of biodiversity, waste of resources, and economic losses [1].

The normal citizen unknowingly consumes approximately 70,000 micro-plastic particles each year, and over a million seabirds and other animals die as a result of ingesting plastics [2]. The risk of plastics that keep on stopping waterways and drains which may prevent the water flows that assist to flush through human waste, and can cause flooding, which can contribute to increasing the infection rate of diseases spread by water [3].

Traditional wooden cutlery contributes environmental, financial, and health benefits to the planet. It is also less energy for processing; it is more sustainable than plastic and can be decomposed. Nowadays, many people used a wooden straw to support the environment. Wood is reusable and zero waste which contributes to reducing thousands of junks. Woodenware is one of the oldest pieces of equipment that had been used by beings. Another sample type of wood is the bamboos; it helps minimize the strength of light and defends against sun radiation. The production of bamboo decreases pollution; their plants reduce carbon dioxide by up to 35% in the environment and provide more oxygen. It is very beneficial because of its flexibility and fast-growing features [4].

2. RELATED WORKS

Rapid industrialization and urbanization have caused the production of an enormous number of solid wastes. The disposal of solid waste is a major issue in today's scenario. Many countries are facing massive solid waste management problems due to rapid urbanization and population explosion. Plastic garbage removal is a significant reason for concern. Among plastic wastes, the removal of plastic utensils is significant and has a huge impact on the environment [5]. Plastic has played an important role and changed our everyday lives. Over time, people are becoming more and more dependent on it. However, plastics also have many disadvantages such as their toxic substances that can be harmful to humans and other organisms. The toxicity of plastic is a problem in nature from individual up to the population level. The government should be more aware of the danger that it possesses and pay attention to sustainable production, use, and the proper disposal of plastics [6]. Plastic is widely used today, especially on take-away materials. This gives a big challenge in the management of waste disposal or management and also in pollution. Based on the research findings, it is considered that wood materials can serve as a sustainable alternative to plastic and gives a minimal difference. It also included that using wood materials instead of plastic has a good contribution to the waste management and emission problem [7]. Plastics remain in the environment for a long time; some can take up to 500 years to degrade, causing damage, harming biodiversity, and destroying ecosystem services needed for life. Plastic poses the greatest threat to the survival of coral reefs, second only to climate change: it raises the risk of disease outbreaks by more than 20 times [17]. Research from different places over the world about plastic and

environmental pollution proved that using plastics, mostly by the cause of plastic waste, is indeed an environmental issue. Its effects on humans and other organisms are a public concern that asks to help rescue the environment. It is a given that plastics are helpful to our everyday life, but we still need to observe and study them more so that we can be more assured about our health and environmental safety. One of the things that can help is to reduce the use of plastics so that the risk and danger that we may encounter may lessen [8]. Most plastics are nonbiodegradable and it is important to replace the plastics with biodegradable and compostable materials immediately. The researchers can produce tableware that is fully biodegradable, renewable, and environmentally friendly with the use of bagasse in sugar cane from sugar production. The materials will decompose in natural conditions in the span of 60 days. This is a huge difference from the degradation time of plastics and will cause no harm or toxic effects to the environment. In addition, adding bamboo fiber in sugarcane fibers resulted in forming a stronger material that can be used in making bigger products like food containers. The tableware made represents an eco-friendly and biodegradable alternative to plastics [9]. The outcome of the evaluation is to retain the new BSI recyclable plastic cutlery as it is 100 percent recyclable and low in cost. The other alternatives have advantages and drawbacks compared to the BSI cutlery, but none are substantially greater at the price level to replace it. UBC faces problems with their new scheme with relation to recycling the current cutlery. Not quite enough people dispose of their recyclables controlled approximately to negligible signage as discovered through the sociological experiment. Alternatives to this issue are more comprehensive signs or individual plastic recycling bins for various types of plastics [10].

New business research claims that the wooden cutlery industry is set to exceed a value in the range of $150 million in 2019 and broaden at a Compound annual growth rate of about 5 percent between 2019 and 2029. The findings suggest that "wooden cutlery is a reasonable approach to plastic and steel cutlery, due mainly to its environmentally and biodegradable properties," further said the report by Future Market Insights (New York) [11]. Wood is better than most of the other alternative materials. Wood is an acceptable fuel. But that's not to say that all trees can be cut down: cutting one tree out of a forest is different from harvesting the whole forest [12].

It is estimated that using wood instead of steel and concrete could save up to 31% of global carbon emissions and between 12% and 19% of global fossil fuel consumption [13]. Traditional knowledge in Southern Africa is illustrated by the inner bond of its indigenous people with Sclerocarya birrea (A. Rich) Hochst. Uh, Subsp. Caffra (Son.) Kokwaro (Marula) tree and is an integral part of their diet, practice, and history to the degree that it is referred to as the 'tree of life because of its capacity to provide food and medicine, which are essential human needs [14].

Wooden cutlery is a natural product made from an accessible, renewable resource and is fully compostable. Bamboo cutlery is very environmentally friendly since it is made from fast-growing, easily replenished bamboo plants. As compared to the oil-based, non-biodegradable plastic cutlery that fills landfills around the world; wooden cutlery is a safer and superior option [18]. In so many aspects ranging from microscopic and macroscopic features, chemical properties, physical and mechanical properties, Bamboo compete favorably with wood. Bamboo is a renewable resource that can be harvested year after year without fertilizer and plays a significant role in reducing forest resource pressure [15]. Wood has been used safely in conjunction with food for decades but is generally criticized because of its microbiological activity as opposed to smooth surfaces [16].

3. STATEMENT OF THE PROBLEM

To attest to the invention, there are questions that should be discussed and clarified all over the research experiment. The questions that the researchers would further find out are as follows:

1. What problems and issues being encountered by people in terms of using plastic cutlery?

2. What are the materials and process in doing a traditional wooden spoon with seed?

3. What does a traditional wooden spoon with seed look like?

4. How may the traditional wooden spoon with seed be of help to people?

4. METHODOLOGY

In performing the study, the researchers would use an experimental type of research to trace cause-and-effect relationships between specified variables. This style of study has a significant impact on the shapes of information that can be extracted from experimental data [19]. Experimental design, to put it directly, is concerned with examining the influence of an independent variable on a dependent variable, where the independent variable is manipulated by procedure or techniques [20].

A purposive sample is a non-probability sample chosen based on population characteristics and the study's goal. Purposive sampling, which is distinct from convenience sampling, is often referred to as judgmental, selective, or arbitrary sampling [21]. The researcher is in charge of

choosing who their respondents are in this sampling technique, therefore their judgment is in control.

In order to collect data, research interview questions were used. Research interviews bring into focus the decisions that the interviewer faces by taking a data-led approach in order to open up choices and decisions in the process of planning for, managing, analyzing, and representing interviews [22]. five participants will be selected to participate in an interview. interview prior to the product — wooden spoon with seed. However, before drawing any conclusions, it is important to conduct a comprehensive review and analysis of all of the data gathered. To process the collected data, this study employs Code and Theme analysis. Thematic analysis is a qualitative data analysis technique. It's commonly used to describe a set of texts, such as interview transcripts. The researcher scrutinizes the data for recurring themes – subjects, concepts, and trends of significance [23]. To continue in the results and discussion as well as the conclusion, the researchers checked and familiarized themselves with transcribed text from an interview and/or recordings about a wooden spoon with seed in order to encode and evaluate the content of the data.

5. RESULTS AND DISCUSSION

I. Problems and Issues Being Encountered by People in Terms of Using Plastics Cutlery

A. Non-biodegradable

One of the problems that the participants do encounter is that plastic cutlery is not biodegradable. According to one of the respondents "The plastic cutlery sometimes cannot be used in recycling or other ways to reuse it, and it just adds to the waste and worsens the pollution." Some of the respondents also mentioned that "The problem with using plastics cutlery is that mostly you can only use them in just one single-use and then you will just have to throw them away. They are also bad for our environment as they can't be recycled well." Another is that "Single-use plastic cutlery has especially become easily disposable leading to plastic pollution and environmental degradation." This leads to the next problem that most participants do encounter.

B. Pollution

Most of the participants' responses are based on the fact that plastic cutlery is one of the main causes of pollution on Earth. One of the respondents stated that "The problems and issues that humans encounter is the overproduction that leads to pollutions and the things it does to our environment especially in the marine life." Plastics lead to a long-term effect of plastic pollution particularly in the oceans. Physical, chemical, and economic are the three worst effects our marine lives may encounter. Entanglement, ingestion, and malnutrition are both physical effects on marine life. The accumulation of persistent organic pollutants like PCBs and DDT does have a chemical effect. As well as fisheries, transport, and tourism are all affected economically.

II. The materials and process in doing a traditional wooden spoon with seed

A. Materials:

a) Bamboo

b) Wildflower or other seed packet

c) Seed paper

Things need for Seed paper:

1. A paper shredder was used to cross-cut printer paper into tiny pieces. For each card, use 1 1/2 cups.
2. Warm water in a large bowl
3. Material for window screens
4. Hoop for small embroidery
5. Colored foods (optional)
6. A blender
7. 9 x 13 baking dish
8. 8Wildflower or other seed packet
9. Several layers of felt squares or bath towels
10. Paper with a wax coating
11. Markers with different colors

B. Process:

Steps on how to make a Seed paper:

1. Soak the paper strips in a bowl of water overnight.

2. Fill the blender halfway with fresh water, then add the soaked paper.
3. Blend the mixture until it is soupy.
4. If desired, add food coloring and blend some more.
5. Pour one-quarter cup of water into the baking pan, then add the blended paper mixture—or pulp.
6. Insert the embroidery hoop with screen from the side, allowing it to slide beneath the pulp and seeds. Spoon some of the pulp over the screen if necessary.
7. Gently lift the screen, catching the pulp mixture evenly on top and allowing the water to drain.
8. To drain, place the screen on a bath towel or felt layers.
9. Sprinkle some seeds on top of the wet pulp and gently press them into the pulp's surface.
10. When the bath towel or felt has absorbed all of the water, pick up the hoop and place it on a sheet of waxed paper to dry. (The seeds will be near the bottom.) To loosen the pulp from the screen, gently tap the hoop on the table or counter surface. If the pulp does not stick together the next time, try putting more pulp on the screen.
11. Allow at least 24 hours for the paper to dry.
12. If the paper is not lying flat, place a heavy object (such as a book) on top of it for a few hours to flatten it.
13. Decorate the unseeded side with markers.

Steps on how to make a Wooden spoon with seed paper

Step 1: On a piece of wood, draw a rough outline of the desire spoon.
Step 2: Cut out the spoon outline.
Step 3: Carve out the spoon bowl with a rounded gouge. Carve a small round crater at the handle
Step 4: Shape the bowl's exterior and handle.
Step 5: Sand down the wooden spoon.
Step 6: Apply a food safe finish
Step 7: Apply adhesive to the crater.
Step 8: Lastly, put the small crumbled seed paper where the crater is.

The outcome of the product will be showed in the following section.

III. Traditional wooden spoon with seed looks like

The traditional wooden spoon with seed has a straight, not at all ergonomic handle with a reasonably sized, designed to minimize discomfort in using the spoon, with a slightly concave end. The seed paper is placed on the opposite side, built to be quickly applied its after use.

IV. The help of traditional wooden spoon with seed to the people

Based on the feedback that the participants' responses are mostly positive. According to one of the respondents, “It will be a really big help to people because it is not just to prevent pollutions, it is also made to grow new trees. Wooden spoons with seeds are made because it's disposable and so you can just bury it in the soil.” One of the respondents also stated that “I think it’s very helpful to people because when you throw it away there’s a possibility to grow like a tree in the future. It will generate again, very useful and good for the environment.” Another is that “It will help the people and the environment. Traditional wooden spoon with seed will obligate the people to switch from plastic cutlery to wooden cutlery with seed to save the environment by planting the spoon after using it since there is a seed on it.” Some also said that “for the fact that it can be a good substitute to plastic utensils. The wooden spoon is much more durable than the plastic one. And also, it is environmentally friendly.” One of the respondents also mentioned that “It can promote a good cause in our planet and this project will not go to waste because the product itself can help our planet and this will be a good plan for a change.” All of these feedbacks proves how the traditional wooden spoon with seed may help the people as well as the environment.

6. CONCLUSION

The researchers came to the conclusion that there are many issues being encountered by different people in terms of plastic cutlery waste. For example are burning of plastic which may badly affect the environment, disposing in the wrong places which leads to pollution in waterways, and air pollution. In response to this conflict, the researchers provided a survey in order to prove the effectiveness of the traditional wooden spoon. The information and responses gathered are: First, it can be a good substitute to plastic utensils and help to manage waste. It can lessen the plastic waste and also help the biodiversity because it can produce a plant or even a tree. Another respondent suggested that it can also be of help in terms of food hygiene compared to plastic utensils. Second, it is much more durable that plastics. Because of the fact that it is wood, there are many things that can be done with the used material compared to plastic spoons. In addition to this, the researchers considered using a seed paper in order to seal the seed and also make it more comfortable to use. The seed can still grow even when the paper is placed so that the user can instantly insert it into soil or land for and the seed will start germinate.

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