



Title: MagBag (Magazine-based bags)

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We declare that the work in this final year project paper was carried out in accordance with the regulation of Polytechnic. It is original and is the result of our own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any diploma or qualification.

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ABSTRACT

The paper industry has been an important part of the global economy for centuries, providing important products such as books, newspapers, packaging, and writing materials. The types of paper available in the market range from soft paper for writing and printing to cardboard for storage and packaging. but every month, more than 57,000 metric tons of paper, which can occupy 456,000 cubic metres of landfill space, are thrown into landfills in Malaysia. This is equivalent to cutting down 680,000 trees of marketable size. In fact, 25% of landfill waste and 33% of municipal waste is paper waste. This project focuses on problems such as low awareness on environmental issues, low recycling awareness, and the increased paper base pollution. A questionnaire was distributed among all ages and 30 respondents were collected. Based on our observations and interviews among housewives, 73.3 percent of respondents chose to throw away, burn or sell old magazines, but only 26.7 percent of respondents chose to recycle old magazines. The majority of our respondents are aware of the impact of paper waste on the environment but sometimes still choose to recycle. In addition, most consumers still rely on newspapers and magazines, especially housewives, which can contribute to other forms of environmental pollution, so we designed a magazine-based bag using recycled materials such as magazines paper and it is known as MAGBAG. It can be used as a gift bag to give to loved ones because it is safe to use and an environmentally friendly product. The objectives of this study are designing and developing environmentally friendly magazine-based bags; a handbag that is made from a Magazine but has a strong quality bag that can be used to put things and has a very aesthetic design from the pages of a magazine and implement 'reuse' in the 3Rs by reusing old magazines to produce new usable bags and assess individual acceptance of this new product. MAGBAG is located at the Sultan Salahuddin Abudl Aziz Shah Commerce Department Polytechnic and several places. A self-administered questionnaire was distributed to all MAGBAG users and responses from respondents were analysed using SPSS software based on purchase intention, user acceptance and intention to use. These questions were taken from several journals as reference.

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

1.1.0 Environmental Pollutions

Environmental pollution is increasing gradually and causing a serious impact on living organisms, including humans. Environmental pollution can be defined as "the contamination of the physical and biological components of the earth system to such an extent that normal environmental processes are negatively affected (Muralikrishna, I. V., & Manickam, V. 2017). In 2020, Malaysia ranked 68th out of 180 countries, compared to 75th in 2018, for the Environment Performance Index (EPI). The EPI ranks countries' performance on high-priority environmental issues in two broad policy areas, including protecting human health and protecting ecosystems (Mohd Hasnu N, Muhammad I, 2022). Recently, Malaysia has been facing a critical period in handling environmental issues. The issues appear to be very aggressive due to the increasing number of the population (Mohd Hasnu N, Muhammad I, 2022). In Malaysia, the four most common forms of environmental pollution are air, water, plastic, and paper pollution.

Particulate matter (PM) emissions in Malaysia from 2012 to 2021

(in 1,000 metric tons)

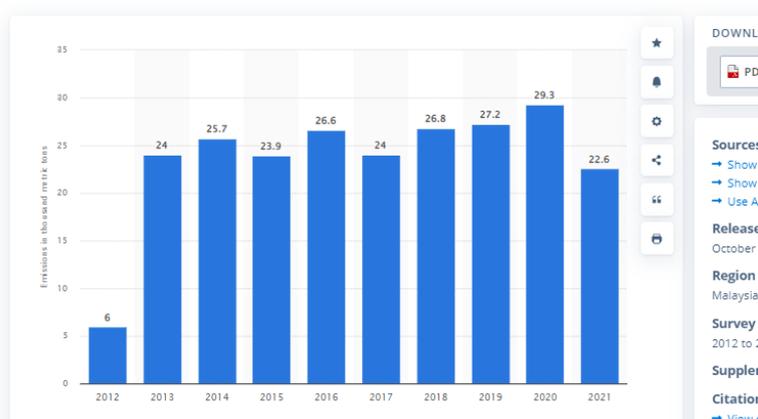


Figure 1.1 Air pollution issues in Malaysia from 2012 to 2021

Air pollution occurs when the air is contaminated with natural and anthropogenic pollutants. The primary sources of air pollution are emissions from motor vehicles, power plants, and industry, as well as stationary sources and open burning activities (Department of Statistics Malaysia, 2019). Additionally, the combustion of fossil fuels produces extremely high levels of air pollution and is now a main area of focus for control. The general impacts or effects of air pollution on humans include reduced lung functioning, irritation of eyes, nose, mouth, and throat, asthma attacks, respiratory symptoms such as coughing and wheezing, increased respiratory disease such as bronchitis, reduced energy levels, headaches, and dizziness, disruption of endocrine, reproductive, and cardiovascular problems, and it can sometimes even lead to cancer and premature death. The impact of acid rain destroys fish life in lakes and streams. Acid rain can kill trees, destroy the leaves of plants, and infiltrate soil, making it unsuitable for purposes of nutrition and human habitation (Muralikrishna I, Manickam V. 2017).

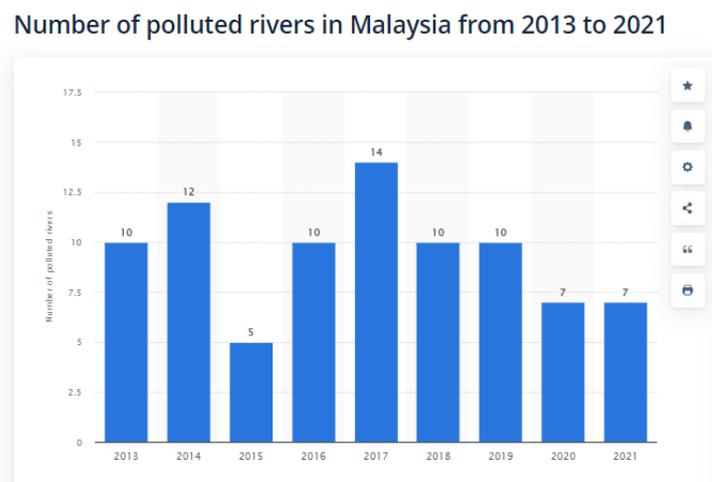


Figure 1.2 Water pollution issues in Malaysia from 2013 to 2021

Next, water pollution is also one of the problems in Malaysia because it has a negative impact on the sustainability of water resources. Not only that, but it also affects plants and living organisms, the health of the population, and the economy. The total availability of water is reduced significantly as the cost of treating contaminated water is too high and, in some

cases, polluted water is not suitable for consumption. Unfortunately, due to river pollution, the abundance of water resources in the basin cannot ensure an adequate supply for all users (Afroz et al., 2014). In addition, domestic and industrial waste disposal, leakage from water tanks, and marine dumping are also major causes of water pollution (Haseena M et al, 2017). It will have an impact on several infectious diseases like cholera and typhoid fever, as well as other conditions that spread through contaminated water like gastroenteritis, diarrhoea, vomiting, skin issues, and kidney difficulties. Direct damage to the nutrition of plants and animals has an impact on human health. Seaweed, fish, crabs, and other marine creatures used as food for humans are all killed by water contaminants (Haseena M. 2017).

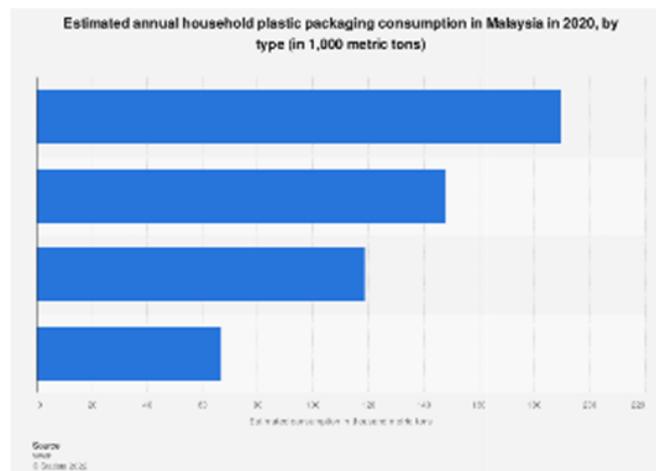


Figure 1.3 In 2020, the estimated value of annual plastic consumption in Malaysia.

Plastic waste is one of the concerns of human health and the environment. Plastic is the third highest source of waste in the world, with the total volume of plastic waste increasing in line with the increase in global population and per capita consumption. Malaysia tracks global trends in both overall generation of plastic waste and use of single-use plastics and since 2017 has been the world's largest importer of plastic waste (Chen @ et al, 2021). In 2020, the estimated value of annual plastic packaging consumption in Malaysia amounted to 148 thousand metric tons (by Statista Research Department, 2022). According to the source, the annual per capita plastic packaging consumption in Malaysia was equal to 16.78 kilograms (by Statista Research Department, 2022). Plastic can release toxic substances, including heavy

metals such as lead and mercury, acid gases, and particulate matter. These substances can enter the air, water, and soil and harm workers and nearby communities, causing direct and indirect health risks. It will cause a series of negative health effects, including inflammation, genotoxicity, oxidative stress, apoptosis, and necrosis, which are all related to negative health results (Li B, Liu J, Yu B, Zheng X 2021).

Therefore, these diseases can be avoided if the community works together to take care of the environment. Small steps can be taken starting at home or work; parents and teachers can teach children the importance of keeping safe.

1.1.1 Paper Industry

According to Shenoy & Aithal (2016), the paper industry has been an important part of the global economy for centuries, providing essential products such as books, newspapers, packaging, and writing materials. The types of paper that are available on the market range from soft paper for writing and printing to cardboard for storage and packaging. Paper is made from wood pulp, which is made by cutting down trees and grinding them into pulp. Over the past 40 years, paper consumption has increased by 400% worldwide, leading to deforestation, and 35% of the trees cut down are used to produce paper (David, Thangavel, & Sanskriti, 2019).

Moreover, paper and paper products generate the largest portion of municipal solid waste. Every month, over 57,000 metric tonnes of paper, which can occupy 456,000 cubic metres of landfill space, are thrown into landfills in Malaysia. This is equivalent to chopping down 680,000 trees of marketable size. In fact, 25% of landfill waste and 33% of municipal waste is paper waste (Thanam Industry Sdn Bhd).

Although the paper industry is the main contributor to the global economy, research shows that the industry has low profit margins and requires high initial investment. (Zanda et al, 2019).

1.2 PROBLEM STATEMENT

A survey was conducted by using a questionnaire method, there were 14 questions and the total of responses were 30 who answered the survey from google form. The respondents were mostly parents and individuals who buy magazines. Therefore, the results from the survey were collected and analysed to support the problem statement below.

Low awareness on environmental issues

Based on the survey findings, 63.3% of respondents are not aware the number of papers that we Malaysian throw in the landfills in a month or a year. It shows that most Malaysians are unaware of the high commodity value of rubbish they generate either directly or indirectly. Although our survey findings state that only 53.3% of Malaysians are slightly concerned about environmental pollution, it is not reflected in their daily behaviour because there is a hike in waste sent to the landfills. Our findings are in line with Datuk Seri Dr Dzulkefly Ahmad Malaysia Health Minister perceived that "Malaysians' activities and way of life need to be changed especially in terms of safeguarding the environment because many Malaysians are not realise what is happening to the environment including climate change which can affect people's health," (New Strait Times, 24th September 2019).

Therefore, issues on environmental pollution can't be resolved by the authorities and it continues until today, everything starts from an individual. In additional, based on the studies on environmental care among youth which is conducted since April 2018 until February 2022 are participated by 384 respondent aged between 15-30 years old from Kuala Lumpur and Putrajaya concluded that 94.5 percent of the respondent understand on the importance of reducing waste in landfill and its impact on environmental sustainability however 40 percent cited that time constrain and their busy schedule are the main reason why they do not recycle their waste(New Strait Times, 10th March 2022).

Low recycling awareness

The result from our survey 56.7% of our respondents describe themselves as not recycling their waste means that they just throw away their waste without dividing them according to the correct types of waste for example paper, plastic, and bottle. Meanwhile 16.7% of the respondents describe themselves as those who like to recycle but not everything they will recycle and only 13.3% describe themselves as like to recycle everything that can be recycled. Furthermore, our survey findings shows that only 26.7% will recycle their trash, 53.3% will throw their trash in the dustbin and 20% will burn their trash. It shows that recycling awareness is still low among Malaysians although the government has encouraged Malaysians to practise 3Rs (reduce, reuse and recycle) since the 1990s. According to National Solid Waste Management Department shows that nation's recycling rate for the year 2021 are 31.52 percent which is considered low when we compare with other developing countries due to increase in the daily waste generation 2020 (38,081 tonnes), 2021 (38699 tonnes) and 2022 (39,936 tonnes) (New Strait Times, 10th March 2022). The department also concluded that Malaysia Recyclable Resources Industry lost RM476 million in a year because recycling practices in Malaysia have yet to become a norm in this country (New Strait Times, 10th March 2022).

Increase paper base pollution.

Our survey findings shows that 60% of the respondents purchase magazines and from this 60% respondents 96.7 percent purchase magazines monthly. It shows that Malaysians have reading habits because most of the respondents who participated in this survey are aged between 21-30 years old with Diploma qualification. According to the National Solid Waste Management Department, 17 percent of waste sent to landfill consists of paper and plastic (New Strait Times, 10th March 2022).

Municipal solid waste (MSW) is a type of solid waste that is generally referred to as trash or rubbish and is generated daily by households, businesses, industries, and others. Food waste, plastics, paper, glass, metal, and landscape debris are all examples of MSW. A survey in UPM Serdang was conducted and found that papers, plastics (packaging and pet bottles), and kitchen garbage are available in all 23 UPM offices evaluated, with 20 workplaces producing e-waste and tetra pak. Apart from food waste and plastic waste, paper waste also ranks for the most waste that were collected around UPM. As an outcome, the majority of the paper will be collected for recycling. Paper recyclables were collected by a cleaner and sold to third parties, as was the case in the offices. Here the result stated that 30% or stated that the amount of 100 kg to 250 kg of paper waste were collected. The survey shows that there is a lot of waste that comes from paper that should be taken so the pollution from paper waste can be decreased. (Ahmad,Mohd,Latifah et al,2019).

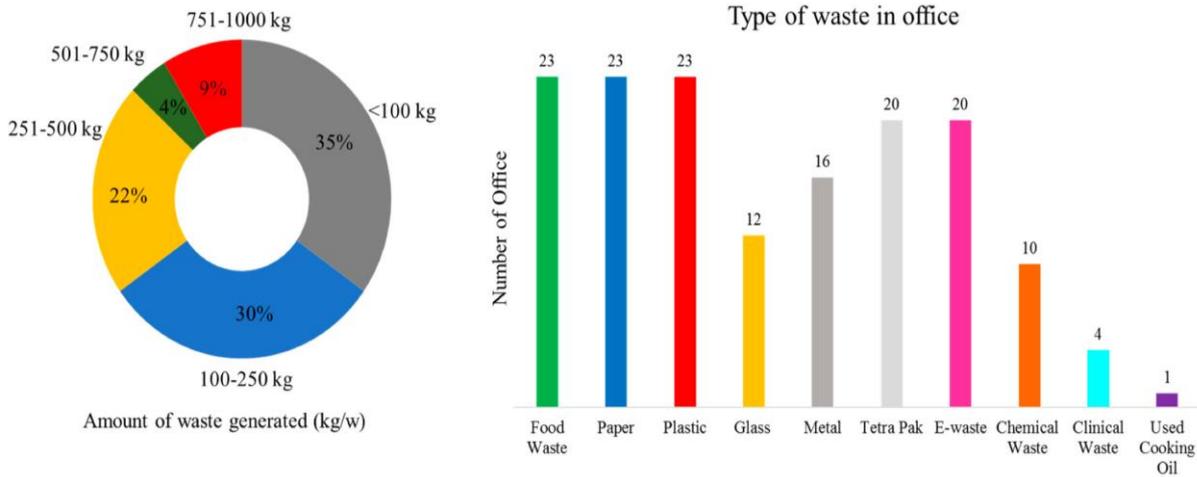


Figure 1.4 In 2019 the amount of waste generated (kg/w) in UPM.

1.3 RESEARCH OBJECTIVE

The purpose of conducting this project is to reduce paper:

1. To design and develop eco-friendly magazine-based bags.
2. To implement and evaluate the product whether the function of the product met its purpose of gift bag.

1.4 PROJECT QUESTION

1. How do we design and develop an eco-friendly product from recycle magazine?
2. Does the Magbag very effective to use?

1.5 SCOPE OF THE PROJECT

The research was conducted in the Klang Valley because the population in Klang Valley is higher than other states, (Press Release Current Population Estimates, Malaysia, 2022). Not only that, but the Klang Valley is also famous for frequent flash floods due to excessive dumping of garbage. Therefore, magazine dumping is likely to occur frequently as well.

1.6 SWOT ANALYSIS

Strengths	Weaknesses
<ul style="list-style-type: none">● Eco-friendly● Easy and safe to use.● Suitable for all ages● Unique● Weight	<ul style="list-style-type: none">● Not waterproof
Opportunities	Threats
<ul style="list-style-type: none">● Concern about recycling● Able to market on social media	<ul style="list-style-type: none">● Other properly produced bag

Strengths

· **Eco-friendly**

Our innovation was created by using old magazines which will not cause any problems for the environment in the future. By introducing MagBag will encourage Malaysians to be more concerned on using recycling products to provide a less polluted environment.

· **Easy and safe to use**

MagBag is easy and safe to use because the way of use is the same as a normal bag and did not cause any indirect threat for the customer.

· **Suitable for all ages**

MagBag is suitable for all age groups especially adults and elders and this product does not cause any harm for the user.

- **Unique**

MagBag is unique because it does have unique features and the customer can choose the Magbag based on their favourite magazines.

- **Weight**

Not only that, even though the MagBag is made from recycled items, it is still strong and can carry a weight of 2kg. Because it is woven it makes it stronger and easy to carry anywhere.

Weakness

- **Not waterproof**

The only downside of the MagBag is that it is not waterproof, so this product is not waterproof and will get wet if it meets water.

Opportunities

- **Concern about recycling**

A healthy lifestyle can be achieved because this can give a person a perspective on recycling, which results in an increase in recycling in their lifestyle, therefore, this product is suitable for someone who cares and cares about recycling old magazines.

- **Able to market on social media**

MagBag is easy and can be marketed on social media because of its own uniqueness that highlights the beauty of the magazine when woven and formed into a bag.

Threats

· Other properly produced bag

The only threat from this product is that there are many competitors who manufacture bags with various brands, designs and materials creating a lot of competition for us. To make this bag stand out from the rest, we created gift bags from woven recycled materials.

1.7 IMPORTANCE OF THE PROJECT

There are a few importances of conducting this study that can be benefited by:

1. Individual

This study can affect an individual's ways of thinking and perceiving different viewpoints. Through this study, an individual can gain profound knowledge regarding the topics of environmental pollution, specifically, paper waste pollution.

2. Community

The amount of paper waste in the environment shows the level of knowledge in the community. Thus, this study helps to enlighten the community on the importance of saving the environment for future generations.

3. Government

The GDP that can be achieved will increase through the company that takes initiative to further develop our product. Government can strengthen the local ability and expand their market internationally.

4. Country

Malaysia is a country with diversity of race, religions, beliefs and language. Nonetheless, the country can utilise the differences by considering these new developments in products. Malaysia's name will be known to the world as a country that can develop sophisticated, eco-friendly products.

1.8 DEFINITION OF TERMS/ OPERATIONAL DEFINITIONS

There are a few terms that were used in this study, the followings are the terms and their definitions:

1. Eco-friendly product

This term can be defined as the product that was invented and is not harmful to the environment. This term is well aligned with our product that we invented. (Rachel Carson (1907-1964) certainly helped foster a reawakening of environmentalism, but it was Henry David Thoreau, in his book 'Maine Woods', who called for the conservation of and respect for nature and the federal preservation of virgin forests)

2. 3R

The three Rs are a common shorthand for the trash management hierarchy: reduce, reuse, and recycle.

1.9 SUMMARY

In this chapter, it provided a clear picture of the entire research starting from how the pollution contributed to the negative impact on the environment, the problem statement of this project until the importance of this project and definition of terms that were used in this project. This chapter covers the foundation to start this project and to be the guidance through this whole project.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

ADDIE is a framework for instructional systems design (ISD) that many instructional designers and training developers use to create courses. (Morrison, Gary R. Designing Effective Instruction, 6th Edition. John Wiley & Sons, 2010). The term ADDIE is an acronym for a five-step process which are Analysis, Design, Development, Implementation, and Evaluation. ADDIE model is one of the most popular learning models in corporate and higher education. Thus, this model will be used in the formation of MagBag as it helps to guide it in a systematic approach.



Figure 2.1 shows the ADDIE model.

2.2 CONCEPT THEORETICAL/ FRAMEWORK

2.2.1 Analysis

Qualitative analysis helps identify research goals and objectives. It also helps gather information about our audience. Before we start developing our product, basically we should get a clear picture of the current situation by analysing. How should we do a good analysis? Good questions that contain what, who, why, where and how. Before we developed MAGBAG, we conducted a pre-survey among Klang Valley residents on what they do with old magazines. As we all know, the Klang Valley is also famous for frequent flash floods due to excessive dumping of garbage. Therefore, magazine dumping is likely to occur frequently as well. Because of that, we decided to find a solution for the stated problem.

2.2.2 Design

In the design phase, we look at all the information from the analysis phase and make informed decisions about creating the product. In this design phase, the focus is on product objectives, content, analysis of learning materials, lesson planning and assessment instruments used. In this phase, the approach should be methodical with a logical, orderly process to identify, develop and evaluate planned tactics aimed at achieving project objectives. At this stage we design a Magbag using old magazines and other recycled items as a solution for the environmental problem.

2.2.3 Development

The development phase is where we begin creating or developing. In this stage, we make use of the data collected from the two previous stages. The purpose of this phase is to generate the lesson plans and lesson materials. Aside from that, testing is an important part of the job during this stage because it will help prevent further damage to the project in the future. By the end of the Develop phase, you should also have selected or developed all the tools needed to implement the planned instruction, evaluate the instructional outcomes, and complete the remaining phases of the ADDIE instructional design process. As a final step in this phase, the implementation plan is revised. (Branch, R. M.)

2.2.4 Implementation

By the time we get to the ADDIE model's implementation stage, we should have understood our requirements and the current state of play, and we should have designed, built, tested, and iterated our learning initiative, product, or offering. Assuming we've completed all these steps, we're almost ready to launch the Magbag magazine-based bag by allowing customers to use it to keep their things there.

2.2.5 Evaluation

The last stage of the ADDIE method is evaluation. This is the stage in which the project is being subjected to meticulous final testing regarding what, how, why, and when things were accomplished (or not accomplished) throughout the entire project (Dr. Serhat Kurt). This phase measures the effectiveness and efficiency of the instruction. Evaluation should occur throughout the entire instructional design process—within phases, between phases, and after implementation. The main goal of the evaluation stage is to determine if the goals have been met and to establish what will be required moving forward to further the efficiency and success rate of the project. This type of evaluation assesses the overall effectiveness of the instruction.

2.3 PAPER INDUSTRY

The history of papermaking has been well documented in The Middle East, East Asia, India, Europe, and North America, yet the development and significance of the craft inside Central Asia has been given little attention by scholars. The region is often treated as a proxy for the spread of the craft and attention is directed towards the spread towards Europe rather than how it developed within the region. This has created a knowledge gap in our understanding of the significance of the craft locally in Central Asia (Solberg, J. (2020).

The papermaking process is to dilute and disperse the prepared materials, or paper stock, spray the paper stock on wire cloth to form a paper sheet, and drain water from the sheet and dry it. A paper machine consists of a paper machine mainframe and auxiliary equipment. The paper machine mainframe consists of a stock inlet, wire part, press part, dryer part, size press, calendar, and reel along the flow of materials. The auxiliary equipment consists of a driving unit, approach pipes that supply raw materials and circulate white water, a vacuum system that drains water from the wire part and press part, a drainage system that supplies and recycles steam for the dryer bank, an air system that circulates and uses air for drying and recovers waste heat, etc. Papermaking machines are roughly classified into the Fourdrinier machine and the cylinder machine according to the type of wire part, and the multiple cylinder dryer and the Yankee dryer according to the type of dryer part.

Table 2.2: List of Types of Paper

Product category	Electricity consumption [MWh/t]	Heat consumption [MWh/t]	Primary energy consumption [MWh/t]
Mechanical pulp	1.47	-0.58	2.95
Chemical pulp	0.69	2.78	5.21
Recycled fiber input	0.39	0.11	1.11
Household and sanitary paper	0.67	1.39	3.40
Newsprint	0.39	0.69	1.84
Printing and writing paper	0.56	1.94	3.82
Wrapping and packaging paper and board	0.42	1.39	2.78
Other papers	0.50	1.67	3.33

2.4 PREVIOUS STUDIES / REVIEWS / INVESTIGATION

AUTHOR	FINDINGS
Joseph, et al, 2019	<p>This study compared the performance and properties of commonly produced paper straws and their plastic counterparts in a variety of intended applications. Since the demand for paper straws increased due to the save turtle campaign. The physical, mechanical, and compositional properties of the straws, as well as their liquid interaction properties, were determined. The paper straws were made primarily of hardwood fibres that were hard sized with a hydrophobic sizing agent to achieve a contact angle ranging from 102° to 125°. The results showed that after less than 30 minutes in contact with the liquid, all of the tested paper straws lost 70% to 90% of their compressive strength because the paper material absorbed liquid. Meanwhile plastic straws remain the same.</p>
Aneta Masternak-Janus, Magdalena Rybaczewska-Błażejowska, 2015	<p>This study focused on tissue paper manufacturing from virgin pulp or recycled wastepaper. This study compares the environmental effects of two methods for producing tissue paper that use either virgin pulp (or virgin fibre) or recycled pulp (or recycled fibre). Consequently, these two production processes are the greatest contributors to the following midpoint environmental impact categories: human toxicity, climate change, human health and ecosystems, and fossil depletion.</p>

<p>Paul, et al, 2018</p>	<p>This study is about paper containers (such as paper food containers, etc) and vitrification of bovine matured oocytes and blastocysts in a paper container. The aim of this study is to determine the applicability of a paper container for the vitrification of in vitro matured (IVM) bovine oocytes. The Idea of vitrification, or achieving a glass-like state, was first conceived in 1860, as described by Luyet(1937). It was not until approximately 50 years later that Rall and Fahy (1985) mentioned the idea again and designated ‘vitrification’ as a potential alternative to slow-freezing/cooling.</p>
<p>Arihant Ahuja, Pieter Samyn & Vibhore Kumar Rastogi, 2022</p>	<p>This study is about paper bottles that have the potential to replace conventional packaging for liquid products. In this article, we focus on the intricate manufacturing process used to create paper-based sachets and paper bottles for the packaging of liquid products using lignocellulosic pulp. Paper alone cannot be utilised for liquid goods due to wettability in the hydrophilic zone and weak barrier qualities. Therefore, suitable coating materials on paper sheets and paper bottles are described.</p>

2.5 SUMMARY

To sum up in this chapter 2, we have stated at the early stage that we will be using the Addie Model for this project. We have also gone over the Addie Model in detail, including how to assess, design, create, execute, and evaluate it.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

In this chapter, the research methodology discusses project design leading to project manufacturing methods, materials and equipment, data analysis methods, and a summary. Methodology is part of the collection of data or information to achieve research objectives and resolve a research problem.

3.2 PROJECT DESIGN

MAGBAG, is an invention that is made from recycled old magazines. These are steps and processes on how to make a MAGBAG.

Step 1



Figure 3.1 tears the pages apart from the magazines.

Separate each page of the magazine slowly to prevent it from tearing the page. Tearing must be avoided as it can reduce the size of the paper and thus affect the whole process. The pages that were needed depend on the size of the MagBag that we want. Some magazines provide more paper than others so the number of the papers that we get from each magazine are differentiated.

Step 2

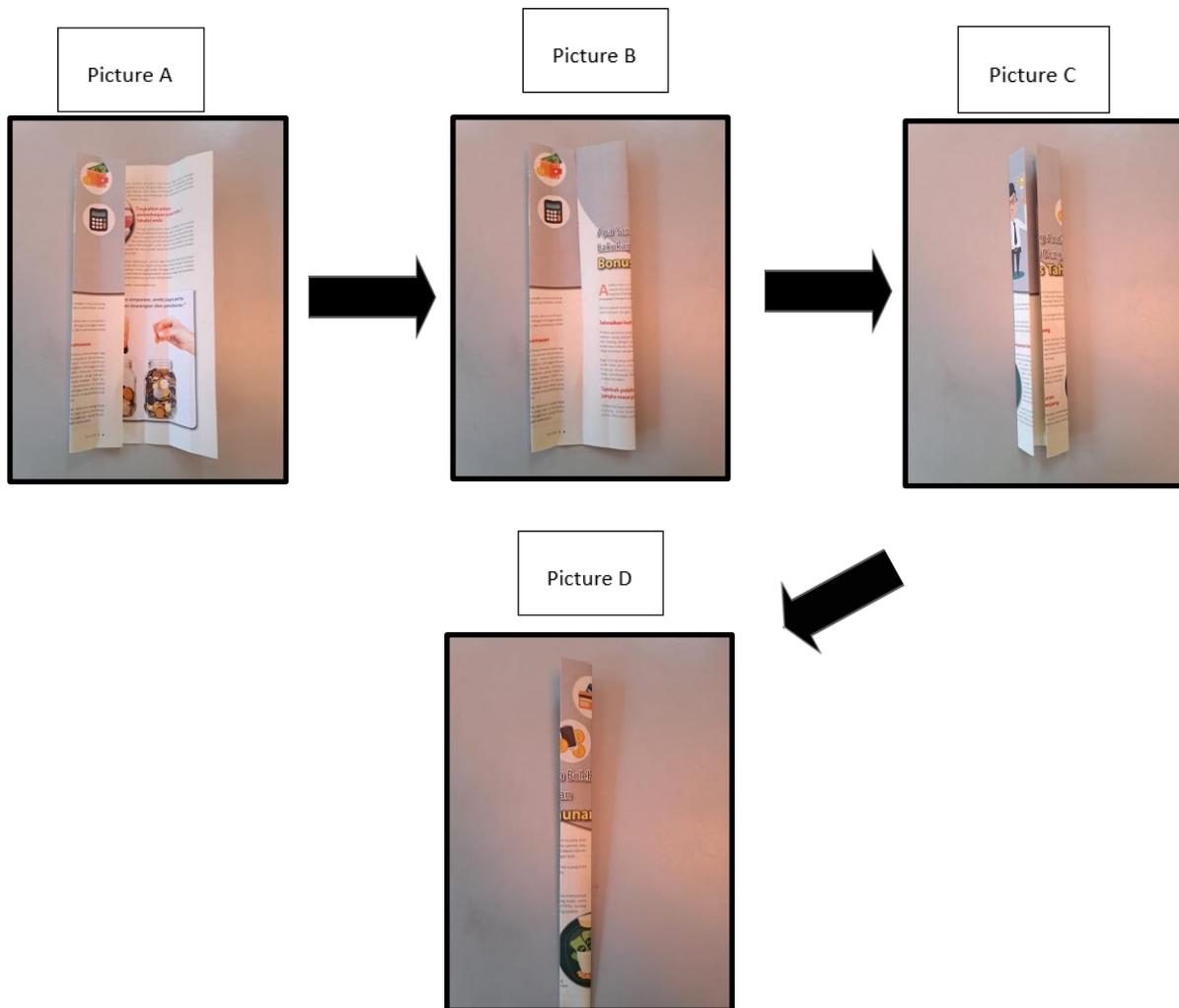


Figure 3.2 shows bit by bit the folding process that was used.

Fold the left side of the paper until it reaches the centre of the page. Then, fold the right side of the paper until it reaches the left side that was already folded. Next, fold the same left side and right side of the paper but this time, it will become smaller. Finally, fold both sides together until it becomes one sided. By doing this, we get to produce the same checker pattern and size for our MagBag.

Step 3

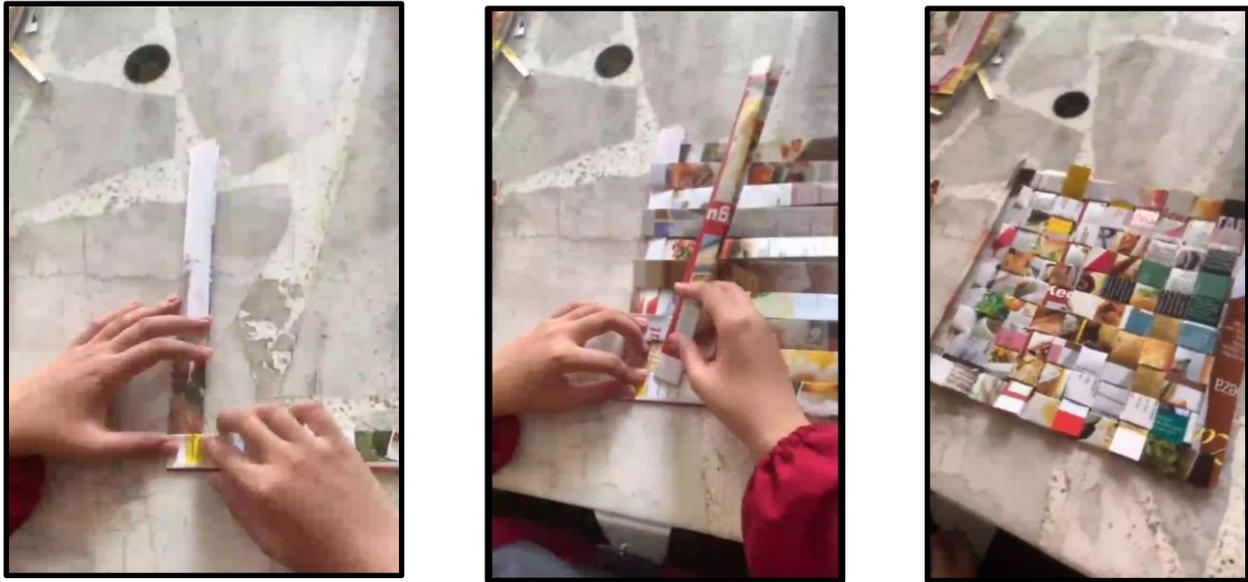


Figure 3.3 shows the folding process until it becomes a checker pattern before each part can be combined into one finished product.

Weave the paper across each other. One side will be on top while the other will be at the bottom. Do this step until all the papers are woven thoroughly. Weave through all the paper until you get all five sides to form the MagBag. The first two front side would be in the size of 10x10 (for the height is equivalent to 10 box and the length is equivalent to 10 box), for the left, right and bottom side of the bag will be in the size of 5x10 (the width would be equivalent to 5 box and the height would be equivalent to 10 box).



Figure 3.4 shows the front side (10x10), the left and right side (5x10), and the bottom side (5x10) of the MagBag.

Step 4



Figure 3.5 shows the process to combine all the parts by using a hot glue gun.

Take the front part and use a hot glue gun to combine it with the left or right part of the bag. Glue a little bit of the extra part from the left or right side to make it stick with the front part. Do the same steps to combine all the other parts until it becomes one complete bag.

Step 5

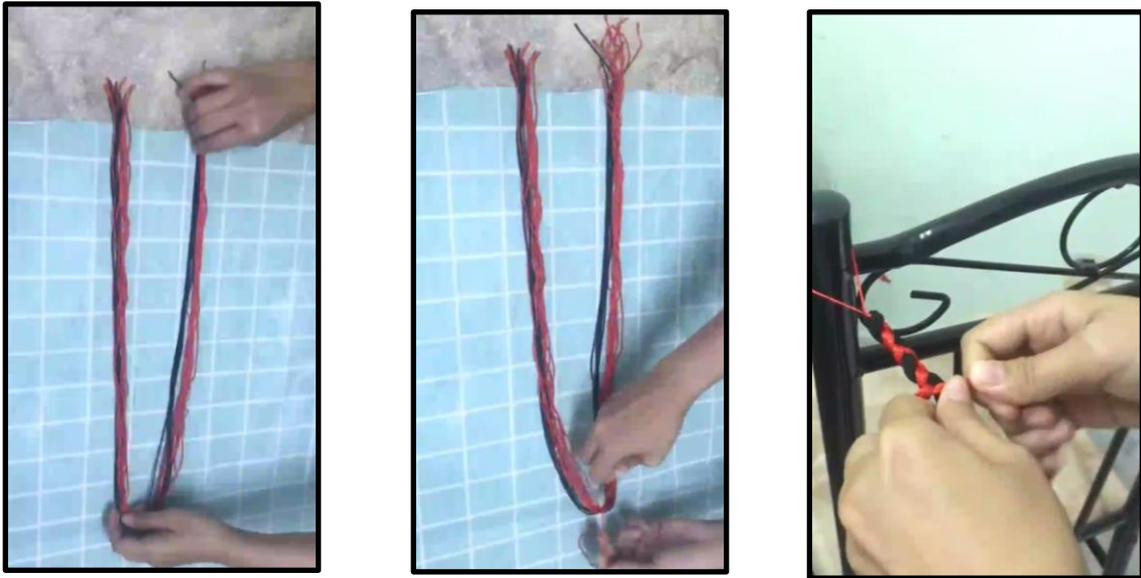


Figure 3.6 shows the process of braiding the ropes to make Magbag's holder.

This step starts with laying out the ropes in 12-inch length (combining red and black ropes) and tying the middle with another string of rope (we used red rope). Tying the middle of the ropes is needed to separate each side before braiding can be done. To start the braiding section, the black rope and the red rope must be separated into three parts (two parts for red rope and one part for black rope). Start braiding the ropes by getting your hand positioning right. Hold two strands in one hand, and the third strand in the other. Begin in a traditional braid by crossing the “right” strand over to the centre. Then, cross the “left” strand from over to the centre. Repeat until it makes a few rows of braid. Finish it by tying the end with another string of rope to prevent it from getting unbraided.

Step 6



Figure 3.7 shows the final look of Magbag.

The final steps would be the process of placing the braided rope to the bag by tying it to the gap from the woven bag. Another good substitute to place the rope is by punching a hole through the bag and tying the rope neatly and tightly to increase the durability of the bag itself. This is the finished MagBag that was produced successfully.

3.3 Project Production Methods/Procedures/Techniques

In this study, we have focused on paper waste that can cause environmental pollution. Therefore, this study was conducted to design and create environmentally friendly products using wastepaper or magazines. ADDIE is a learning model used by instructional designers and training developers to create effective learning experiences. The ADDIE instructional design process (analysis, design, development, implementation, and evaluation) is a process used in the development of instructional courses and training programs to plan and create effective learning experiences by offering relevant and clear steps to users. The ADDIE framework is a cyclical process that evolves over time and continues throughout the instructional planning and implementation process.

- **Analyse:** Analyse the problems that cause excess paper waste at landfill at their homes or offices.
- **Design:** Designing eco-friendly products using wastepaper and magazines will help reduce paper waste and can encourage Malaysian consumers to buy used goods.
- **Develop:** We develop environmentally friendly products by using paper or old magazines as a MagBag (magazine bag).
- **Implement:** This product is suitable as a gift bag for all age groups and does not cause any harm for the user.
- **Evaluate:** We will evaluate the effectiveness and uniqueness of the eco-friendly magazine-based bags because when we transform it to a new form it indirectly increases the lifespan of the product.

3.4 Materials and Equipment

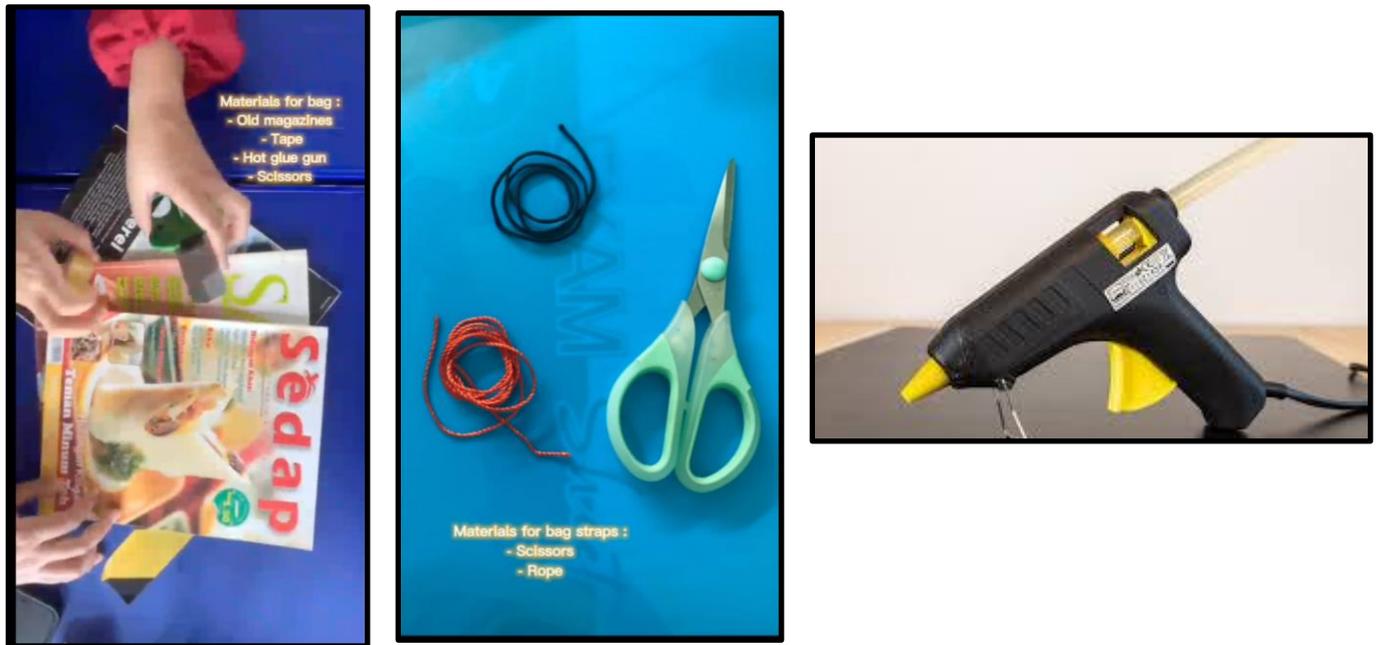


Figure 3.8: Materials that needed to make a MagBag

Table 3.1: List of materials used to make One MagBag

Name of material	Quantity
Old magazines	3 units
Tape	1 unit
Hot glue gun	1 unit
Scissors	1 unit
Rope	2 units

3.5 Data Analysis Method

The goal of this analysis is to transform the questionnaire's raw data into a more understandable format to aid in decision-making. To explain, illustrate, and assess data, analysis is done by methodically using statistical and logical procedures. Various methods are also used to analyse data, including:

3.5.1 Reliability analysis

Consistency and stability tests may be performed using reliability analysis. The consistency demonstrates how effectively a group of objects measuring an idea work together. The item is dependable if the test consistently yielded the same results. Additionally, according to Douglas G. Bonnet and Thomas A. Wright (2014), Cronbach's Alpha assesses the reliability of survey instruments by determining the internal consistency or average correlation of items. If the instrument's Cronbach's Alpha value is 0.7 or higher, it is regarded as dependable. The selected item is removed to improve reliability if the dependability score is less than or equal to 0.7.

3.5.2 Descriptive analysis

Descriptive analysis is the type of analysis that encompasses the broad information that is used to summarise details about the sample, such as age, gender, educational attainment, employment status, and income. However, it is only able to offer broad details on the study's sample. Frequency tables that incorporate frequencies and percentages are examples of descriptive statistics. Charts and graphs will be used to display the frequency-related data.

Table 3.2 Interpretation Mean Score (Moidunny, 2009)

Mean Score	Interpretation
1.00-1.80	Strongly Disagree
1.81-2.60	Disagree
2.61-3.20	Neutral
3.21-4.20	Agree
4.21-5.00	Strongly Agree

3.6 SUMMARY

This chapter provided a clear picture of the entire research methodology. From the use of qualitative methods as the research design to the use of Judgmental Sampling using a simple questionnaire from Google Form. This chapter clearly explains and describes the various types of analysis.

CHAPTER 4: STUDY FINDINGS AND DISCUSSION

4.1 INTRODUCTION

This chapter mostly consisted of data analysis. The outcomes of the data collection were given in the form of statistical analysis for better understanding. The findings were provided in five sections, where the first portion used frequency analysis to analyse characteristics of the respondents, the second section talked about screening questions, and the final section examined the product quality, the product potential and intention to use MAGBAG. A total of 39 respondents have participated in this survey.

4.2 SCALE MEASUREMENT

4.2.1 Reliability analysis

Table 4.1 Reliability of Correlation

Item	Cronbach's Alpha	Number of items
Product Quality	.902	5
Product Potential	.863	4
Intention to Use	.918	5
Total	.958	14

The qualities of measuring scales and the components that construct the scales may be examined through reliability analysis. According to Douglas G. Bonnet and Thomas A. Wright (2014), Cronbach's Alpha evaluates survey instrument reliability by calculating the internal consistency or average correlation of items. If the Cronbach's Alpha value of the instrument is 0.7 or higher, it is considered reliable. If the dependability score is less than or equal to 0.7, the selected item will be eliminated to increase reliability. The Cronbach's Alpha for intention to use, product quality, and product potential is 0.918, 0.902, and 0.863 respectively indicating that the data is credible and trustworthy.

4.3 DESCRIPTIVE ANALYSIS

MAGBAG is a magazine-based bag that has been promoted among all ages, from students to middle-aged adults, at the Jabatan Perdagangan (JPG) foyer of Politeknik Sultan Salahuddin Abdul Aziz Shah. The respondent experienced and started to use the MAGBAG magazine-based bag for one week. Each respondent received a self-administered questionnaire following the trial period so they could express their opinions about the product. After taking the self-administered survey for a week, 39 individuals responded.

The Statistical Package for Social Science (SPSS) was used to examine the data collected from respondents. SPSS is a data management and analysis tool that has been used to perform statistical operations such as analysis, including descriptive and inferential statistics. To ensure that the data was accurately tagged, a frequency analysis was performed to identify the missing value for the purpose of data cleaning.

4.3.1 Respondent Demographic Section

Table 4.2 Demographic Section

Component		Frequency	Percent	Valid percent	Cumulative percent
Gender	Male	12	30.8	30.8	30.8
	Female	27	69.2	69.2	100.0
Age	20-25	21	53.9	53.9	53.9
	26-31	2	5.2	5.2	59.1
	32-37	5	12.9	12.9	72.0
	38-43	2	5.2	5.2	77.2
	44-49	4	10.4	10.4	87.6

	50-55	2	5.2	5.2	92.8
	56-61	3	7.7	7.7	100.0
Race	Malay	31	79.5	79.5	79.5
	Indian	4	10.3	10.3	89.7
	Chinese	4	10.3	10.3	100.0
Occupation	Government sector	3	7.7	7.7	7.7
	Private sector	14	35.9	35.9	43.6
	Self-employed	1	2.6	2.6	46.2
	Unemployed	3	7.7	7.7	53.8
	Student	18	46.2	46.2	100.0
Marital status	Single	21	53.8	53.8	53.8
	Married	17	43.6	43.6	97.4
	Others (widow/widower)	1	2.6	2.6	100.0
Income level	Below RM 1000	17	43.6	43.6	43.6
	RM 1001 to RM 2500	3	7.7	7.7	51.3
	RM 2501 to RM 4000	5	12.8	12.8	64.1
	RM 4001 to RM 5500	3	7.7	7.7	71.8
	RM 5501 and above	11	28.2	28.2	100.0

Table 4.2 Demographic Section shows the profile of the respondents who participated in this study. Most respondents who participated in this survey were female 69.2 percent followed by male respondents' 30.8 percent.

Furthermore, the majority of 53.9 percent of respondents who participated in this survey were aged between 21 to 25 years, followed by 26 to 31 years is 5.2 percent, 32 to 37 years is 12.9 percent, 38 to 43 years is 5.2 percent, 44 to 49 years is 10.4 percent. 50 to 55 years old is 5.2 percent and 56 to 61 years old is 7.7 percent.

In addition, 79.5 percent of respondents are Malays, Indians 10.3 percent and Chinese 10.3 percent. In addition, most of the respondents were single 53.8 percent followed by married status 43.6 percent and others (widow/widower) by 2.6 percent.

Breakdown of respondents based on occupation, 46.2 percent of respondents are students followed by 35.9 percent of respondents working in the private sector, 7.7 percent unemployed, 2.6 percent self-employed and 7.7 percent working in the government sector. Based on the income level, most respondents' income level is below RM1000 which is 43.6 percent, while RM1001 to RM2500 and RM4001 to RM5500 is 7.7 percent. RM2501 to RM4000 is 12.8 percent and finally RM5501 and above is 28.2 percent.

4.3.2 Central Tendencies Measurement of Construct

Table 4.3 Mean Score for Product Quality (PQ) MAGBAG

NO	ITEM	N	MEAN	STD. DEVIATION
PQ1	MagBag are safe to use.	39	4.36	.999
PQ2	MagBag are high in quality	39	4.21	.801
PQ3	MagBag are very satisfactory compared to other bags	39	3.95	.869
PQ4	MagBag has a eco-friendly packaging.	39	4.54	.843
PQ5	MagBag designs are attractive	39	4.33	.682

Table 4.3 shows the results regarding the quality of MagBag products. Item PQ4 "MagBag has environmentally friendly packaging" has the highest mean score which is 4.54 with a standard deviation of 0.843. It shows that respondents strongly agree with the given statement because our innovation is created by using old magazines that will reduce problems related to paper waste in the future. By introducing MagBag will encourage Malaysians to be more concerned about the use of recycled products to provide a less polluted environment.

In addition, item PQ5 "MagBag design is attractive" obtained a mean score of 4.33 with a standard deviation of 0.682 which means that the respondents strongly agree that the current MagBag design is simple, colourful, and attractive because the MagBag is created using colourful pages of magazines.

Finally, item PQ3 has a lowest mean score of 3.95 with a standard deviation of 0.869 "MagBag is very satisfactory compared to other bags". This means that users quite agree with the statement that the current MagBag sample is very satisfactory compared to other bags. Since there is a lot of threat from competing products that produce bags with different brands, in order to make this bag stand out from the rest, we created gift bags from woven recycled materials.

Table 4.4 Mean Score for Product Potential (PP) MAGBAG

NO	ITEM	N	MEAN	STD. DEVIATION
PP1	MagBag will have high demand among consumers.	39	3.90	.912
PP2	MagBag can replace the other normal conventional gift bag.	39	4.03	.932
PP3	MagBag can be accepted by users in Malaysia	39	4.33	.806
PP4	MagBag can compete with others in the market	39	4.38	.782

Table 4.4 shows the results regarding MAGBAG’s potential in the market whether it has high demand if it enters the market. Item PP1 “MagBag will have high demand among consumers.” shows the lowest score of mean which is 3.90 and a standard deviation of 0.912. It means that respondents agreed that MAGBAG will have high demand among customers if we launch them in the market because of the unique design from the magazine pages and the woven neatness that looks fashionable. Apart from that, item PP2 “MagBag can replace the other normal conventional gift bag.” has a mean score of 4.03 and the standard deviation 0.932. Our 39 respondents agreed that MAGBAG can also replace and function like other normal conventional gift bags because it serves the same function as normal bags. It can also carry things up to 2kg in weight of goods, plus the MAGBAG also has the holder that is made of braided yarn so users can easily carry MAGBAG everywhere.

Furthermore, item PP3 “MagBag can be accepted by users in Malaysia” has a value of mean score 4.33 and 0.806 for standard deviation shows that it suits with their taste and lifestyle. Finally, item PP4 “MagBag can compete with others in the market” obtained the highest mean score of 4.38 with standard deviation 0.782 showing that respondents strongly agree with the given statement.

Table 4.5 Mean Score for Intention to Use (ITU) MAGBAG

NO	ITEM	N	MEAN	STD. DEVIATION
ITU1	MagBag is safe to use	39	4.46	.756
ITU2	Do you feel like using MagBag frequently in public?	39	4.08	.900
ITU3	I would recommend others to use MagBag	39	4.41	.818
ITU4	MagBag can be used as gift bag	39	4.46	.790
ITU5	MagBag can be used to carry heavy items.	39	4.05	1.213

Table 4.5 shows the mean score for intention to use (ITU) of MAGBAG. Item ITU1 "is safe to use" with a standard deviation of 0.756 and Item ITU4 "MAGBAG can be used as a gift bag" with a standard deviation of 0.790 share the same mean of 4.46, which shows that the respondent strongly agrees with the statement. The respondents strongly agree with item ITU1 because our product was created by using old magazines, which will not cause any problems for the environment in the future. Also, this product is suitable for all age groups, especially students and adults, and it does not cause any harm to the user. Next, respondents strongly agree with item ITU4 because the design of this product is attractive and aesthetic from the pages of a magazine. Even though it is made from a magazine, it has a strong-quality bag that can be used to put things in. Furthermore, the way to use this product is also the same as a normal bag and has the ability to be used several times for that purpose.

In addition, item ITU3 "I would recommend others to use MagBag" obtained mean score 4.41 with standard deviation 0.818, which means that the respondent strongly agrees with the statement given, which refers to MAGBAG. It is because the way to use it is the same as normal bags in the market and does not pose an indirect threat to customers. Moreover, MAGBAG can be marketed on social media because of its uniqueness, which highlights the beauty of the magazine when woven and formed into a bag. This allows customers to choose from the various types of MAGBAG offered.

Finally, the lowest mean score was 4.05 with a standard deviation of 1.213: "MagBag can be used to carry heavy items". This means that the respondent agrees that MAGBAG can carry heavy items. This is because we have folded each sheet of magazine many times, which makes the bag able to carry heavy items. Not only that, even though the MagBag is made from recycled items, it is still strong and can carry a weight of 2kg. Because it is woven, it is stronger and easier to carry anywhere.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.1 INTRODUCTION

The conclusions in Chapter 5 were based on all the study data, such as post-questionnaire surveys and the outcomes of prior chapters' discussions. This part examines the undertaker's points as well as examination suggestions.

5.2 DISCUSSION AND CONCLUSION

5.2.1 Product Quality

Additionally, we are learning about user preferences for the MagBag. This product is easy to use and safe to use, the way of use is the same as a normal bag and does not pose an indirect threat to customers. Despite this, people have voiced their opinion about the design, neatness, and uniqueness of the MagBag, which they have commented that it is very satisfying compared to other bags.

Furthermore, the MagBag is made from used magazines, making the bag easily wet when exposed to water. In other words, the product is still in the prototype phase and the thickness of the paper used is not always the same. In addition, MagBag is also created from quality materials making it a high-quality product and capable of lifting a weight of 2kg, as it is woven making it stronger and easy to carry anywhere.

This has shown that the MagBag is easy to use and very convenient, because the way of use is still the same as a normal bag. MagBag is suitable for all ages especially adults and the elderly and this product does not cause any harm to the user. For those who want a change in their lives because they are free from paper waste and those who love the environment get a lot of benefits from this product. Therefore, we are introducing MagBag which will invite Malaysians to be more concerned about using recycled products to provide a less polluted environment.

5.2.2 Product Potential

Our product, MAGBAG the magazine-based-bag makes users explore new things by blowing their minds that they can also get a bag or DIY(do-it-yourself) them by using just a magazine and yarn for gift bag or they can also use them as casing to put their stationery like pens, pencils and scissors because the design has its uniqueness from the magazine papers' aesthetic and the neat from woven. They can minimise their space of keeping the old magazine by transforming it into a bag plus users will gain more skills in weaving a bag. Apart from reducing the pollution from paper, the reason for this was due to the fact that, as explained in Chapter 2, the problem statement of low awareness of environmental issues among Malaysians, low recycling awareness and increased paper base pollution.

The results from our survey show that most of our respondents agree that MAGBAG will have high demand among customers for them to use it as a souvenir bag because it is suitable as a goodie bag for any type of ceremony, especially a wedding or birthday celebration as appreciation symbols for the guests who attend their invitation. This was because we are surrounded by papers in our daily life not only books but receipts, bills, newspapers, magazines, and most of the documentation that is kept physically, this usage leads to pollution from paper bases. In addition, MAGBAG, not only produce bag but help the environment from paper dump issues and create a environmental friendly product which means is is safe for the environment and no dangerous chemical or process is used while inventing MAGBAG. Plus, if we throw out the unused papers it will not guarantee that the paper is well recycled. As a result, nowadays people reduce the usage of paper by keeping all the information online and new alternatives, for example ebooks but still the pollution of paper-based products increases due to the enormous usage of paper.

Our survey proved that Malaysians love the MAGBAG concept and design since they highly agree on the questionnaire from the question "MAGBAG can be accepted by users in Malaysia". We design it by using the woven technique with thick layers from folded magazine paper because we want to make it extraordinary and stronger than a normal paper bag that is easy to tear apart once loaded with heavy things. To ensure this potential of MAGBAG, we collected all respondents to see and give their honest opinion on our product and it shows a positive outcome from the result and proved that MAGBAG has the potential in the market.

5.2.3 Intention to Use

They stated that they would like to continue to see the progress of MAGBAG and achieve the product while using MAGBAG in their lives, based on the post-questionnaire that we have conducted. A simple product in which recycled magazines can be the main player has attracted the attention of consumers in the long term.

With a variety of designs, users are also attracted by the graphics used on MAGBAG, such as the weaving that is made to produce a bag and the rope that is braided to make it a handle. This can attract the attention of buyers because the MAGBAG is unique and attractive, it has unique features, and customers can choose the MAGBAG design based on their favourite magazines.

In addition, users find that the way to use this product is the same as other bags on the market. Since there is a lot of competition from competing products that produce bags with different brands, to make this bag stand out from the rest, we created gift bags from woven recycled materials. Also, it was safe for the environment in a long-term timeframe.

5.3 RECOMMENDATION

Overall, people who have used and responded to the post questionnaire for MagBag have provided excellent and positive feedback. Nevertheless, we would like to provide some suggestions for the future improvement of MagBag. One of them is that we want to make this product more accessible and available to everyone around the world because this product has the potential to reduce paper pollution around the world and can avoid paper waste and help us to love and care for the environment more.

MAGBAG is currently only supplied to local areas, which are in the Klang Valley area. If there are investors willing to invest in us and take initiatives, we would like to create a new bag size, be more focused on the materials that we use in our products and distribute the products to all areas in Malaysia. Products can also produce a lot of profit for a small cost. Finally, whether they are positive or negative, we consider any ideas made for our product. We value the

insightful comments that our sample of users have offered. To better meet the demands of our users in the future, we are ready to create additional product upgrades.

5.4 LIMITATION PROJECT

This undertaking has been fraught with ups and downs. In our SWOT analysis, we identified MAGBAG's vulnerability as a lack of water proofing. This specific shortcoming has been the only constraint on this project. We realise the importance of having a waterproof bag especially since Malaysia has a rainy season. The Southwest Monsoon, which lasts from late May to September, and the Northeast Monsoon, which lasts from November to March, are the two monsoon seasons in Malaysia. As a result, creating this bag for its intended purpose, which is for everyday use, seems improbable. Due to this reason, we changed its purpose from an everyday use bag to an outstanding gift bag. By doing so, we can reduce the probability and possibility of getting it wet and thus solve the problem too.

5.5 SUMMARY

To conclude, MAGBAG's product innovation has been a highly successful path. All the questions and inquiries concerning this bag have been addressed. Every procedure has been completed effectively, from data collection through data analysis for a better understanding of the product's acceptability.

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APPENDIX

APPENDIX A

This is the pre survey questionnaire that was distributed to people of all ages, gender, race and other components. The main purpose of this pre survey is to gather background insight on the correlation between the usage of magazines in their daily life.

Good day everyone!

We are final year students from Politeknik Sultan Salahuddin Abdul Aziz Shah, conducting research on our final year project. We do appreciate it if you could spend your lovely time for a while to submit feedback on this survey. We estimate that the survey will take approximately 1-3 minutes. Your feedback means a lot to us. Thank you!

1. Age

<input type="checkbox"/>	18 - 20
<input type="checkbox"/>	21 - 30
<input type="checkbox"/>	31 - 39
<input type="checkbox"/>	40 - 49
<input type="checkbox"/>	50 and above

2. Gender

<input type="checkbox"/>	Male
<input type="checkbox"/>	Female

3. Education level

- SPM
- Diploma
- Degree
- Master
- PHD

4. Do you purchase/read magazines?

- Yes
- No

5. How often do you purchase magazines?

- Weekly
- Monthly

6. How much would you be willing to pay for a magazine?

- Less than RM 10
- RM 11 - RM 20
- RM 21 - RM 30
- RM 31 and above

7. What type of magazine do you often read?

There is no limitation to the answers that can be selected. Minimum can be selected is 1.

- 1. General News Magazines
- 2. Cooking Magazines
- 3. Art Magazines
- 4. Fashion Magazines
- 5. Tech Magazines
- 6. Health Magazines
- 7. Children's Magazines
- 8. Business Magazines
- 9. Travel Magazines
- 10. Cultural Magazines
- 11. Rider and Driver Magazines
- 12. Pet Magazines
- 13. Sports Magazines
- 14. Entertainment Magazine
- 15. Wild Magazines

8. What do you do with your old magazines?

- Sell it to old newspaper guy
- Throw it in the dustbin

- Burn it
- Recycle

9. Which of these statements best describe you?

- I recycle everything that can be recycled
- I recycle a lot but not everything can be recycled
- Sometimes I recycle
- I do not recycle

10. What do you recycle?

There is no limitation to the answers that can be selected. Minimum can be selected is 1.

- Aluminium can
- Plastic bottle
- Paper
- Magazine
- Cardboard

11. Do you know old magazines can be recycled?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

12. How concerned are you about environmental pollution?

<input type="checkbox"/>	Extremely concern
<input type="checkbox"/>	Very concern
<input type="checkbox"/>	Moderately concern
<input type="checkbox"/>	Slightly concern
<input type="checkbox"/>	Not at all concern

13. Do you know how much papers are thrown into landfills in Malaysia?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

14. Do you aware of the effect of paper waste on the environment?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

APPENDIX B: GANTT CHART

CARTA GANTT: PERANCANGAN DAN PELAKSANAAN PROJEK PELAJAR

SESI: 2 2022/2023

JABATAN: PERDAGANGAN

KOD KURSUS: DPB50163

TAJUK PROJEK: MAGBAG (MAGAZINE-BASED BAGS)

Aktiviti	Minggu													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Membentuk Kumpulan & tentukan penyelia	█													
Penentuan Tajuk	█	█												
Kajian literatur	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Perundingan dengan penyelia	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Penyediaan Proposal	█	█	█	█	█									
Pembentangan Proposal						█	█							
Penyediaan Instrumen dan Pengumpulan Data			█	█	█	█	█	█						
Analisis data							█	█	█	█	█			
Penulisan draf projek									█	█	█			
Penyemakan dan draf akhir												█	█	

Penyerahan Projek Akhir															
Membentangkan Projek															

	Tarikh rancang
	Tarikh laksana

APPENDIX C

Survey questionnaire that was distributed towards all levels of age, race, gender and other components. The main purpose of this survey is to look at other's viewpoints towards our product, which is MagBag.

Good day everyone!

We are final year students from Politeknik Sultan Salahuddin Abdul Aziz Shah, conducting research on our final year project. We do appreciate it if you could spend your lovely time for a while to submit feedback on this survey. We estimate that the survey will take approximately 1-3 minutes. Your feedback means a lot to us. Thank you!

Section 1: Demographic Section

1. Gender

<input type="checkbox"/>	Male
<input type="checkbox"/>	Female

2. Age

State: _____

3. Race

<input type="checkbox"/>	Malay
<input type="checkbox"/>	Chinese
<input type="checkbox"/>	Indian
<input type="checkbox"/>	Others: _____

4. Occupation

- Government sector
- Private sector
- Self-Employed
- Unemployed
- Students

5. Marital status

- Single
- Married
- Other (Widow/widower)

6. Income level

- Below 1000
- RM1001 to RM2500
- RM2501 to RM4000
- RM4001 to RM5500
- RM5501 and above

Section 2: Screening Section

1. Would you be willing to buy a product made out of waste?

Yes
 No

2. How accessible/available for you are recycled products as compared to regular products.

Please rate the following criteria using the Lickert scale from 1 to 5:

1- Not Accessible, 2 - Less Accessible, 3 - Moderate Accessible, 4 - Accessible, 5 - Highly Accessible

Question	NA	LA	MA	A	HA
How accessible/available for you are recycled products as compared to regular products.	1	2	3	4	5

3. According to you, how should recycled products be priced?

Less than regular products
 Same as regular products
 More than regular products

4. Do you think recycled products have a positive social/environmental impact?

Yes
 No

Section 3: Product Quality (PQ), Product Potential (PP), and Intention to Use (ITU)

Please rate the following criteria using the scale from 1 to 5:

1- Strongly Disagree, 2 - Disagree, 3 - Neutral, 4 - Agree, 5 - Strongly Agree

Product Quality						
NO	Question	SD	D	N	A	SA
PQ1	MagBag are safe to use.	1	2	3	4	5
PQ2	MagBag are high in quality	1	2	3	4	5
PQ3	MagBag are very satisfactory compared to other bags	1	2	3	4	5
PQ4	MagBag has a eco-friendly packaging.	1	2	3	4	5
PQ5	MagBag designs are attractive	1	2	3	4	5

Product Potential						
NO	Question	SD	D	N	A	SA
PP1	MagBag will have high demand among consumers.	1	2	3	4	5
PP2	MagBag can replace the other normal conventional gift bag.	1	2	3	4	5
PP3	MagBag can be accepted by users in Malaysia	1	2	3	4	5
PP4	MagBag can compete with others in the market	1	2	3	4	5

Product Quality						
NO	Question	SD	D	N	A	SA
PQ1	MagBag is safe to use	1	2	3	4	5
PQ2	Do you feel like using MagBag frequently in public?	1	2	3	4	5
PQ3	I would recommend others to use MagBag	1	2	3	4	5
PQ4	MagBag can be used as gift bag	1	2	3	4	5
PQ5	MagBag can be used to carry heavy items.	1	2	3	4	5

APPENDIX D: SPSS

Frequency Analysis

Statistics

		Statistics					
		Gender	Age	Race	Occupation	Marital status	Income level
N	Valid	39	39	39	39	39	39
	Missing	0	0	0	0	0	0
Mean		1.69		1.31	3.49	1.49	2.69
Median		2.00		1.00	4.00	1.00	2.00
Mode		2		1	5	1	1
Std. Deviation		.468		.655	1.554	.556	1.734
Minimum		1		1	1	1	1

Gender

		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ielaki	12	30.8	30.8	30.8
	Perempuan	27	69.2	69.2	100.0
	Total	39	100.0	100.0	

Age

		Age			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20	1	2.6	2.6	2.6
	21	14	35.9	35.9	38.5
	22	3	7.7	7.7	46.2
	24	1	2.6	2.6	48.7
	25	2	5.1	5.1	53.8
	29	1	2.6	2.6	56.4
	30	1	2.6	2.6	59.0
	33	1	2.6	2.6	61.5
	35	2	5.1	5.1	66.7
	36	1	2.6	2.6	69.2
	37	1	2.6	2.6	71.8
	40	1	2.6	2.6	74.4
	43	1	2.6	2.6	76.9
	44	1	2.6	2.6	79.5
	46	1	2.6	2.6	82.1
	48	1	2.6	2.6	84.6
	49	1	2.6	2.6	87.2
	50	1	2.6	2.6	89.7
	53	1	2.6	2.6	92.3
	56	2	5.1	5.1	97.4
58	1	2.6	2.6	100.0	
Total		39	100.0	100.0	

Race

		Race			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malay	31	79.5	79.5	79.5
	Indian	4	10.3	10.3	89.7
	Chinese	4	10.3	10.3	100.0
	Total	39	100.0	100.0	

Occupation

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Government Sectors	3	7.7	7.7	7.7
	Private Sectors	14	35.9	35.9	43.6
	Self-employed	1	2.6	2.6	46.2
	Unemployed	3	7.7	7.7	53.8
	Student	18	46.2	46.2	100.0
	Total	39	100.0	100.0	

Marital status

Marital status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	21	53.8	53.8	53.8
	Married	17	43.6	43.6	97.4
	Others (widow/widower)	1	2.6	2.6	100.0
	Total	39	100.0	100.0	

Income level

Income level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 1000	17	43.6	43.6	43.6
	RM1001 to RM2500	3	7.7	7.7	51.3
	RM2501 to RM4000	5	12.8	12.8	64.1
	RM4001 to RM5500	3	7.7	7.7	71.8
	RM5501 and above	11	28.2	28.2	100.0
	Total	39	100.0	100.0	

Reliability Analysis

RELIABILITY

/VARIABLES=PQ1 PQ2 PQ3 PQ4 PQ5 PP1 PP2 PP3 PP4 ITU1 ITU2 ITU3 ITU4 ITU5

/SCALE('Overall Reliability') ALL

/MODEL=ALPHA

/STATISTICS=DESCRIPTIVE SCALE CORR

/SUMMARY=TOTAL.

Scale: Overall Reliability

Case Processing Summary

Case Processing Summary

		N	%
Cases	Valid	39	100.0
	Excluded ^a	0	.0
	Total	39	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.958	.960	14

Item Statistics

Item Statistics			
	Mean	Std. Deviation	N
MagBag are safe to use	4.36	.843	39
MagBag are high in quality	4.21	.801	39
MagBag are very satisfactory compare to others bags	3.95	.999	39
MagBag has a eco-friendly packaging	4.54	.682	39
MagBag designs are attractive	4.33	.869	39
MagBag will have high demand among consumers	3.90	.912	39
MagBag can replace the other normal conventional gift bag	4.33	.806	39
MagBag can be accepted by users in Malaysia	4.38	.782	39
MagBag can compete with others in the market	4.03	.932	39
MagBag is safe to use	4.46	.756	39
Do you feel like using MagBag frequently in public	4.08	.900	39
I would recommend others to use MagBag	4.41	.818	39
MagBag can be used as gift bag	4.46	.790	39
MagBag can be used to carry heavy items	4.05	1.213	39

Scale Statistics

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
59.49	96.835	9.840	14

RELIABILITY

```
/VARIABLES=PQ1 PQ2 PQ3 PQ4 PQ5  
/SCALE('reliability PQ') ALL  
/MODEL=ALPHA  
/STATISTICS=DESCRIPTIVE SCALE CORR  
/SUMMARY=TOTAL MEANS.
```

Scale: Reliability PQ

Case Processing Summary

Case Processing Summary

		N	%
Cases	Valid	39	100.0
	Excluded ^a	0	.0
	Total	39	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.902	.907	5

Item Statistics

	Mean	Std. Deviation	N
MagBag are safe to use	4.36	.843	39
MagBag are high in quality	4.21	.801	39
MagBag are very satisfactory compare to others bags	3.95	.999	39
MagBag has a eco-friendly packaging	4.54	.682	39
MagBag designs are attractive	4.33	.869	39

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
21.38	12.822	3.581	5

RELIABILITY

```

/VARIABLES=PP1 PP2 PP3 PP4
/SCALE('reliability PP') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE CORR
/SUMMARY=TOTAL MEANS.

```

Scale: Reliability PP

Case Processing Summary

		N	%
Cases	Valid	39	100.0
	Excluded ^a	0	.0
	Total	39	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.863	.865	4

Item Statistics

	Mean	Std. Deviation	N
MagBag will have high demand among consumers	3.90	.912	39
MagBag can replace the other normal conventional gift bag	4.33	.806	39
MagBag can be accepted by users in Malaysia	4.38	.782	39
MagBag can compete with others in the market	4.03	.932	39

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
16.64	8.394	2.897	4

RELIABILITY

```
/VARIABLES=ITU1 ITU2 ITU3 ITU4 ITU5  
/SCALE('Reliability ITU') ALL  
/MODEL=ALPHA  
/STATISTICS=DESCRIPTIVE SCALE CORR  
/SUMMARY=TOTAL CORR.
```

Scale: Reliability ITU

Case Processing Summary

Case Processing Summary

		N	%
Cases	Valid	39	100.0
	Excluded ^a	0	.0
	Total	39	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.918	.929	5

Item Statistics

	Mean	Std. Deviation	N
MagBag is safe to use	4.46	.756	39
Do you feel like using MagBag frequently in public	4.08	.900	39
I would recommend others to use MagBag	4.41	.818	39
MagBag can be used as gift bag	4.46	.790	39
MagBag can be used to carry heavy items	4.05	1.213	39

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
21.46	15.623	3.953	5

Scale: Reliability (overall)

Case Processing Summary

		N	%
Cases	Valid	39	100.0
	Excluded ^a	0	.0
	Total	39	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.958	.960	14

Item Statistics

	Mean	Std. Deviation	N
MagBag are safe to use	4.36	.843	39
MagBag are high in quality	4.21	.801	39
MagBag are very satisfactory compare to others bags	3.95	.999	39
MagBag has a eco-friendly packaging	4.54	.682	39
MagBag designs are attractive	4.33	.869	39
MagBag will have high demand among consumers	3.90	.912	39
MagBag can replace the other normal conventional gift bag	4.33	.806	39
MagBag can be accepted by users in Malaysia	4.38	.782	39
MagBag can compete with others in the market	4.03	.932	39
MagBag is safe to use	4.46	.756	39
Do you feel like using MagBag frequently in public	4.08	.900	39
I would recommend others to use MagBag	4.41	.818	39
MagBag can be used as gift bag	4.46	.790	39
MagBag can be used to carry heavy items	4.05	1.213	39

Scale Statistics

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
59.49	96.835	9.840	14

Descriptive Analysis

DESCRIPTIVES VARIABLES=PQ1 PQ2 PQ3 PQ4 PQ5

/STATISTICS=MEAN STDDEV MIN MAX

/SORT=MEAN (A).

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
MagBag are very satisfactory compare to others bags	39	1	5	3.95	.999
MagBag are high in quality	39	2	5	4.21	.801
MagBag designs are attractive	39	2	5	4.33	.869
MagBag are safe to use	39	2	5	4.36	.843
MagBag has a eco-friendly packaging	39	3	5	4.54	.682
Valid N (listwise)	39				

DESCRIPTIVES VARIABLES=PP1 PP2 PP3 PP4

/STATISTICS=MEAN STDDEV MIN MAX

/SORT=MEAN (A).

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
MagBag will have high demand among consumers	39	2	5	3.90	.912
MagBag can compete with others in the market	39	2	5	4.03	.932
MagBag can replace the other normal conventional gift bag	39	3	5	4.33	.806
MagBag can be accepted by users in Malaysia	39	3	5	4.38	.782
Valid N (listwise)	39				

DESCRIPTIVES VARIABLES=ITU1 ITU2 ITU3 ITU4 ITU5

/STATISTICS=MEAN STDDEV MIN MAX

/SORT=MEAN (A).

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
MagBag can be used to carry heavy items	39	1	5	4.05	1.213
Do you feel like using MagBag frequently in public	39	2	5	4.08	.900
I would recommend others to use MagBag	39	3	5	4.41	.818
MagBag is safe to use	39	3	5	4.46	.756
MagBag can be used as gift bag	39	2	5	4.46	.790
Valid N (listwise)	39				