DIGEST

POLITEKNIK METrO Kuantan
7/ 2023

TOURISM & HOSPITALITY DEPARTMENT
POLITEKNIK METrO KUANTAN
KEMENTERIAN PENDIDIKAN TINGGI MALAYSIA

DIGEST

POLITEKNIK METrO KUANTAN
7/ 2023

UNIT PENYELIDIKAN DAN INOVASI
DAN UNIT PENERBITAN

POLITEKNIK METRO KUANTAN
KEMENTERIAN PENDIDIKAN TINGGI MALAYSIA

©2023 POLITEKNIK METrO KUANTAN

PUBLISHED BY

POLITEKNIK METrO KUANTAN
A-5 JALAN TUN ISMAIL 2
SRI DAGANGAN II
25000 KUANTAN
PAHANG DARUL MAKMUR
www.pmku.edu.my

TEL: 09-565 9000
FAX: 09-5173259

eISSN : 2976-4084

© ALL RIGHT RESERVED. NO PART OF THIS PUBLICATION MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC, MECHANICAL, PHOTOCOPYING, RECORDING OR OTHERWISE, WITHOUT THE PRIOR PERMISSION OF POLITEKNIK METRO KUANTAN.

PERPUSTAKAAN NEGARA MALAYSIA
CATALOGUING-IN-PUBLICATION DATA
ANNUAL PUBLICATION

POLITEKNIK METrO KUANTAN WOULD LIKE TO EXPRESS OUR SINCERE GRATITUDE TO THOSE INVOLVED IN PRODUCING THIS eBOOK.

EDITORIAL BOARD
DIGEST PMKU 2023

BOARD OF ADVISORS
ROSLI BIN ZAINUDDIN
TAJUDIN BIN MUSTAFFA

LEAD EDITOR
NURRUL HASANAH BINTI MD TENI

ASSISTANCE EDITOR
MOHD REZAL BIN MISKAM

PROMOTION
SITI ROHANI BINTI MOHD IDRIS

ICT & MULTIMEDIA
NORAISAH BINTI ZULKIFLI

PEER REVIEW
DR MOHD FADLY BIN HJ LAMRI
DR. RINA FAKHIZAN BINTI MOHD SUKRI

EISBN PUBLICATION
ROZIEHANA BINTI ABDUL KADIR
HASNAH BINTI MAT HUSIN

GRAPHIC DESIGN (CERTIFICATE & EDIGEST)
HAFIZAH BINTI ISMAIL
SHAHIRAH BINTI MUHAMMAD ZIN

POLITEKNIK METrO KUANTAN.
TOURISM AND HOSPITALITY DEPARTMENT

PREFACE

Alhamdulillah, thanks to Allah S.W.T because with His bounty, Digest Politeknik METrO Kuantan 7/2023 has been successfully published. First of all, I would like to congratulate the Digest PMKu 2023 implementation committee, Research, Innovation and Commercial Unit and all the lecturers who have contributed their energy and hard work to the creation of this book.

This book is published with the aim of fostering a culture of scholarly writing, information sharing and expertise in the field among academic staff. The production of this book provides a space for the final student project supervisor to highlight the writing results from the innovative products that have been produced throughout the implementation of teaching and learning.

This effort can be used as a platform for PMKu academician to interact and share experiences through studies that have been conducted tourism and hospitality field. This approach to some extent helps Polytechnic METrO Kuantan in transforming the National Higher Education.

Finally, it is hoped that through the results of this publication can be fully utilized towards producing creative, innovative and excellent among PMKu citizens.

Thank you.

CONTENT

1 (MS 87-93)

DIET GUIDER, WEBSITE.

Fatkhurrahman bin Manani [1], Umar Amirul bin Raslan [1], Norizah binti Md Idris [1], Nisrina Naifah binti Idham [1], Farah Zahirah binti Ridzuan [1]

2 (MS 94-99)

MULTIPURPOSE SAUCE

Siti Rohani Binti Mohd Idris, Muhammad Aliff Ahzha Bin Mohd Afandi 1, Nurzetty Farisha Binti Zulazri, Wan Nur Alyaa' Binti Wan Asyraf, Damia Khalish Binti Khairul Zaman

3 (MS 100-105)

GREASE TRAP (FILTER)

Ahmad Saiful bin Manaf , Nur Aireqa Mastura binti Adam Matthew, Nurul Airanis binti Aziz, Nurnadzatul Syahira binti Noryazmi

4 (MS 106-110)

CUCURBITA ENERGY BAR

Syed Mohd Hafizal Bin Syed Ali [1], Muhammad Danial Hakim Bin Mohd Hatta [1], Ali Bin Sabar [1], Muhammad Nur Haikal Bin Ahmad Abdul Kalam [1]

5 (MS 111-117)

EZ COOLER (PORTABLE WATER COOLER)

Hasni Bin Hassan, Nurain Maisarah Bt Almizar, Muhammad Dinul Amin Bin Mohd Kamal, Nuha Munir Benmahfouz Bt Shaikh Ahmad Munir

6 (MS 118-130)

MANGOSTEEN SKIN BISCUITS

Rina Fakhizan binti Mohd Sukri, Wan Farid Shahmi bin Wan Azmi, Muhammad Haqim Hazramie bin Fakhrul Rozi, Muhammad Danial Irfan bin Mohd Yusrizal

7 (MS 131-158)

ORANGE SKIN STRIP(USED AN ORANGESKIN)

Mohd Fadly Lamri , Muhd Rahizam, Nur Zahirah , Arif Iskandar , Wardina Nur Sofinaz

8 (MS 159-169)

PEPELETTE BITES

Haslina binti Ahmad Muzakir, Khadijah Humaira Binti Mohd Nor Heizel, Nurin Qistina Binti Mohd Faisol, Nur Farah Ashiqin Binti Salim, Dan Nur Izyan Izzani Binti Suhaimi

9 (MS 170-174)

SCHMALTZ GARLIC

Ahmad Tajudin Bin Mustaffa, Nur Aina Nasuha Binti Che Aziz, Syazwana Alia Binti Sadli, Tuan Ainul Basirah Binti Tuan Pa, Muhamad Ali Imran Bin MuhamadNor

10 (MS 175-182)

SORBET SANTAN

Muhamad Surairi bin Sharipuzan, Jeslyn A/P Muniandy, Nur Amalina Adriana binti Osmera, Siti Aminah binti Jusoh, Sarinah

Sesi I 2022/2023

CONTENT

11 (MS 183-203)

BMYEARS
TOUR GUIDE APPS FOR DEAF AND MUTE TOURIST

Mohd Rezal bin Miskam, Rabiatul Adawiyah Binti Khairul Nizam, Nor Nanida Aina Binti Adinan,Noorallysha Amiera Binti Zainal Abidin,Muhammad Sany Fazlie Bin Saidun

12 (MS 204-210)

MULTIPURPOSE UMBRELLA

Rina Fakhizan binti Mohd Sukri, Piraweenaa Shrey Chandran, Sanjay Gobu, Sharmila Gunasegaran

13 (MS 211-224)

BATIK KIT ON THE GO
BATIK KIT WITH IR 4.0 INNOVATION

Nor Akashah BInti Kassim, Muhammad Afif Danial Bin Ahmad Fadzil , Massayu Aisyah Binti Ab Aziz , Nur Aliaa Binti Rosman , Sofea Ilham Binti Shamsuddin

14 (MS 225-231)

GEORISM APPLICATION

Anis Shabirah binti Md Isa, Vallen a/l Richard Rancis, Muhammad Idlan Haikal bin Azhar, Nurul Jannah binti Mohd sufian, Siti Zaharah binti Anuar

15 (MS 232-250)

SAFARA MAGIC KIT (S.M.KIT)

Surayahanim Binti Ali[1], Nur Aina Athirah Binti Mohd Muslil, Muhammad Danish Bin Salzali, Siti Nur Alya Binti Zorudin, Nur Aleya Syaqira Binti Md Akhir

16 (MS 251-273)

DUSUN BUS GLAMPING

Farizah binti Mohammad, Adriana Batrisyia binti Badri Zaman, Siti Nur Baakyah binti Hassan , Reeshanthini a/p Siva Sangkar , Nurhayati binti Ab Halim

17 (MS 274-292)

MULTI TENT H

Nurrul Hasanah Binti Md Teni, Nur Basirah Binti Abdul Khalim, Rahayu Binti Othman

18 (MS 293-302)

FUN TOURISM BOARD GAMES

Effa Izzati binti Mahmun, Nur Aini binti Abdullah, Farawahida binti Mohd Rozawi, Nureen Izzati binti Md Saupi, Uthman Affan bin Abd Radzak

19 (MS 303-325)

THE READINESS OF RAFTING OPERATORS TOWARDS ADVENTURE TOURISM SAFETY PROCEDURE DURING PENDAMIC : A CASE STUDY

Mohd Rezal bin Miskam

20 (MS 326-336)

TRAVEL WITH VIRTUAL REALITY

Zairul Azrul bin Zakaria, Sharifah Zahidah Binti Sayed Zaidulhar, Muhammad Nasrul Nafis Bin Mohd Nasir, Amir Aqbal Bin Anwar

Sesi I 2022/2023

CONTENT

1 (MS 1-8)

PARENTS AWARENESS OF HEALTHY FOOD INTAKE AMONG TODDLER IN KUANTAN

Nurul Safawati Binti Abd Aziz, Nurul Asykhen Binti Ramli, Nurul Fatin Najiha Binti Abdullah, Sharifah Nurul Wahida Binti S.Hamid

2 (MS 9-14)

"FRUBIS" FRUIT BISCUIT

Sadariah Binti Mohd Ariff, Nur Alia Suraya Binti Mohd Zaki, Qhairiezza Binti Mohammad Isa,
Siti Nur Aisyah Binti Masdi

3 (MS 15-21)

SAMBAL BLACK PUMPKIN

Ahmad Saiful bin Abdul Manaf, Nur Bilqis Khairunnisa binti Mazlan, Asriyati binti Abdul Sani, Intan Zulaikha binti Roslan, Muhammad Adib Danial bin Rozman

4 (MS 22-29)

EASY & GO [DIGITAL EDUCATION FOR FOODSERVICE]

Shahirah Binti Muhammad Zin , Nur Najeera Binti Kassim , Nur Ain Binti Khairul Anuar , Dina Khairina Binti Mohd Fauzi , Wan Badrul Hanif Bin Wan Badaruzaman

5 (MS 30-37)

CRISPY SAMBAL HALIA

Siti Rohani binti Mohd Idris, Elyshanazira binti Shaharani, Muhammad Rashdan Hafiz bin Mohd Ruzaizi, Siti Salwani binti Ujang, Nurul Atiesya binti Ahmad Rizal

6 (MS 38-50)

SECRET CANDLE, USED OIL RENOVATION

Mohd Fadly Lamri , Qusafarien Mohamad, M. Harith D, M.Adam M.H, M.Akmal A.C.A

7 (MS 51-59)

SCRUB ON ME

Haslina binti Ahmad Muzakir, Muhamad Muaz MujahidBin Rusdi, Nur Syu hada Binti Helmi,Nur Khaliesah Laila Binti zizan,Nur Aishah Najwa Binti Azemin

8 (MS 60-69)

EXTRACTION COCONUT DREGS TO OIL

Noor Syaida Binti Abdul Rahman , Muhammad Alif Izham Bin Abdul Jalil, Muhammad Ikram Fikri Bin Mohd Salleh, Nurul Atiqah Binti Ahmad Rizal, Rubiatul Adawiyah Binti Hasbullah

9 (MS 70-86)

HIDDEN GEM IN BLACK STONE

Rina Fakhizan Binti Mohd Sukri , Aina Batrisyia Binti Ismail Ali Muda , Izzah Safiyyah Binti Mohd Said , Muhd Nabil Azri Bin Mohd Saufi

Sesi II 2022/2023

Sesi II 2022/2023

PARENTS AWARENESS OF HEALTHY FOOD INTAKE AMONG TODDLER IN KUANTAN

Nurul Safawati Binti Abd Aziz, Nurul Asykhen Binti Ramli, Nurul Fatin Najiha Binti Abdullah, Sharifah Nurul Wahida Binti S.Hamid

TOURISM AND HOSPITALITY DEPARTMENT
POLYTECHNIC METRO KUANTAN

Safawati86@gmail.com

ABSTRACT

Healthy food intake among children is very important in order for them to growing up. Nutritious meal will help them the get the complete nutrients needed by the body. In Malaysia, Kementerian Kesihatan Malaysia (KKM) has published a food guide pyramid for people to guide their daily healthy food intake. Therefore, this research take place among toddlers which age between 1 to 4 years. This is because at this age is very important for them to get a complete and healthy nutrient for human development. Among the important nutrient needed in the growth of children are carbohydrate, protein, fat, calcium, vitamin, and minerals. The objectives of this research are to examine the parent's knowledge about healthy food intake among toddlers in Kuantan. Another objective is to share a complete healthy meal for toddler towards parents and selected nursery in Kuantan. Factors that affect the parent's awareness is derives from knowledge and attitude. Parents play an important role in children eating behavior which led to healthy lifestyle food intake. This study included 80 parents from various nursery. The analyses involved descriptives statistic. Children would love to have a very creative meals on plate, therefore parents must have an attractive and variety meal planning for toddler. A complete of various recipes book (Selera Sihat Si Cilik) will be published and share to parents in order to increase their awareness and knowledge in selection of healthy food intake. These finding will help parents to get ideas for cooking a healthy and attractive meal for their kids.

1.0 INTRODUCTION

-Problem Statements

Since they live in the age of technology, they ignore the practice of balanced nutrition in the world which is often shocked by the problems faced by the society in this state. We are often surprised by the problem of children in this country not practicing balanced nutrition. The problem is Stunting is one of today's difficulties affecting toddler's growth. According to Sinar Harian (2020), the findings of the National Health and Morbidity Survey (NHMS) in 2019 discovered that one in every five children under the age of five (21.8 percent) have limping difficulties. This scenario is becoming increasingly concerning to parents, and if not addressed seriously, it threatens impoverishing the future generation. As a result, parents should be aware of the significance of feeding toddlers' nutritious foods.

Objective

i)To examine the parent's knowledge about healthy food intake among toddlers in Kuantan.
ii)To share a complete healthy meal for toddler towards parents and selected nursery in Kuantan

2.0 LITERATURE RIVIEW

Related topics

The problem of children suffering from stunting often occurs nowadays, especially among toddlers aged 1 to 4 years. Therefore, with our initiative, we have studied the awareness of parents about healthy food for toddlers, and the result is a recipe book that has a variety of menus suitable for toddlers; each menu also contains healthy facts that can provide nutrition to toddlers, especially during growth. In addition, we have prepared a QR code for a cooking tutorial video for each menu we recommend that can be used as a guide. There are 15 menu options with ingredients that are easily available and affordable. The products we produce are intended to provide healthy menu suggestions to parents and nursery managers so they can provide healthy and nutritious meals for children.

Theory/Conceptual/Model

Based on the research we have done, there are also a few parents who do not emphasise, practice, or prepare healthy meals for their toddlers. However, we use this product to answer and highlight the objective of our study, which is to help reduce the problem of stunted children. Through our research, we have found that only the percentage of parents who do not emphasise healthy meals for toddlers is likely to be influenced by parents' attitudes and knowledge about toddlers' healthy food. We produce our product, Selera Sihat Si Cilik, to be a guide for parents and nurseries to prepare nutritious food based on the menu recommendations we provide. This product can help a little in overcoming stunting problems caused by a lack of complete nutrition in toddlers. With this, our research is collected from journals and articles written with research they have conducted on this issue.

3.0 METHODOLOGY

Product development

1. Research about toddler diet intake
2. Find fact about toddler diet intake.
3. Make questionnaire.
4. Distributes to parents at nursery around Kuantan.
5. Make compression toward parents' knowledge.
6. Make a simple cooking video.
7. Put it together with cooking recipe.
8. Compile all things together.

Quantitative/Qualitative/Mix method (Questionnaire survey /Interview/ Both)

The questionnaire was given to 80 respondents from the nurseries we work with, namely Taska Suria Imani and Taska Anugerah Qaseh in Kuantan. The questionnaire is divided into four parts. Section A is set up to obtain information related to the respondent's personal data. Section B is about general questions like knowledge about children's food and how many times they give their toddler unhealthy snacks. Section C covers parents' attitudes towards preparing food for their young children, while Section D is about parents' practises of healthy meals. To calculate the score for each product, each descriptor is given a score value: strongly disagree (1), disagree (2), agree (3), and strongly agree (4).

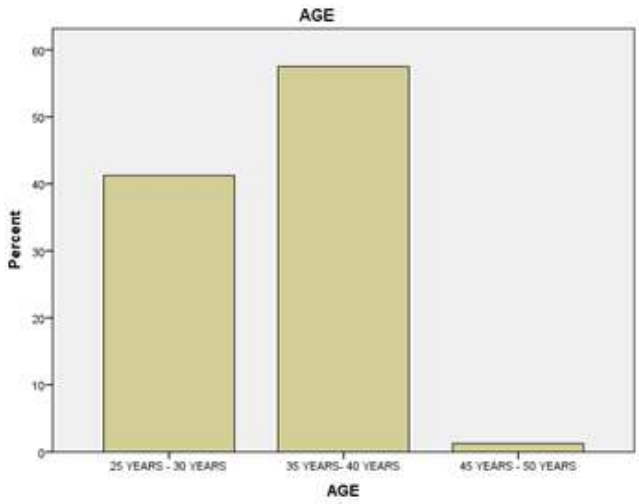
Instrument Development (Questionnaire)

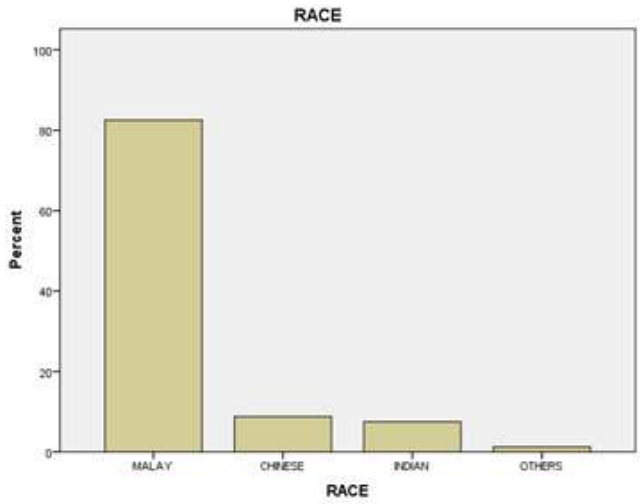
This study was carried out using quantitative methods through questionnaire. We took records from several nurseries in Bandar Kuantan as respondents for the survey questions we conducted about our product. Researchers use this method because quantitative methods place a focus on measuring something objectively and analyzing data obtained via questionnaires in termstatistics, arithmetic, or numbers. Meanwhile, secondary data is collect ed form from online, articles, journals dan books. We used google form as a platform for parents to answer the questionnaire questions related to toddler diet intake

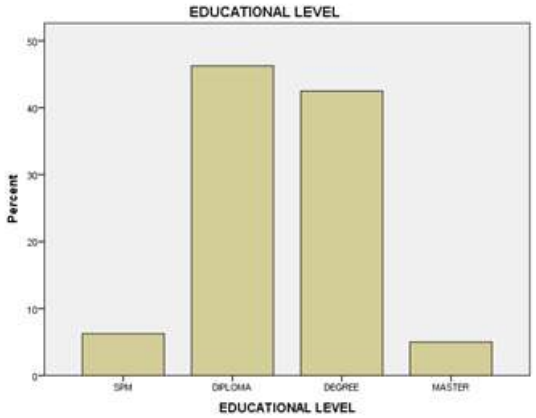
Sampling

A crucial component of this study project is sampling. The demographic on which we concentrate is based in Bandar Kuantan, Pahang. We concentrate on a few of nurseries that serve kids between the ages of 1 and 4. We create a survey spread through link to parents whose children attend nursery as well as to teachers who are also parents. The questions we used to ask helped us develop a project product that was useful to parents. We recorded all data collection through paper and compare about customer needed and knowledge.

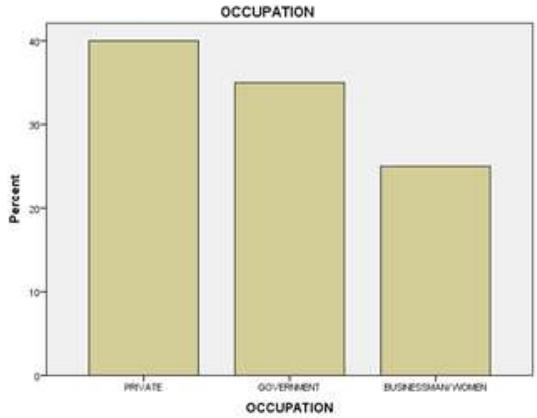
4.0 FINDING (Data Analysis)



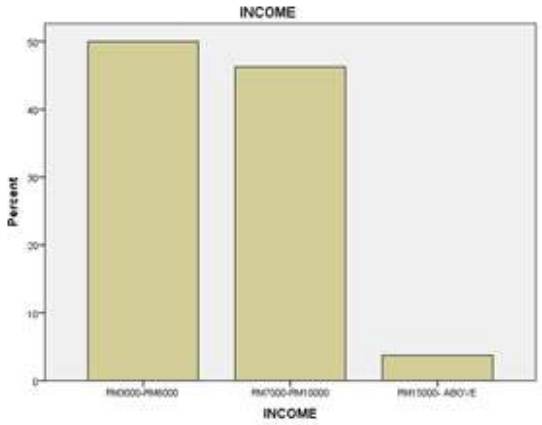




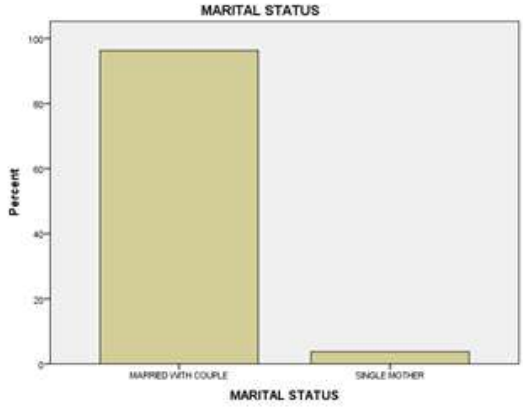
Graph Bar 1.3 Graph of Educational Level



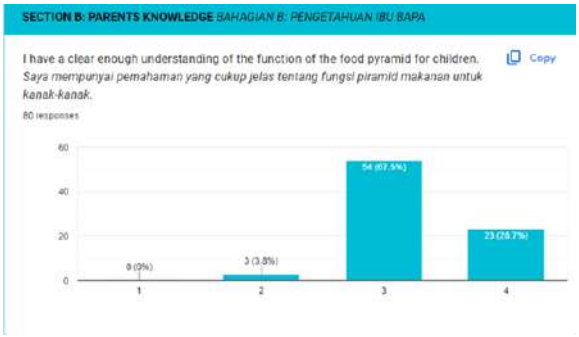
Graph Bar 1.4 Graph of Occupation



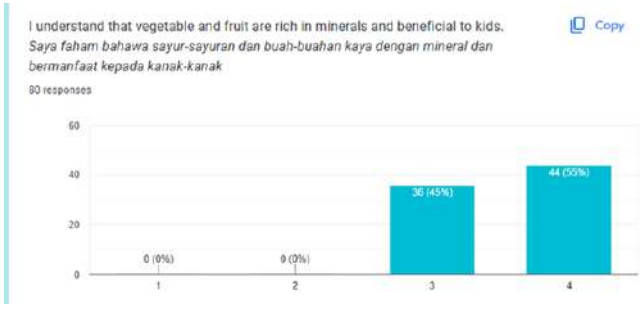
Graph Bar 1.5 Graph of Income



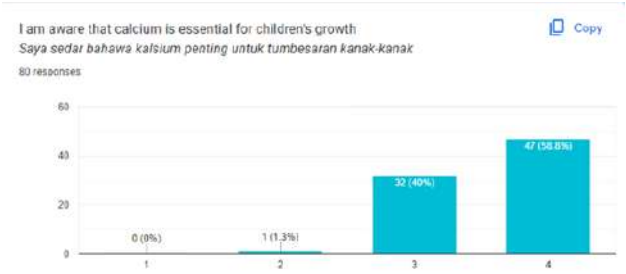
Graph Bar 1.6 Graph of Marital Status



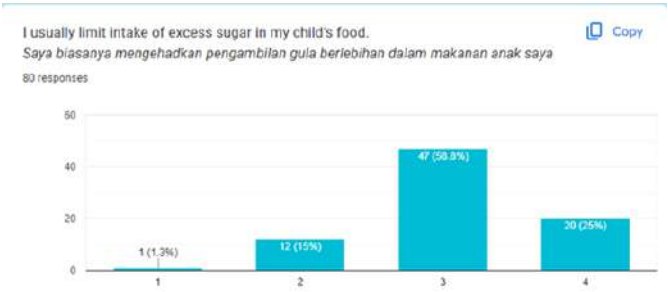
Graph Bar 2.0 Graph of Parents Knowledge



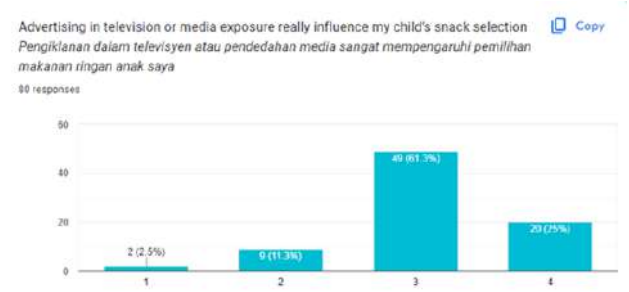
Graph Bar 2.1 Graph of Parents Knowledge



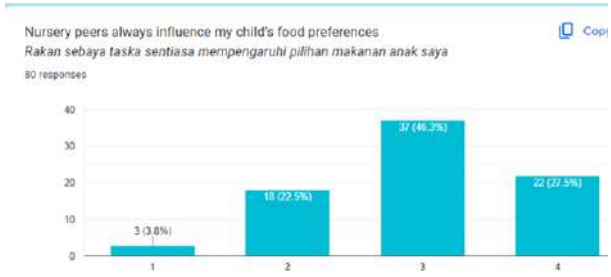
Graph Bar 2.2 Graph of Parents Knowledge



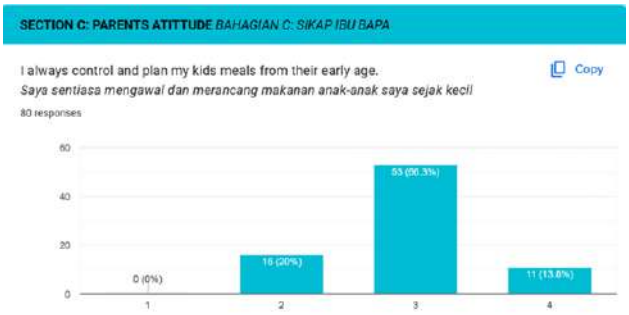
Graph Bar 2.3 Graph of Parents Knowledge



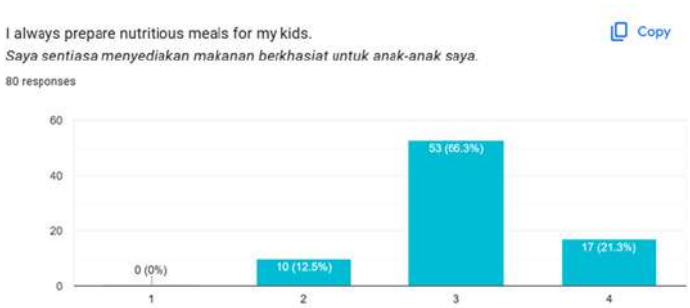
Graph Bar 2.4 Graph of Parents Knowledge



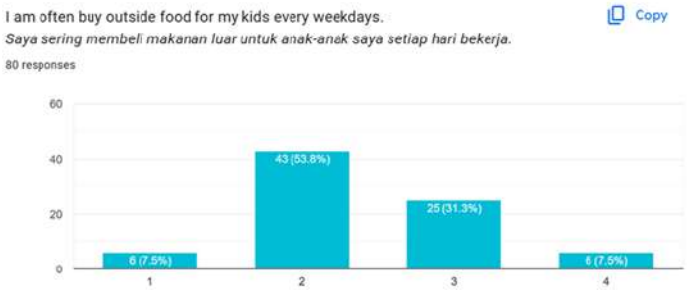
Graph Bar 2.5 Graph of Parents Knowledge



Graph Bar 3.0 Graph of Parents Attitude

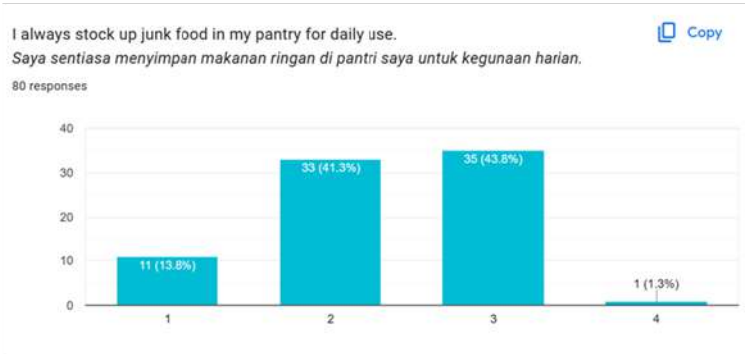


Graph Bar 3.1 Graph of Parents Attitude

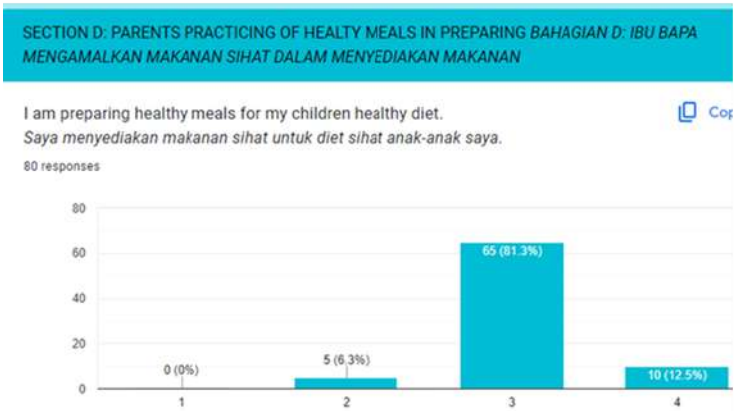


Graph Bar 3.3 Graph of Parents Attitude

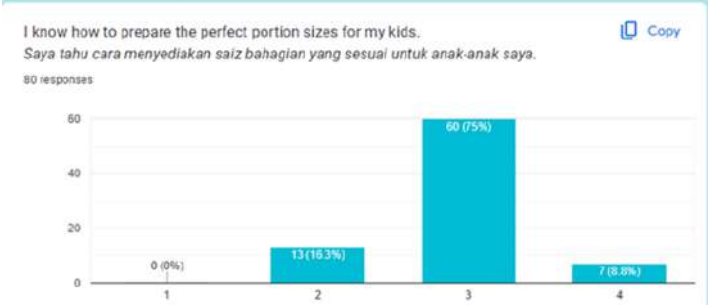
Graph Bar 3.4 Graph of Parents Attitude



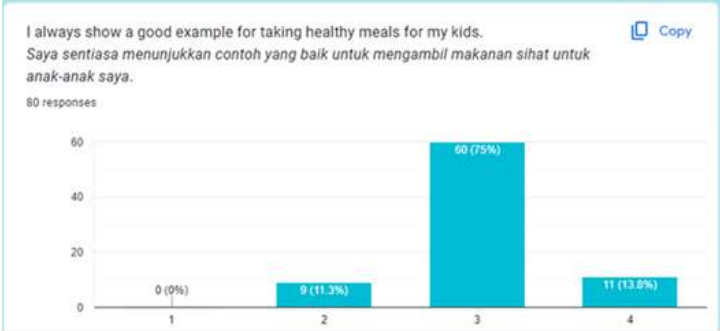
Graph Bar 3.5 Graph of Parents Attitude



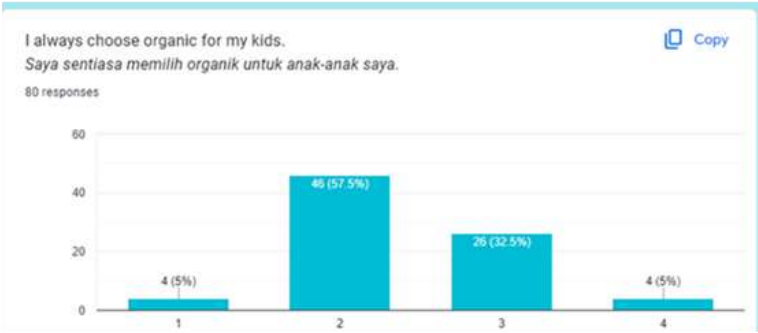
Graph Bar 4.0 Graph of Parents Practice of Healthy Meals



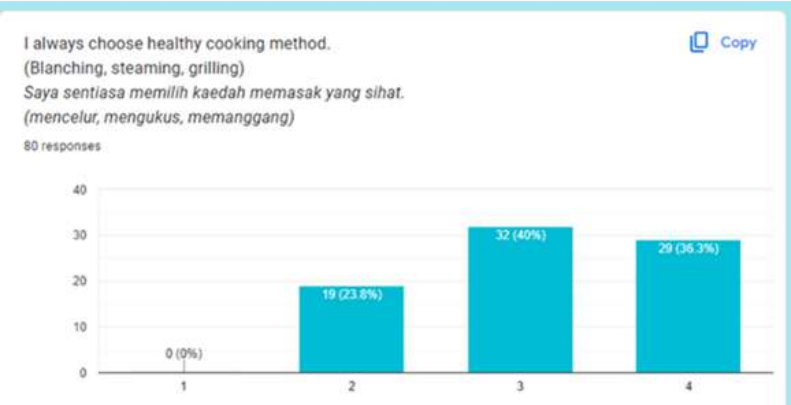
Graph Bar 4.1 Graph of Parents Practice of Healthy Meals



Graph Bar 4.2 Graph of Parents Practice of Healthy Meals



Graph Bar 4.3 Graph of Parents Practice of Healthy Meals



Graph Bar 4.2 Graph of Parents Practice of Healthy Meals

5.0 DISCUSSION

Based on the data collected through each question that has been prepared, Parents now have a high awareness of children's eating and nutritional needs. In addition, analysis of each question shows the positive effect of each choice made by parents. Next, parents need to be more active in ensuring that their children always practise a balanced diet and are interested in eating healthy food without the need for coercion. Children as young as 1 to 4 years old are individuals who want to experience new things because parents need to maintain nutritious food at that early age so that they can easily accept it.

6.0 CONCLUSION

This study explores parents' knowledge and awareness of their children's healthy food intake from childhood for their growth. After getting the necessary data and information through the online Google form, The data is then analysed until conclusions can be drawn. Statistics reflect the level of parents' knowledge about their children's healthy diet intake. This section is divided into four sections: demographics, parents' knowledge, parents' attitudes, and parents' practise of healthy meals. Parents give a positive response and accept Children's Healthy Appetite as guidelines and recommendations for providing healthy food to children. It is a good way to connect and collaborate with the outside community, especially to spread more knowledge.

REFERENCES

Ahmad Faezi Rashid1,2, Sharifah Wajihah Wafa,1, Ruzita Abd Talib,3, Nor Mazlina Abu Bakar,4, (2022). An interactive Malaysian Childhood Healthy Lifestyle (i-MaCHeL) intervention programmer to change weight-related behavior in reschool child-parent dyads: Study protocol of a cluster randomized controlled trial.

Amber E Vaughn 1, Dianne S Ward 2, Jennifer O Fisher 2, Myles S Faith 2, Sheryl O Hughes 2, Stef P J Kremers 2, Dara R Musher-Eizenman 2, Teresia M O'Connor 2, Heather Patrick 2, Thomas G Power 2, (2016). Fundamental constructs in food parenting practices: a content map to guide future research.

Hidayah Harom, SH., (2020). Masalah Tumbesaran Terbantut Perlu Ditangani
Hmetro, Noraina.R.R, Hafis.N, Yusmizal.D.A,(2022). 1 dari 5 Budak Bantut
Jawatankuasa Pemandu Bulan Pemakanan Malaysia (NMM) Kebangsaan, (2019). Adakah anak-anak kita makan dengan betul?

Jennifer Anderson, MSPH, RDN & Tanyaporn (Katie) Kaenkumchorn, MD, FAAP, (2023). Building Balanced Snacks to Feed to Toddlers.

"FruBis" FRUIT BISCUIT

Puan Sadariah Binti Mohd Ariff, Nur Alia Suraya Binti Mohd Zaki, Qhairiezza Binti Mohammad Isa,
Siti Nur Aisyah Binti Masdi

Tourism and Hospitality Department
Polytechnic METrO Kuantan

sadariah@pmku.edu.my

ABSTRACT

This project was done to make biscuits based on arrowhead fruit, water chestnut, dates, raisins and black seed and also to introduce arrowhead fruit or known as arrowhead to be known to more people and not many people know the benefits and nutrition of arrowhead in every 100gm arrowhead, contains 99 Kcal 5.3gm protein, 0.3gm fat, 20gm carbohydrates, 2.6mg iron, 51mg magnesium, 922mg potassium, 0.36mg manganese, 1.1mg Vitamin C and many more. From this content it helps in various needs of the body.

The problem we are trying to control is that many people do not know the arrowhead fruit. The name given to our product is Fruit Biscuit abbreviated as FruBis. In addition, most children now have little or no interest in eating sunnah food. The method we use to solve the problem is to create biscuits that taste like arrowhead, water chestnut and sunnah food and we are sure that our Fruit Biscuit can be marketed and received good response.

Our decision to make Fruit Biscuit is for children to eat sunnah food and enjoy eating it because children like to eat like biscuits because of the crunchy texture and at the same time can give the eater a lot of nutritional benefits. In conclusion, we are sure that our Fruit Biscuit will go up in the market and get a good response, in fact this Fruit Biscuit can be eaten by all ages, whether young or old.

1.0 INTRODUCTION

Problem Statemant

People don't know or have heard less about arrowhead. Children are not interested in eating sunnah food because the colour is less attractive and cannot attract children to eat it. There are also no biscuits based on arrowhead, water chestnut, dates, raisins and black seed. Besides that, in terms of the taste of sunnah food as well young people are less interested, most of the older people like to eat it. They didn't know about the new menu reveal of the Fruit Biscuit recipe. They also do not know about the advantages and good uses of the ingredients in Fruit Biscuit.

Objective

The objective is to make or create Fruit Biscuit that have a lot of nutrients for all ages even the elderly. Getting nutrients from sunnah food such as raisins, dates and black seed and also our target is children because sunnah food is good for the brain and has many benefits and is also suitable for growing children.

i) To educate people about arrowhead benefit.

ii) To educate public about benefits of Fruit Biscuit based on arrowhead,water chestnut,dates,raisins and black seed.

iii) To attract children's interest in eating sunnah food.

2.0 LITERATURE REVIEW

Related topics

The problem of children who not interested in eating fruit and sunnah fruit nowadays,especially among children.Furthermore,vegetables and fruit provide important vitamins such as vitamin C and folic acid. They also have other plant substances that are thought important to help reduce the risk of some cancers and heart disease.In this day most children not really like to eat fruit,vegetables and sunnah food such as raisins,dates,black seed and for sure they not really know what is black seed and the other Sunnah food.Next,because of that we create and innovate FruBis which contain Sunnah food and healthy fruit.This healthy treat to make the children and person who less interest on fruit to eat our food product.Furthermore,our fruit biscuit have 3 variety of shape to gain interest among children,besides the affordable price of our food product.

Theory/Conceptual/Model

Based on the research that we do,there are some people who like to eat fruit and Sunnah food and they are some people know about our main ingredients which is arrowhead fruit and water chestnut.The objective of the exist of our food product is to attract children and people who not interested in eating fruit and Sunnah food.Furthermore our main objective is to introduce to people who do not know what is arrowhead fruit and water chestnut. Instant food is the best alternative to a person,besides it doesn't take long to serve. It's easy to carry anywhere because it's very easy to carry and practical.Besides that the ingredients we use to make our fruit biscuit are mostly Sunnah based foods such as raisins, dates and black seed as well as which is to attract someone who is less interested in eating directly the sunnah food.

3.0 METHODOLOGY

Product development

1.To educate people about the benefits of arrows
2.To introduce to the public products based on arrowroot, water chestnut, date, raisin and black seed.
3.Attract children's interest in eating biscuits based on fruits and sunnah food.

Data Collection Method

The chosen method for this questionnaire is quantitative method, which is the collection of data through the use of questionnaire. The reason the researcher uses this method is because quantitative methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys. The questionnaires were given to 70 respondents from Polytechnic Metro Kuantan and 30 respondents from outside Polythecnic. The questionnaire is divided into three sections. Section A is designated to obtain general information relating to the personal data of the respondents. Section B is about packaging. Meanwhile, section C is the aesthetic elements of packaging design. The primary data are obtained by questionnaire. Whereas, secondary data are collected from online articles, journals, books, example packaging from the market.

Sampling Respondent

The sample was designed to include a relatively large group of self-reported nonvoters, requiring the application of additional quotas. The regional and voter/nonvoter quotas established resulted in the sampling plan presented in the table. The sample was drawn using Google Form, which ensures that all student and staff PMKU listings in the target population have an equal opportunity selected for inclusion in the survey. Sensory analysis is an important tool in food science and is becoming accepted as a necessary part of food quality experiments. Advances in computer technology as a means of data capture and analysis facilitates more sophisticated statistical methods to be used by sensory analysts.

Figure 1: Packaging of FruBis

INSTRUMENT DEVELOPMENT (Questionnaire)

Research instruments are measurement tools for example, questionnaires or scales. To calculate he score for each product each descriptor was assigned a score value: strongly agree = 3, disagree = 2, strongly disagree = 1.
(Watts, 1989)
Students were given practical exercises on how to prepare and serve samples to panellist for evaluation, the material for this was adapted from the text, Sensory Evaluation of Food: Principles and Practices by Lawless & Hay mann, (1998). Samples of food should be uniform in size and of the same temperature at serving. They should be coded by a random three-digit number and presented in clean odour-free containers. In cases where more than one sample is to be assessed, they need to ensure that the assessors do not receive the samples in the same order, since this will introduce a bias. Assessors are to be provided with a glass of water to rinse their mouths out with between each sample to remove all traces of the previous sample. Assessors should also be seated in a manner that they cannot communicate with each other and in a room, which is free of distractions and has good lighting and ventilation.

4.0 FINDING (Data Analysis)

Based on a research done on a sample of students enrolled in the Polytechnic Metro Kuantan's Diploma in Food Service Halal Practise programme as well as local people, the study was successfully assessed from 100 respondents who provided accurate responses to the questionnaires that were given to them. The use of appropriate sensory testing methodologies (differential, descriptive, affective) is adhered to by students, who choose these methodologies to meet the project's purpose, the kind of respondent suited for the type of testing, and the use of sensory tasks according to the type of responder. A total of 100 responders were chosen as test subjects who could evaluate the product in depth based on its taste, smell, colour, touch, and visual appeal.

Table 1: Product Characteristics

NO	QUESTION	FORM RESULT BASED ON RESPONDENT SELECTED			
		PERCENT (YES)	FREQUENCY (YES)	PERCENT (NO)	FREQUENCY (NO)
1.	Do you know what is arrowhead fruit?	15%	15	85%	85
2.	Have you ever taste arrowhead fruit?	11%	11	89%	89
3.	Do you know water chestnut rich of vitamin C?	16%	16	84%	84
4.	Have you ever been heard of biscuit made from arrowhead fruit and water chestnut?	5%	5	95%	95
5.	Do you know black seed has a lot of benefits?	49%	49	51%	51
6.	Do you know raisins are a good source of nutrients?	67%	67	33%	33
7.	Do you know dates rich in minerals?	40%	40	60%	60
8.	Do you know that arrowhead fruit rich of vitamin?	15%	15	85%	85
9.	Do you like eat fruit?	63%	63	37%	37
10.	Do you know FruBis has a lot of nutritional benefits?	17%	17	83%	83

Table 2 : Sensory Evaluations

NO	QUESTION	FORM RESULT BASED ON RESPONDENT SELECTED				
		STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1.	Arrowhead fruit and water chestnut has a lot of benefits	0	2	5	37	56
2.	FruBis is a healthy product	1	2	4	46	47
3.	The appearance of FruBis is interesting	2	5	16	6	71
4.	The taste of FruBis is acceptable	1	0	5	32	62
5.	The packaging of FruBis is interesting	0	2	6	30	62
6.	The price of FruBis is affordable	0	2	7	15	76
7.	FruBis product can marketable	0	1	7	22	70
8.	The taste of FruBis is tasty	0	1	9	22	68
9.	The texture of FruBis is crunchy	0	2	6	21	71
10.	The colour of FruBis is interesting	0	1	7	21	71

5.0 DISCUSSION

Based on this data survey collected throught each question, most of our respondents not know about arrowhead fruit and water chestnut.Furthermore,they have people who know about our product. It is a good thing for us and also for our respondents. This is because we know about the advantages and good uses of our food products. With this goodness, it may indirectly increase people's interest in this product. The business is related to creativity and innovation.

6.0 CONCLUSION

This innovation makes a significant difference to the food business. If you don't change the way you offer the market, the market will leave you. In short, survival is not mandatory. Food businesses that survive will grow successfully doing so because they are able to change. These changes lead to a continuous meeting of consumer needs and therefore growth. It is generally accepted by economists that a large part of the economic growth of any country is generated by new ideas and innovations.

When these new ideas are slow or absent, the economy tends to stagnate. For established businesses, the need for innovation creates problems. This innovation will offer great challenges and opportunities but is essentially a risky business. Often it is influenced by the face outside the direct control of the company. Most food businesses fail because they don't see or realize the need for change. They tend to look inward and fail to take the time to see the bigger picture. Innovation is a strategic resource. It can help food businesses get to where they want to go. But it did not happen by chance. It can be a complex process that carries significant risks and requires robust and systematic management.

REFERENCE

1) https://www.cameron.com.my/malaysia-kitchen-restaurant-programme-by-matrade-and-exim-bank

2) https://www.boardofinnovation.com/blog/40-food-innovations-that-excite-us/\

3) https://www.healthbenefitstimes.com/arrowhead/

4) https://www.sciencedirect.com/science/article/abs/pii/S0160738304000623

5) https://isiarticles.com/bundles/Article/pre/pdf/154.pdf

6) Article : https://www.plantsjournal.com/archives/2018/vol6issue2/PartD/6-2-28-858.pdf

SAMBAL BLACK PUMPKIN

Ahmad Saiful bin Abdul Manaf, Nur Bilqis Khairunnisa binti Mazlan, Asriyati binti Abdul Sani, Intan Zulaikha binti Roslan, Muhammad Adib Danial bin Rozman

Tourism and Hospitality Department
Polytechnic METrO Kuantan

ahmadsaifuluas@gmail.com

ABSTRACT

Sambal Hitam Pahang is a traditional food that is very popular in the Pahang community with a recipe that has been preserved for generations. Most people who like Sambal Hitam have made this food as a side dish while eating their main dishes such as white rice, porridge and ketupat. Furthermore, it is a food that is sold at a reasonable price and of good quality. Sambal Hitam Pahang has often been mentioned and is widely found in Raub, Jerantut and Kuala Lipis districts. Outsiders will also always come to this district to find Sambal Hitam with an original and better taste than from other districts. Therefore, the innovation product that we want to produce is Sambal Hitam Labu which generally replaces anchovies in the ingredients for pumpkin. One of the reasons why this product wants to be innovated is to promote a new product to the whole Malaysian community by replacing a material that has never been produced again. Pumpkin has created a sweet taste. It is also often served as a vegetable and dessert menu. The objective of this innovation product is to identify the acceptance of the surrounding community about this Sambal Black Pumpkin. The next objective is to create a new formulation for pumpkin to be used as an ingredient in Sambal Hitam. The last objective is to identify the difference between Sambal Hitam and Sambal Hitam Innovation. The proposal is to produce and promote Sambal Hitam Labu as widely as possible to give the community the opportunity to try Sambal Hitam with a different and unique taste. In conclusion, this product can promote to the local community about traditional food innovation using new ingredients in product recipes.

1.0 INTRODUCTION

Sambal Hitam Pahang is a traditional food that is loved by the Pahang community using recipes from generations past until now. If you look at the market, most of the sambal black has no difference and instead uses the same ingredients and recipe, namely red onion, chili padi, black starfruit and anchovies. So, we want to give a touch of innovation to this product by changing the ingredient, which is anchovies, to pumpkin. Rather than adding more spicy or salty, sweet flavor to the pumpkin is used to make sambal black a more interesting combination of flavors. This product will be promoted to the surrounding community to introduce a unique taste in sambal and there is no other similar product produced other than this product.

Problem Statement

·No Sambal Hitam product that replaces anchovies with pumpkin and pumpkin seeds.
·Lack of exposure about edible pumpkin seeds.

Objective

·To identify the difference between the Sambal Hitam and the innovation of the Sambal Black Pumpkin.
·To identify consumer acceptance of Sambal Black Pumpkin.

2.0 LITERATURE REVIEW

For the people of Pahang, this sambal hitam belimbing buluh is one of the traditional dishes that is gaining popularity not only among the people of that state, but also among the residents of other states. The main component of this sambal is bamboo starfish that has been cooked with salt for a long time until it shrinks and turns brown, chili, onion, and anchovies are also necessary, but we have substituted a new ingredient, pumpkin, for the anchovies. In addition to serving as a seasoning agent in this sambal. All ingredients will be combined and cooked until the sambal becomes black. That is why it is known as SAMBAL BLACK PUMPKIN. Because of its unique sour, spicy and sweet taste, this sambal is often used as a complement to cooking. This sambal goes well with almost all dishes, especially white rice. When served with hot white rice

Finally, when making the SAMBAL BLACK PUMPKIN product, we employ components that are widely available, such as in stores. The substances we utilise have their own set of advantages and disadvantages. We utilise pumpkin, pumpkin seed, onion, belimbing buluh, salt, and chilli as components. Throughout the manufacture of this product, we measured and weighed the components in accordance with the exact mould. And we had many failures at every level of this product's manufacture in order to achieve the greatest results. Following that, we were able to effectively design our own items that are equivalent to market products. As a result, the development of this SAMBAL BLACK PUMPKIN can assist those who do not have time to make meals or breakfast. We hope that the items we promote are acceptable to all parties, whether they be children, teens, or adults.

3.0 METHODOLOGY

This SAMBAL BLACK PUMPKIN product was produced to analyze opinions, views and acceptance of the use of pumpkin and pumpkin seeds in sambal. In this product, we substitute anchovies for pumpkin and pumpkin seeds. Therefore, in terms of taste it will be slightly different compared to the 'black sambal' products available in the market. In this section, will show the cooking process to produce SAMBAL BLACK PUMPKIN.

The project for the product 'SAMBAL BLACK PUMPKIN' for the analysis of the data given through the questionnaire of feedback from the respondents using the software that is SPSS Statistic 21. All feedback data from DHF 5A, DHF 5B and DUP 4A will be entered into the software for data with more clear. For this part, a descriptive method is also used to ensure that all data will be analyzed.

METHOD OF PREPARATION SAMBAL BLACK PUMPKIN

1.Remove the pumpkin skin and slice the pumpkin fruit.
2.Blend red onion,garlic and red chili.
3.Pour and heat the oil in the wok.
4.Once the oil is hot,add the blended ingredients.
5.Fry until fregnant and changes colour.
6.Add “belimbing hitam” and stir until smooth.
7.Put the pumpkin into the pan and wait until the ‘sambal black pumpkin’ is cooked.

PROCESS OF SAMBAL BLACK PUMPKIN

8.

4.0 FINDINGS (DATA ANALYSIS)

This chapter will show all the data that can be collected and analyzed using SSPS software. Respondents consisting of PMKU students namely DHF 5A, DHF 5B and DUP 4A. The total number of respondents was 52 who were randomly selected. Each respondent answered the questionnaire according to their opinion about the product after making a sensory and evaluation.

Do you agree that Sambal Black Pumpkin is used as fried rice paste?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislike moderately	1	1.9	1.9	1.9
	Neitheir like or dislike	6	11.5	11.5	13.5
	Like moderately	24	46.2	46.2	59.6
	Like very much	21	40.4	40.4	100.0
	Total	52	100.0	100.0	

Do you agree the ingredients use in this Sambal Black Pumpkin suitable?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislike moderately	1	1.9	1.9	1.9
	Neitheir like or dislike	5	9.6	9.6	11.5
	Like moderately	25	48.1	48.1	59.6
	Like very much	21	40.4	40.4	100.0
	Total	52	100.0	100.0	

Do you agree Sambal Black Pumpkin as instant sambal?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neitheir like or dislike	5	9.6	9.6	9.6
	Like moderately	22	42.3	42.3	51.9
	Like very much	25	48.1	48.1	100.0
	Total	52	100.0	100.0	

Do you agree that Sambal Black Pumpkin can increase their potential as one of the product ingredients in the market?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neitheir like or dislike	5	9.6	9.6	9.6
	Like moderately	23	44.2	44.2	53.8
	Like very much	24	46.2	46.2	100.0
	Total	52	100.0	100.0	

Do you think the price set for Sambal Black Pumpkin is reasonable? (RM 9.90)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislike moderately	2	3.8	3.8	3.8
	Neitheir like or dislike	7	13.5	13.5	17.3
	Like moderately	23	44.2	44.2	61.5
	Like very much	20	38.5	38.5	100.0
	Total	52	100.0	100.0	

Do you think pumpkin suitable for Sambal Black Pumpkin?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislike very much	1	1.9	1.9	1.9
	Dislike moderately	2	3.8	3.8	5.8
	Neitheir like or dislike	7	13.5	13.5	19.2
	Like moderately	20	38.5	38.5	57.7
	Like very much	22	42.3	42.3	100.0
	Total	52	100.0	100.0	

Colour

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neitheir like or dislike	4	7.7	7.7	7.7
	Like moderately	24	46.2	46.2	53.8
	Like very much	24	46.2	46.2	100.0
	Total	52	100.0	100.0	

Texture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislike moderately	1	1.9	1.9	1.9
	Neitheir like or dislike	6	11.5	11.5	13.5
	Like moderately	25	48.1	48.1	61.5
	Like very much	20	38.5	38.5	100.0
	Total	52	100.0	100.0	

Flavour

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislike moderately	2	3.8	3.8	3.8
	Neitheir like or dislike	6	11.5	11.5	15.4
	Like moderately	24	46.2	46.2	61.5
	Like very much	20	38.5	38.5	100.0
	Total	52	100.0	100.0	

Taste

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislike moderately	3	5.8	5.8	5.8
	Neitheir like or dislike	6	11.5	11.5	17.3
	Like moderately	25	48.1	48.1	65.4
	Like very much	18	34.6	34.6	100.0
	Total	52	100.0	100.0	

Spiciness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislike moderately	4	7.7	7.7	7.7
	Neitheir like or dislike	7	13.5	13.5	21.2
	Like moderately	25	48.1	48.1	69.2
	Like very much	16	30.8	30.8	100.0
	Total	52	100.0	100.0	

Smell					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislike moderately	1	1.9	1.9	1.9
	Neitheir like or dislike	5	9.6	9.6	11.5
	Like moderately	23	44.2	44.2	55.8
	Like very much	23	44.2	44.2	100.0
	Total	52	100.0	100.0	

Overall acceptability					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislike moderately	2	3.8	3.8	3.8
	Neitheir like or dislike	3	5.8	5.8	9.6
	Like moderately	20	38.5	38.5	48.1
	Like very much	27	51.9	51.9	100.0
	Total	52	100.0	100.0	

5.0 DISCUSSION

What can be concluded through our project is that Sambal Black Pumpkin will produce a new product in the market. This is because, there is no longer a community that makes pumpkin to be included in Sambal Hitam as the main ingredient. This innovation product will promote a traditional food that will be changed and produce a new and unique taste for consumers and black chili lovers. Local people are more exposed to the same ingredients and flavors of sambal black and they want something new to try. For example, often food nowadays has become popular because of the innovations that have been made and make something taste new and delicious and can be accepted by the public. So, with that, a bold step has been taken after doing research by adding pumpkin in sambal to get the same spicy and sweet taste of fat. Furthermore, this product can be found by most people because of its reasonable price and even cheaper than what is available in the market today. Finally, the Sambal Black Pumpkin product is expected to be expanded in the market to the global level by bringing the name of the black sambal product that is innovative and can be accepted by everyone through its uniqueness. Responses from users will also be taken and improved according to their wishes to meet customer satisfaction. With the encouragement of users around, the hope to continuously produce better products from time to time will be focused and made to succeed.

6.0 CONCLUSION

At the end of the study, it can be concluded that Sambal Black Pumpkin products were successfully produced and added to the list of Sambal Hitam innovation products. The production of this product has been well received by many people, especially the citizens of PMKu and believe that if it is sold and marketed after improvements are made more through social media, it will definitely get a lot of response from everyone. In addition to the price that can be bought by all groups, this product succeeds in creating a traditional food that is successfully modified. This product has also managed to attract the attention of many people to know more and their desire to support this product to be sold in larger quantities because of the taste that is different from the usual and unique.

7.0 REFERENCE

Dotto, J. M., & Chacha, J. S. (2020). The potential of pumpkin seeds as a functional food ingredient: A review. Scientific African, 10, e00575.

Dhiman, A., Sharma, K. S., & Attri, S. (2009). Functional constituents and processing of pumpkin: a review. Journal of Food Science and Technology-mysore, 46(5), 411–417.

Joachim M Dotto, James S Chacha (2019) The potential of pumpkin seeds as a functional food ingredient: A review

Lasius Hazel, Teresita Avon Biug, Nurul Suhada Azmi, Siti Aisyah Zulkiple, Lailatul Jaaizah Qusham, Nursyakirah Badrulhisyam (2019) Idris Enterprise (Sambal Hitam Pahang)

Redi Aryanta, I. W. (2019, March 20). BAWANG MERAH DAN MANFAATNYA BAGI KESEHATAN | Widya Kesehatan

Rosmalinda Mohd Nusi (2021) ENT 530 Social Media Portfolio: Sambal Hitam Tokthevaini

Zainol, M., Che-Esa, N., Azlin-Hasim, S., Zamri, A. I., Zin, Z. M., & Majid, H. M. A. (2019). The ramification of Arabic gum and gelatine incorporation on the physicochemical properties of Belimbing Buluh (Averhoa belimbi) fruits pastilles. Food Research, 4(2), 532–538.

EASY & GO [DIGITAL EDUCATION FOR FOODSERVICE]

Shahirah Binti Muhammad Zin , Nur Najeera Binti Kassim , Nur Ain Binti Khairul Anuar , Dina Khairina Binti Mohd Fauzi , Wan Badrul Hanif Bin Wan Badaruzaman

Tourism and Hospitality Department
Polytechnic METrO Kuantan

shahirah@pmku.edu.my

ABSTRACT

In today's era, there are various sophisticated kitchen industrial equipments that have been introduced in this world. But not everyone knows how to use the equipment correctly. Some equipment comes with a user manual , and some do not. Not all communities are able to keep the manual guidebook for the use of the equipment for as long as possible. Therefore, if the manual guidebook for the use of each piece of kitchen industry equipment is updated with a QR code application that contains various types of videos on how to operate industrial equipment correctly, it will facilitate every job of the community when operating the equipment, considering that society now also prioritises advanced technology such as smart phones, then it will make work easier in today's industry. QR codes, developed by a Japanese company, have been around for over fifteen years , according to Law, Ching-yin, and So, Simon (2010). But this QR code will be more developed and advanced with things like this as a daily life guide. It can not only be used in industry but can also be used at home as well. Easy & Go project is a guide and procedure on how to use the equipment in the kitchen and Metro Cafe for DHF's students through a QR code. The meaning of this easy & go project refers to students just scanning the QR code and walking away while gaining knowledge easily. Students also don't have to struggle to find videos on youtube or any other source, but simply by scanning the QR code we provide and just select any relevant video that we have attached as a reference easily without wasting learning time. This idea was born because there was a problem handling the equipment correctly. This will have some effects on students if they use equipment and machines incorrectly. With the existence of this Easy & Go project, it will help students and facilitate their work at PMKU through scanning QR codes that we provide.

Keyword : QR Code , Digital Manual Book , Equipment & Tools.

1.0 INTRODUCTION

In the world today, there are various cases of accidents and injuries to food industry students while they are preparing food. It makes no difference whether the accident or injury is minor or severe; we still get a lot of news. Among the accidents or injuries in the food industry, accidents during preparation were caused mainly by machines and tools (86.7%), Byung Yong Jeong 16 February 2015. Kitchen gas exploded due to incorrect wire installation, among other reasons. Manuals for the use of equipment and machines in the industry are supplied when purchasing each piece of equipment and machine, but not all individuals are able to keep and use the manuals. For example, if the guidebook is lost or damaged.

With the existence of a guidance system for the use of machines or equipment through the QR code that we have created, this will help and advance students PMKU who are new to the industry and also reduce the risk of accidents and injuries to students while operating the equipment and machines. Because the QR code we created is just scan and you can easily see various manuals for the use of each piece of equipment and machine, it will also make student's jobs easier, given that society is now more inclined towards advanced technology such as smart phones. Next, it can help students at the PMKU make preliminary preparations before starting work more efficiently, save time and do so safely.

1.1 PROBLEM STATEMENT

The problem statement for this project is lack of knowledge in handling and operating kitchen and restaurant tools and equipment among PMKu students. Next, the second problem is teaching and learning process interrupted due to lack of knowledge in handling equipment.

1.2 PROJECT OBJECTIVE

A clear objective has been recorded to ensure that 'Easy & Go' is a great initiative to facilitate the production of a QR code project manual for the use of food industry equipment and machines. The objectives are :

i.Provide guidance on how to use equipment and tools in kitchen properly.
ii.As a reference about procedures for foodservice class held in PMKu.
iii.To help students make preliminary preparations before starting class so that they can speed up their learning time.

2.0 LITERATURE REVIEW

Nowadays, the problem of the QR code has been studied to be revealed to two-dimensional codes in terms of keeping records related to threats, verification, payment, and other processes, and still requires other additional analysis. The introduction of QR codes in education contains several examples of QR codes in the form of separate numbers, allowing students to better understand the material presented. Users use QR codes as a means to transfer information. Apart from that, this QR code application uses alternative methods proposed using electronic payments and transactions using QR codes to combat debit or credit card fraud. The security of personal information in this QR code is guaranteed. The effectiveness of electronic ticket systems using QR codes for smart transportation systems is considered. Apart from that, the QR code system is also used in the library. Through the QR code feature, users can use the app to issue, return, and manage books with little or no staff assistance. The author proposes a management system that simplifies the library process and keeps track of all records.

In the educational process, QR codes should be used for additional materials in the category of providing QR codes for students by distributing lecture materials in the form of links to resources and multimedia resources such as videos, applications, websites, drawings, animations, and electronic education publications. Apart from that, we can also put a QR code in the presentation slide to be used as reference material on the cover of educational and methodological literature. It is also used in the library catalogue of educational institutions in the system. Apart from that, it can collect student data that sometimes gets mixed up with other student data. By using the same QR code, you can combine a note such as a class schedule, an attachment of reference materials, and educational games, and students can create a portfolio to be used in education on a specific topic in the study and post it on the website using the QR code system.

This introduction to the use of the QR code system summarizes some course details that contain information. What differentiates our proposed system from previous research is the combination, such as the media access control (MAC) address as a unique identification key for the QR code as a security key for user presence authentication. We use MAC addresses because they have unique characteristics in the age of globalisation. Using the MAC address as a unique identifier to distinguish one user from another has been our best choice. In the research process, many participants expressed differences of opinion about their international mobile equipment identity (IMEI) or phone number as an identification number.

We need secure and controlled data transfers to build our attendance system. We propose a method called random QR code scanning to achieve this. With the combination of QR codes and network configuration, we try to improve the security of the system. running on a local network where users can directly communicate with the server. When this scanning process is complete, a packet containing identifier data is sent from the user's smartphone to the server app. The server app will receive and process packets sent by the user over the local network. Finally, the user successfully signs in. The system is evaluated through 100 test scenarios where the user is required for verification. their presence by connecting to the local network, running the Android app, and logging in. The questionnaire is also used as an evaluation tool to get feedback from the participants about the system. The test results are shown as statistical graphics in the results and discussion section, along with some discussion material obtained from the participants' feedback.

The QR code application acts as a mobile scanning application that has a simple layout. This scanning application only has the functionality to quickly understand the workflow and scanning activities. QR code scanning interfaces are different from scanning for the MAC address register, which is used to register the attendance of employees at work. Every 10 seconds, the QR code system is randomised so that the QR code is protected from fraud.

The use of this QR code allows doctors to collect information about the patient's daily condition and use the data in their workflow. On the eXChart editor view, we place UI components such as text input areas and checkbox areas on a user-defined form template layout, similar to the patient-facing input view. We implemented logic to serialise and deserialize QR coded data, populate data into UI components, and change template view tabs using a scripting language. Data held by the EMR, such as the patient's name, gender, date of birth, and recent laboratory results, are automatically obtained from the HIS database. All data is stored in the same system and can be analysed in timeline and chart views or exported in comma-separated value (CSV) format.

3.0 METHODOLOGY

i. RESEARCH DESIGN

This study was carried out using a quantitative method that we studied through a questionnaire that was evaluated by citizens and PMKu students. We provide an explanation of the QR code system that contains text, images, and videos for reference. Pmku students give respondents questionnaires in Google Forms through Whatsapp, Telegram, Instagram, and other applications. Respondents are responsible for answering the questionnaire so that they can give good feedback and answer questions from previous studies.

ii.SAMPLING

The description of the sampling technique used in the study should be clearly stated. Sampling allows to make inferences (conclusion) made on a population without having to involve each individual in the population. Among the commonly used sampling techniques include simple random sampling. There are 118 students in the Food Service Halal Practice Diploma (DHF) and the sample size for this project is DHF semester 2 semester 3 and semester 4 totaling 60 which is 20 person each for semester.

iii.DATA ANALYSIS METHOD

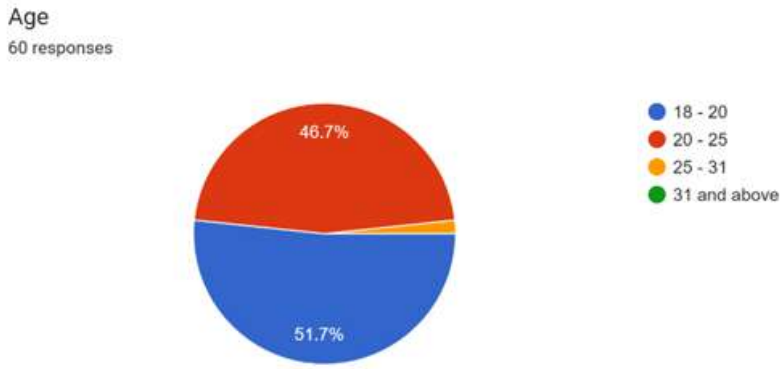
Frequency analysis is a method that is used to analyze and summarize the distribution of a categorical variable in a dataset. This method involves counting the number of times each value or category occurs in the dataset and then calculating the percentage or proportion of observations that fall into each category.

For example, in a survey that asks respondents to indicate their level of agreement with a statement on a scale from 1 to 5, frequency analysis could be used to determine the number and percentage of respondents who chose each response option (e.g., 10% strongly disagree, 20% somewhat disagree, 30% neutral, 25% somewhat agree, and 15% strongly agree).

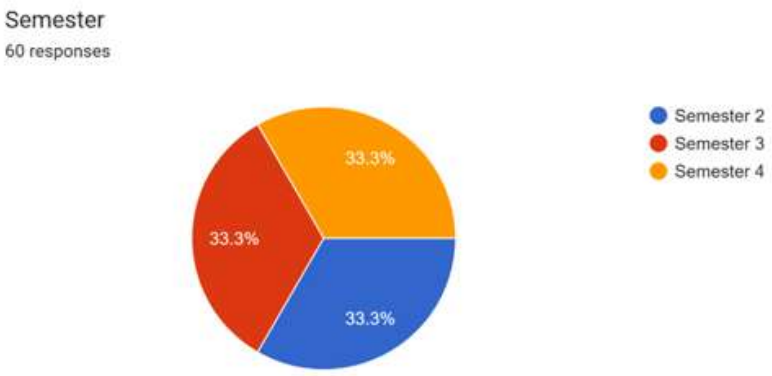
Frequency analysis can be useful for identifying the most common or popular responses to a particular question, as well as for detecting any patterns or trends in the data. This method can be performed manually using tally marks or a spreadsheet, or using statistical software such as Excel.

Overall, frequency analysis is a simple and straightforward data analysis method that can provide valuable insights into the distribution of categorical variables in a dataset.

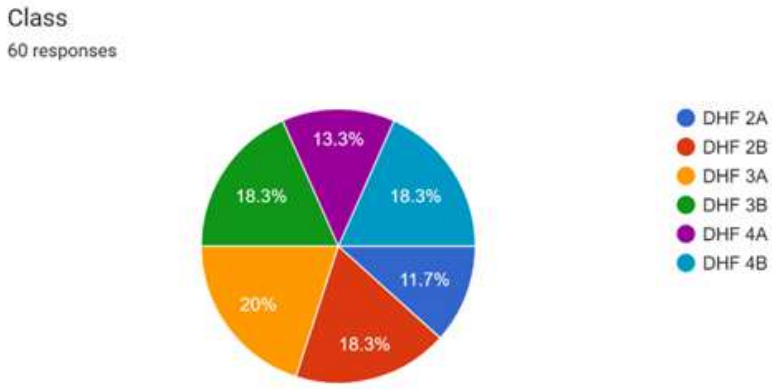
4.0 FINDING (DATA ANALYSIS)



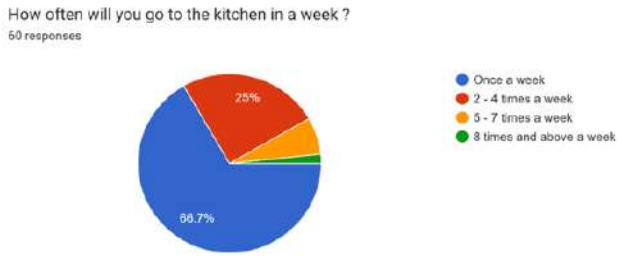
Pie chart 1.1 Chart of Age



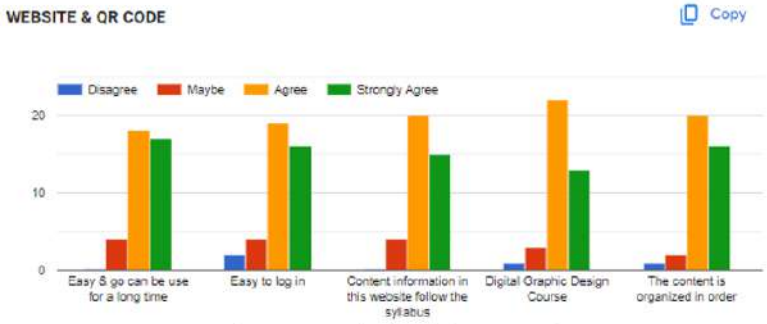
Pie chart 1.2 Chart of Semester



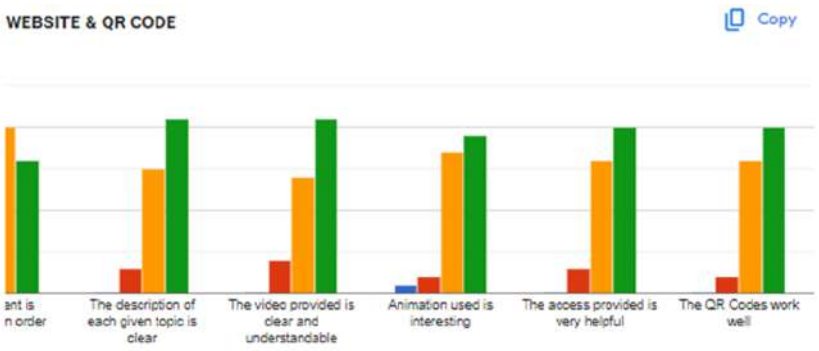
Pie chart 1.3 Chart of Class



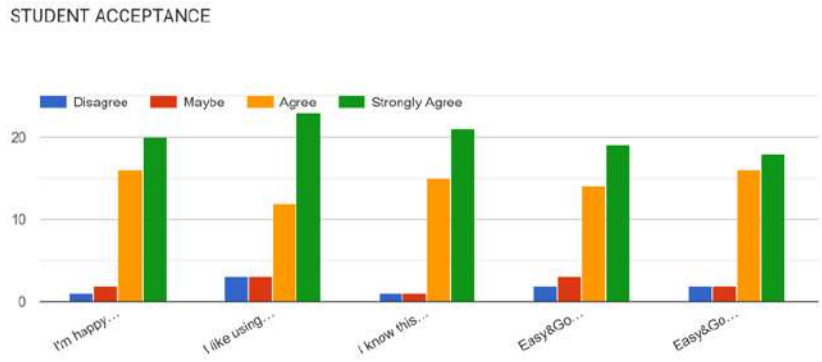
Pie Chart 1.4 Chart of Frequency of Students To The Kitchen



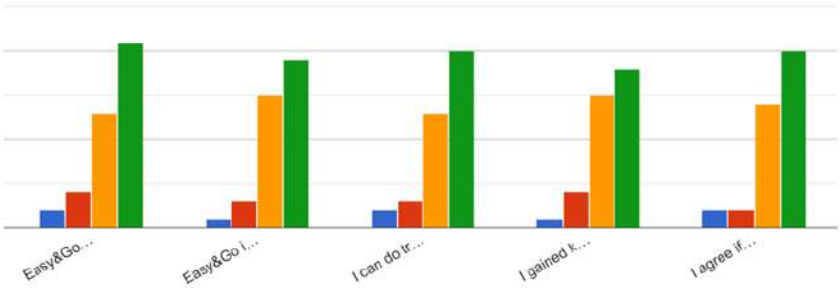
Graph Bar 1.1 Graph of Website & QR Code



Graph Bar 1.2 Graph of Website & QR Code



Graph Bar 1.3 Graph of Student Acceptance



Graph Bar 1.4 Graph of Student Acceptance

5.0 DISCUSSION

This chapter will discuss and summarise the research findings that have been compiled to answer the research questions that have been set by the researcher. Based on the findings of the study obtained from the results, some suggestions and recommendations of the concerned parties were also stated in order to increase knowledge about the benefits of our project titled "Easy & Go" for DHF students at PMKu. In addition, we suggested some suggestions for further research that can be implemented by other researchers in the future. We also reached a conclusion to determine the benefits of digital education for DHF students in PMKu as well as identify their level of acceptance of this project.

To expect future efficiency, in planning with sufficient time and budget, we will collaborate with polytechnics or other IPTAs related to DHF courses to provide websites like Easy & Go based on their learning syllabus with an appropriate fee. In addition, we will create various variations of the Easy & Go website in the form of other subjects by collaborating with other lecturers and IPTAs. We will also try to upgrade our website system to be more interesting so that students can explore our website with more interest and help IPTA students learn more easily and progress.

6.0 CONCLUSION

This Easy & Go project assignment was completed in a period of more than 3 months. While performing this task, group members have mastered skills such as organizing, analyzing, assessing and creating something new to make it easier for students at PMKu to make references before entering the class. Apart from that, this project can also save more learning time with the lecturer. In addition, the existence of a system to guide the use of machines or equipment through QR codes can prevent accidents while in the kitchen or in the restaurant.

7.0 REFERENCES

Ben Williamson University Of Stirling, Uk , 2016. European Educational Research Journal, Vol. 15(1) 3–13

Chong Song, 2023 , Computer Methods And Programs In Biomedicine Update.

Darrel M.West , 2012 . Digital School.

Micheal Thomas P.Cm. 2011 . Digital Education , Oppoturnities For School Collaboration.

Muhammad Imanullah, Yuza Reswan ,2022. Randomized QR-Code Scanning For A Low-Cost Secured Attendance System

Tuan Zainazor Tuan Chilek1, 2017. A Review On Incidences Of Foodborne Diseases And Interventions For A Better National Food

Zaiton Hassan3 , 2017. Safety System In Malaysia.

Zhanna Deineko, Nataliia Kraievska, Vyacheslav Lyashenko, - 2022 , QR Code As An Element Of Educational Activity.

Zhanna Deineko, Svitlana Sotnik, Vyacheslav Lyashenko, 2022. Usage And Application Prospects QR Codes.

Pierre Dillenbourg , 16 February 2016. The Evolution Of Research On Digital Education. International Journal Of Artificial Intelligence In Education.

CRISPY SAMBAL HALIA

Siti Rohani binti Mohd Idris, Elyshanazira binti Shaharani, Muhammad Rashdan Hafiz bin Mohd Ruzaizi, Siti Salwani binti Ujang, Nurul Atiesya binti Ahmad Rizal

Tourism and Hospitality Department
Polytechnic METrO Kuantan

sitirohani@pmku.edu.my

ABSTRACT

There is a lot of excessive ginger in Malaysia since it is a non-seasonal plant. Ginger is rarely used in cooking especially in making it as the main ingredient because of its pungent taste. Therefore, Malaysia are less interested in eating it and lack of knowledge about its benefit and nutrients. The purpose of this project is to implement the Crispy Sambal Halia product by using the main ingredient which is ginger. Where this product plays an important role and a good advantage for the community in this country. With this product, it can make it easier for someone who works or someone who has flux problems inside the body. The methodology is we will make crispy sambal from ginger as the main ingredients. The process that we need to do to produce this Crispy Sambal Halia is using a simple method. Firstly, we need to prepare 5kg of ginger, 1kg of onions and 500gm of dried chilies for mise en place. Secondly, grated gingers, sliced onions thinly, chopped dried chilies into small pieces and removed the seed. Next, fry the onions until crisp and golden brown then set aside. After that, fry the grated gingers until crisp and golden brown then also put aside. Next, fry the dried chilies it cooked well and turns a bit crisp. Coarsely grind the dried chilies that have been fried earlier. Lastly, mix all ingredients that have been fried until it evenly distributed. Add enough salt and sugar for the perfect taste. In addition, this product is also easy to carry anywhere because of its small size. This project can also prevent waste. Throughout this implementation process, many social science theories were consulted according to the suitability of this product. This project also gives a lot of opportunity and experience to one's knowledge. Furthermore, this project uses quantitative methods and uses data production methods through SPSS. We are using a google form to collect all data that can be found easily by the respondents. Nevertheless, this project still has short comings and weaknesses that can still be improved and has the potential to grow in line with this marketing objective. In conclusion, this sambal product can have a positive impact and good advantages.

1.0 INTRODUCTION

There is a lot of excessive ginger in Malaysia since it is a non-seasonal plant. Ginger is rarely used in cooking especially in making it as the main ingredient because of its pungent taste. Therefore, Malaysia are less interested in eating it and lack of knowledge about its benefit and nutrients. This Crispy Sambal Halia does not exist in the market yet. We took this chance to produce unique product that may be able to be a comparable to existing product on the market such as Sambal Che Nor.

Problem Statement

·Difficulty to make ready to eat food from ginger.
·Not everyone eat ginger because of its pungent taste.

Objective

·To create ready to eat food using the main ingredients from ginger.
·To attract people to eat food based on ginger.

2.0 LITERATURE REVIEW

Most people do not like to eat ginger. Ginger has many good properties. Therefore, with our innovation, we mixed it with other food (sambal). It is to attract people, especially people who don't like ginger, to try our new product. In addition, our product can be consumed by 18-60 years old because we use natural ingredients that can provide healthy nutrients for the body without any additional flavors. Ginger is generally considered safe when eaten as part of a healthy diet. According to The Journal of Nutritional Biochemistry, Ryoiti Kiyama (December 2020), ginger has been used as a food, spice, supplement and flavouring agent and in traditional medicines due to its beneficial characteristics such as pungency, aroma, nutrients and pharmacological activity. According to Mohamad Hesam Shahrajabian (January 2019), to the article of Clinical Aspects and Health Benefits of Ginger, (January 2019), Ginger has been used as a spice and medicine for over 200 years in Traditional Chinese Medicine. It is an important plant with several medicinal and nutritional values used in Asian and Chinese Tradition medicine. In both Traditional Chinese Medicine and modern China Ginger is used in about half of all herbal prescriptions. Traditional medicinal plants are often cheaper, locally available and easily consumable raw and as simple medicinal preparations. The obtained findings suggest potential of ginger extract as an additive in the food and pharmaceutical industries.

According to the journal Malaysian Ready-To-Eat Cooked Dishes: Consumption Patterns Among Adults And Nutrient Composition Of Selected Highly Consumed Dishes, Siti Fatimah Mohd Tarmizi (December 2020), the objectives of this study were to evaluate the consumption frequency of Malaysian dishes and determine the nutrient composition of the eight selected highly consumed dishes among Malaysian adults. A Malaysian ready-to-eat cooked dish is a term referred to a dish that is eaten in combine forms in which specific food ingredients are served together with the main source of carbohydrates such as rice and noodles. According to the journal Consumer's Consumption Practices of Ready to Eat Foods And Food Safety Knowledge, Tunung Robin (December 2019) it is evident that consumers were motivated to purchase Ready-To-Eat (RTE) foods due to convenience, and they purchased RTE meals frequently. Consumers seems to be less price-sensitive compared to the convenience derived from minimized physical and mental effort they gained when purchasing RTE foods.

Sambal is a cultural food that originated from Indonesia and has now influenced Malaysia to the point that it has become something that must be included in every meal. According to the Journal of Ethnic Food, Diversity of sambals, traditional Indonesian chili pastes, Reggie Surya (July 2022), Sambal is a sauce, paste, or relish made from chili pepper with secondary ingredients such as garlic, shallot, ginger, and shrimp paste. The most common variant of chili pepper used in sambal recipes is cayenne pepper and bird's eye chili pepper with a higher intensity of spiciness, both of which are the well-known varieties of C. annuum. Originally stemming from the culinary traditions of Indonesia, sambal is now considered as a staple condiment on all Indonesian tables and has spread to other neighbouring countries including Malaysia, Singapore, Brunei Darussalam and even Sri Lanka.
In conclusion, ginger has many nutrients for the human body. The combination between sambal and ginger will make people interested in tasting and enjoying the nutrients in it. Therefore, from the study, we get ideas and knowledge to improve the product ready-to-eat food in order to have a greater impact on the public, especially the citizens of PMKu.

3.0 METHODOLOGY

The introduction of this chapter discusses the methodology in terms of suitable methods to run this Crispy Sambal Halia product. There are various topics that need to be discussed namely production sampling, data collection methods and analyzing methods. This method is implemented using a quantitative method through a questionnaire. We made this questionnaire using a google form, we will distribute this questionnaire to the respondents to answer and provide for our production products. The population that we focused is based on the students of Kuantan Metro Polytechnic. We choose Permatang Badak community, lecturers and staff from PMKu, semester 1 until semester 5 students which consist of DHF and DUP classes as our respondents. To determine the sample size, we need to refer to the Morgan table to find out the total. For that, we found a total of 80 people that become our respondents. The sampling technique that our group used was convenience sampling. The method that we used to study is by using a quantitative method.

This quantitative method was using a questionnaire to collect data. We were using a google form to collect all data that can be found easily by the respondents. This Google form contains some answers and questions that will be provided and can be answered easily by the respondents. After that, all the data from the respondents will be recorded and collected. Data were analyzed through the SPSS application system after successfully collecting data. Data collection is taken through Google form. The process that we use to produce this Crispy Sambal Halia product is using a lot of methods such as grating, chopping, cutting and frying.

The research was carried out among Permatang Badak community, lecturers and staff from PMKu, semester 1 until semester 5 students which consist of DHF and DUP classes as our respondents. Based on findings, there are 80 populations that involved in this research based on morgan table sampling.

A Research Instrument is a tool used to collect, measure, and analyze data related to your research interests. These tools are most commonly used in health sciences, social sciences, and education to assess patients, clients, students, teachers, staff, etc. A research instrument can include interviews, tests, surveys, or checklists (Columbia University, 2021). To calculate the score for each question we have provided are:

Strongly Agree =5, Agree =4, Natural =3, Disagree =2, Strongly disagree =1

All data can be easily collected by creating a research instrument. These data will be saved and analyzes for future improvement. Furthermore, numerous product trials have been conducted to ensure that Crispy Sambal Halia is tasty and well-accepted. Furthermore, the evaluation carried out to create the product Crispy Sambal Halia is by forming it into a crispy texture so that it resembles the crispy sambal available on the market. This evaluation is repeated several times to achieve the crispy texture.

Ingredients used to make the product.

NO	ITEM	QUANTITY
1.	GINGER	5 KG
2.	ONION	1 KG
3.	DRIED CHILI	400 G
4.	OIL COOKING	600 ML
5.	SUGAR	30 G
6.	SALT	15 G

Method and process

4.0 FINDINGS (Data Analysis)

After the evaluation has been made by an industry jury. They encourage our products to be marketed because the majority of people do like crispy sambal because it is convenience and easy for them. It is because our products are based on ginger that many will buy or like. The strength of our product is that we have many benefits because we use natural ingredients without any preservatives which causes our Crispy Sambal Halia to have many benefits. And also, the ingredients of this product have a lower cost and are easily available in Malaysia. For example, we use ginger, onions and dried chilies which are easily available because these products are always used. For that we may have an opportunity to compete and be marketed like other crispy sambal products. The threat to us is that it is difficult to compete due to well-known brands such as Che Nor, which is one of the largest manufacturers of sambal. With that, we will strive to improve our products so that they are comparable to other products.

TASTE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DISAGREE	1	1.3	1.3	1.3
	NATURAL	4	5.0	5.0	6.3
	AGREE	27	33.8	33.8	40.0
	STRONGLY AGREE	48	60.0	60.0	100.0
	Total	80	100.0	100.0	

HEALTHY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NATURAL	4	5.0	5.0	5.0
	AGREE	19	23.8	23.8	28.8
	STRONGLY AGREE	57	71.3	71.3	100.0
	Total	80	100.0	100.0	

CRISPY TEXTURES

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DISAGREE	1	1.3	1.3	1.3
	NATURAL	5	6.3	6.3	7.5
	AGREE	27	33.8	33.8	41.3
	STRONGLY AGREE	47	58.8	58.8	100.0
	Total	80	100.0	100.0	

NATURAL FLAVOUR

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DISAGREE	1	1.3	1.3	1.3
	NATURAL	5	6.3	6.3	7.5
	AGREE	36	45.0	45.0	52.5
	STRONGLY AGREE	38	47.5	47.5	100.0
	Total	80	100.0	100.0	

LONG SHELF LIFE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NATURAL	1	1.3	1.3	1.3
	AGREE	25	31.3	31.3	32.5
	STRONGLY AGREE	54	67.5	67.5	100.0
	Total	80	100.0	100.0	

NUTRITIOUS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DISAGREE	1	1.3	1.3	1.3
	NATURAL	3	3.8	3.8	5.0
	AGREE	20	25.0	25.0	30.0
	STRONGLY AGREE	56	70.0	70.0	100.0
	Total	80	100.0	100.0	

SMELL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NATURAL	8	10.0	10.0	10.0
	AGREE	36	45.0	45.0	55.0
	STRONGLY AGREE	36	45.0	45.0	100.0
	Total	80	100.0	100.0	

APPEARANCE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NATURAL	7	8.8	8.8	8.8
	AGREE	33	41.3	41.3	50.0
	STRONGLY AGREE	40	50.0	50.0	100.0
	Total	80	100.0	100.0	

AROMA					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NATURAL	8	10.0	10.0	10.0
	AGREE	31	38.8	38.8	48.8
	STRONGLY AGREE	41	51.3	51.3	100.0
	Total	80	100.0	100.0	

Analysis of 80 respondents answering all the questions, more students liked this Crispy Sambal Halia compared to the lecturer and staff at PMKu and Kuantan community. This is because more students don't have time to cook and need this sambal to eat at any time. This Crispy Sambal Halia also suits the taste of students at PMKu.

5.0 DISCUSSION

In conclusion, our product Crispy Sambal Halia has many advantages or benefits that are not known to the public. For example, ginger can overcome flux problem inside the body. It is also suitable for woman during confinement. Based on this, researchers know that this Crispy Sambal Halia product can provide other uniqueness than any other crispy sambal that in the market. In addition, the crispy sambal that are available in the market today have some disadvantages because they use various preservatives and msg that can affect health.

The study by seven researchers from Universiti Putra Malaysia (UPM), Universiti Malaya (UM) and the University of London found that none of the crispy sambal in the Malaysian market can be categorized as low-gram, very low-salt or salt-free foods. The study published last May also found that about 40 percent or more of the 250 crispy sambal products that were studied, did not display the salt or nutritional content of their respective products. But it is different from our Crispy Sambal Halia product because we do not use any msg or preservatives. Furthermore, in Malaysia, this Crispy Sambal Halia does not exist in the market yet. The ingredients used to make Crispy Sambal Halia are from ingredients that have received a halal certificate from JAKIM because it is a brand that has been commonly used in their daily life such as corn flour. The price is also affordable and we are sure this product will find its own place in the market. Finally, we hope that our products will become popular so that we can expand our brand overseas and be accepted by all consumers. We also hope that people can fully support our products and encourage our products to continue to improve. We will also constantly improve our products so that they are compatible with existing products in the market.

6.0 CONCLUSION

Conclusions from the results of the study on Crispy Sambal Halia are described in this chapter. Based on the findings of the study, Crispy Sambal Halia needs to go through more phases for its production. Therefore, there are suggestions and improvements that will be commented in this chapter. The resulting recommendations are based on the purpose of Crispy Sambal Halia itself. Based on the Crispy Sambal Halia already working, there are shortcomings in the product. This is based on the project limit that needs to be borne by the student and supervisor. At the end of this chapter, a thoughtful conclusion for this chapter will be presented. This project is to improve as to be able tocreate a variety of flavors other than chili. And it is also so that the packaging can be improved so that it is more effective such as transparent packaging that can see true sambal from the outside of the transparent package. In addition, improvement by placing a halal logo that has been verified and approved if we want to continue this product up to the level of the entrepreneur's business. In the production process of Crispy Sambal Halia, there are various variations. First, the obstacle in terms of time. The time allocated in the production process of Crispy Sambal Halia is only 14 weeks including the showcase day and the first week of group distribution. With this limited time, the Crispy Sambal Halia product needs to be completed to allow it to be used and get the results to make the final project report. The cost to make this product uses student costs where RM150 per person is used to purchase the preparation of this product. This product takes 3 to 4 hours to process this product. After this research, Crispy Sambal Halia can open people's eyes about the benefits of Crispy Sambal Halia. As improvements are made, users will prefer to use Crispy Sambal Halia. Therefore, Crispy Sambal Halia can make ready to eat food to travel.

7.0 REFRENCES

Ryoiti Kiyama (2020), Nutritional implications of ginger: chemistry, biological activities and signaling pathways

Mohamad Hesam Shahrajabian (January 2019), Clinical Aspects and Health Benefits of Ginger, (January 2019)

Siti Fatimah Mohd Tarmizi (December 2020), Malaysian Ready-To-Eat Cooked Dishes: Consumption Patterns Among Adults And Nutrient Composition Of Selected Highly Consumed Dishes

Tunung Robin (December 2019),Consumer’s Consumption Practices of Ready to Eat Foods And Food Safety Knowledge

Reggie Surya (July 2022),Journal of Ethnic Food, Diversity of sambals, traditional Indonesian chili pastes

SECRET CANDLE, USED OIL RENOVATION

Mohd Fadly Lamri , Qusafarien Mohamad, M. Harith D, M.Adam M.H, M.Akmal A.C.A

Tourism and Hospitality Department
Polytechnic METrO Kuantan

fadly.lamri@pmku.edu.my

ABSTRACT

Secret candles is a renovation to support eco-friendly material from daily uses recycled in the kitchen. An inspiration caused by the dumping of used oil in any premises the product is believed to be halal because only oil that is used in the Politeknik METrO kitchen, the candle is 100% hand poured products. The advantages in secret candles is that they can last for a long time and do not smoke. In addition, it is also not harmful to human health and the environment. A quantitative method has been carried out to see the ability of this product in the open market. The questionnaire was collected from several demographic respondents and found a mean value above 4.0 of 5.0 with a high liking level tendency. Products with unique fragrance are expected to penetrate the open online market in a little more time.

Keywords: used cooking oil, candles, fragrance

1.0 INTRODUCTION

In a global world, cooking oil is used for the preparation of food. Cooking oil is a plant, animal, or synthetic fat used in frying, baking, and other types of cooking. The scientific definition of cooking oil is glycerol esters of fatty acids. Common types of cooking oil used by Malaysians are palm oil, peanut oil, corn oil, and sunflower oil. Malaysia is among the top three exporters of palm oil in the world. About 40% of palm oil is mostly made into cooking oil, margarine, specialty fats, and old chemicals. Most cooking oil is made from palm oil. Meanwhile, used cooking oil term refers to cooking oil that is no longer used in food production. The main producers of used cooking oil are restaurants, food stalls, night markets and cafeterias. According Kabir et al (2014) the disposal of cooking oil becomes a huge problem because fried food such as fried chicken, French fries, and burgers can produce as much as 15 liters of used cooking oil per day not including restaurants that provide Malay food. There are more than hundreds of restaurants in Malaysia and a larger volume of used cooking oil is generated per day. According to Kabir et al. (2014), cooking oil as an additive and medium of heat transfer plays a significant role in food preparation. Its attributes of providing food with good taste, color, and aroma gave it general acceptance among consumers. In recent years, huge amounts of waste cooking oil (WCO) are generated and discharged into the environment in various countries of the world.

The current increase in human population and the extent to which consumers employ frying methods in food preparations result in generating huge quantities of waste cooking oil (WCO) worldwide. Management of these quantities of WCO has recently become a serious challenge in both developed and developing nations.

According to Georg Fráter, Jerzy A. Bajgrowicz, Philip Kraft (1998) Fragrance chemistry This Tetrahedron Report on fragrance chemistry summarizes the recent progress in the chemistry of important amber, sandalwood, wood, musk, and floral odorants. Some details of the olfactory mechanism, current models for structure-odour relationships, and the parameters of olfactory performance are also discussed. In other hand, according to (Gashaw & Teshita, 2014)Feed material that comes from waste vegetable oil or commonly known as residual cooking oil is one alternative source include high quality oil or refining. Waste cooking oil is easily collected from other industries such as domestic use and restaurants and also cheaper from other oils (filter oil). Therefore, by using this oil as raw materials, we can reduce costs in biodiesel production. Advantages of using leftover cooking oil for producing biodiesel is low cost and preventive environmental pollution. This oil needs to be treated beforehand throw it into the environment to avoid pollution. Because of disposal costs are high, many individuals throw away waste cooking oil directly to the environment especially in rural areas area. Therefore, the use of leftover cooking oil is effective ways to reduce the cost of biodiesel production (Arifin, 2009).

1.1 Purified cooking oil

According by (Jamilatun et al., 2022) Cooking oil is vegetable oil that has been purified and can be used as a food ingredient. The use of cooking oil is used as a medium for frying food, adding flavor and forming texture in bread making. Cooking oil that has been used repeatedly or commonly known as used cooking oil has a very bad impact on our body and will pollute the environment if not managed properly. Candles are made of paraffin, melt easily when heated, and can be used as a light source. To make candles, a chemical is added which is stearin. The function of this stearin is to give the shape of the candle because the stearin will solidify when it cools. The presence of palmitic acid and stearic acid contained in stearin causes stearin to be in a solid state at room temperature. The study was conducted using 400 ml of used cooking oil which was then clarified with variations in the mass of activated carbon of 40, 80, and 120 grams. The oil that has been clarified will then be analyzed for its absorption value using a uv-vis spectrophotometer, then it will become a wax with the addition of stearin mass variations of 50, 75, and 100 grams. The resulting candle will be tested which includes hardness, organoleptic test, flame test, and flame resistance of the candle.

1.2 Aroma therapy & Green chemical

According to Buchbauer, n.d., a pleasant odor has always been, and still is, an important factor for people to feel good, and feeling well is synonymous with good health. Therefore, we can conclude that all substances which me able to create a certain amount of WWll-being and well-feeling possess therapeutic proper-ties and, therefore, can be called therapeutic agents, generally we can say that a pleasant odor istherapeutically useful, whereas an unpleasant one does the contrary. According to Orjuela & Clark, (2020) cooking oils, peels, leftovers, and so on and a large fraction is unavoidable or inedible. To mitigate the impacts, different circular economy approaches have been proposed for the exploitation and valorization of food waste via transformation into a large variety of chemicals, materials, and fuels through a biorefinery approach [3e6]. The potential valorization processes and the targeted products largely depend on the nature and composition of waste. Besides carbohydrates, starches, and proteins, a large fraction of typical food residues corresponds to fats and oils (i.e. up to 25% wt. on a dry basis). Particularly, among the different food wastes, discarded used cooking oil (UCO) is a major source of lipids. While suitable processes are required to extract the lipid content from most food waste, lipids in UCOs are readily reachable. This explains the existing UCO collection chains and the different processes for their valorization at an industrial scale.

This study chooses products based on used cooking oil because it wants to solve some common problems faced by the community. The first problem is that waste pollution is increasing. Today's society likes to throw away the waste oil that has been used everywhere. This has led to an increase in environmental pollution issues in Malaysia and abroad. The problem of drain pollution is due to the disposal of used oil which causes a bad smell and blocked drains. The use of cooking oil that is used every day causes a lot of used oil to be wasted in the PMKU kitchen. By using waste materials such as excess oil, we can avoid waste, water, and air pollution and can save the environment such as to collect all the excess and filter the oil until it is clean to be used as a base material, then to formulate three different type of fragrance and finally try taking feedback from the public. This study was conducted using used oil that has many uses for humans. Used oil has many benefits. Using the oil, it can produce a very unique scented candle with an attractive aroma and as a flavour, the product uses its own invented flavours such as watermelon mint, cotton candy, and mint herbs. This study can create used oil that is free of additives and substances that can harm the user. In addition, using discarded used oil, this study can encourage Malaysians to practice "Green Sustainability" in their daily lives and also encourage green practices among halal food service providers. The concept of this study is also about improving the production of green friendly products.

2.0 METHODOLOGY

The method used to evaluate the analysis using survey for 100 respondents were selected from the students and lecturers of Polytechnic METrO Kuantan. The population was selected from the age of 18 to 50 years for compatible and logistic reason. In the other hand, sensory evaluation tests conducted to collect data to determine consumer acceptance of the products. Product prepared for 3 of sensory test with 2 different samples (Sample A and B). The sensory evaluation test is mostly stress on questions about taste like color, smell, appearance and even texture of the product. Secret candles is a renovation to support eco-friendly material from daily uses recycled in the kitchen. An inspiration caused by the dumping of used oil in any premises The product is believed to be halal because only oil that is used in the Politeknik METrO kitchen, the candle is 100% hand poured products. The advantages in secret candles is that they can last for a long time and do not smoke. In addition, it is also not harmful to human health and the environment. A quantitative method has been carried out to see the ability of this product in the open market. The questionnaire was collected from several demographic respondents with 5 Likert scale liking level tendency. After successfully recruiting 50 respondents, to collect data for this survey we used software called IBM SPSS Statistic 21 to collect and analyze data. IBM SPSS Statistic 21 involves collecting data, analyzing it and making meaningful decisions. The IBM SPSS® software platform offers advanced statistical analysis, a large library of machine learning algorithms, text analysis, open-source extensibility, integration with big data and seamless deployment into applications. Its ease of use, flexibility and scalability make IBM SPSS Statistic version 21 accessible to users of all skill levels and outfit projects of all sizes and complexity to help organizations find new opportunities, improve efficiency and minimize risk.

2.1 Raw Material

This chapter explains the combination of all the ingredients to make a Secret Candle. For the main ingredient, we use used cooking oil. We also use our own flavors which are Watermelon mint, cotton candy and mint herb. Another mixed ingredient is stearic acid and essential oil. While the materials such as the equipment used are pans, ladles, filters, silicone cups, measuring cups.

Figure 2.1; Used cooking oil

Figure 2.2; Stearic Acid

Figure 2.3; Essential oil

Figure 2.4; Crayon Beewax

2.2 BUDGETTNG

No	Ingredients	Price per unit (rm)	Quantity used	Price per unit used
1	used cooking oil	RM 0.00	150 ML	RM 0.00
2	stearic acid (500 gram)	RM 9.90	50 GRAMS	RM 0.49
3	essential oil (10ml)	RM 1.90	2 ML	RM 0.38
	TOTAL			RM 0.87 per pcs

2.3 PROCESS METHOD

In the preparation process of making a Secret Candle, there is a way to make it. This is the method for making the product:

First of all, filter the used cooking oil using a filter until it is clean, repeat the process 3 times.

Figure 2.5

Second step, pour 50ml of used cooking oil into the pan and heat the oil using a small flame until the oil is really hot.

Figure 2.6

Third step, mix 4 spoons of stearic acid with the heated oil, stir until combined.

Figure 2.7

Fourth step, cool a little oil that has been prepared and add a few drops of perfume oil into the oil.

Figure 2.8

Fifth, pour the mixture into a silicone container and let it cool and harden at room temperature to get the texture you want to achieve.

Figure 2.9

Sixth, after the mold has hardened, you can continue to wrap it using wrap.

Figure 2.10

Finally, put the wrapped product into the packaging.

Figure 2.11

3.0 RESULT AND DISCUSSION

Descriptive statistical analysis is used to build relationships between Secret Candle and product users. There are 51 respondents who have been selected to evaluate and comment on this product. Of that number, 25 people (49.02%) were men and the rest about 26 people (50.98%) were women. The questions that have been presented in the survey include the consumer's perception of colour, smell, taste, appearance and texture. The purpose is to obtain improvements to the Secret wax product. More detailed sensory evaluation results have been shown in the attached tables and charts. According to the survey, it was found that 33.33% of the respondents who underwent this survey were 18-20 years old and 66.67% of the respondents were between 21-25 years old. This may be due to the range of randomly selected respondents among Kuantan METrO Polytechnic students. Analysis from the point of view of product quality is (1.67). 4.02 This product agrees because it is something that is needed. Agreed (4.14) this product is innovative. Good performance ratio as much as (4.24). A total of 3.98 who want to buy our products. (4.22) agree that this product will be marketed. Agreed (3.85) that changed the old product to this product. (4.08) this product gives benefits. Agree (4.24) recommend this product to friends and family. (3.91) agree that this product meets expectations. The packaging of this product is suitable (3.97). This product (3.06) can be used everywhere. Through other suggestions and improvements obtained from the suggestions contained in the sensory evaluation provided, it was found that most respondents suggested that maybe in the future Secret Candle could use other types of packaging and not solely based on plastic. For example, glass bottles can be replaced by the use of plastic materials.

4.0 ANALYSIS OF THE RESULT

Table 4.1; Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.750	.774	16

Cronbach's alpha for product durability is 0.77. This result means variables (subtitle colour, fragrant smell, taste, appearance and texture are great. It is because Secret Candle has three flavours which are Cotton Candy, Watermelon and herb. Secret Candle products use these flavours according to students' taste.

4.1 ANALYSIS OF MEAN

Table 4.2; Item Statistics

	Mean	Std. Deviation	N
AGE.UMUR	1.67347	.473804	49
SEMESTER	3.65306	1.507634	49
GENDER	1.55102	.614452	49
OCCUPATION	2.89796	.420560	49
Q1 What is the quality of the product?	1.28571	.707107	49
Q2 Do you think this product is something you need?	4.02041	.923981	49
Q3 How innovative is the product?	4.14286	.735980	49
Q4 Please rate the price/performance ratio?	4.24490	.693139	49
Q5 How likely are you to buy the product	3.93878	.899263	49
Q6 Do you agree if this product is marketed?	4.22449	.797530	49
Q7 How likely are you to replace the current product you use with this product?	3.85714	.889757	49
Q8 Can this product benefit you?	4.04082	.888800	49
Q9 Would you like to recommend this product to your friends, colleagues or family?	4.24490	.662401	49
Q10 It this product meet your expectation?	3.91837	.837574	49
Q11 Is this packaging suitable for this product?	3.97959	.877729	49
Q12 Where do you use this product?	3.06122	1.700590	49

According to Table 4.2, mean choosing a place to use is more than others because most of them choose a suitable place anywhere as long as it is covered. The statistics show that it is above 1.67 and overall makes our product very good and it is liked by many students and also judges. Analysis mean of students who think about the type of scent we do according to their likes, almost 100% of students who like our products and the most favourite scent is watermelon mint because of its very fragrant and strong smell.

4.2 PIE CHART ANALYSIS

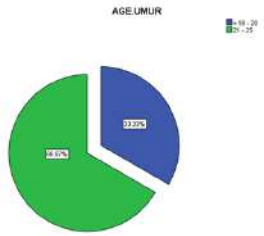


Figure 4.1; percentage of age

According to figure 4.1 show that 21 – 25 love our product and have the highest percentage of 66.67% compared to 18 – 20 years old with percentage of 33.37%.

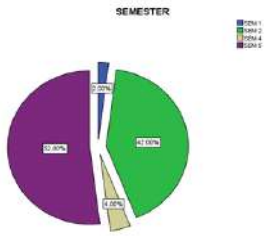


Figure 4.2

According to 4.2 figure show that 52 % of our respondent is from semester 5. The second most respondent is from semester 2 with 42 % and follow by semester 4 with 4 % and semester 1 with 2 %.

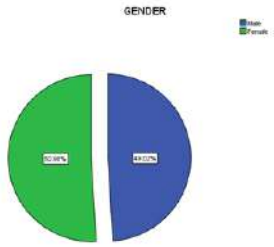


Figure 4.3

According to Figure 4.3 50.98% of our respondent is female and the rest of 49.02% respondents is male

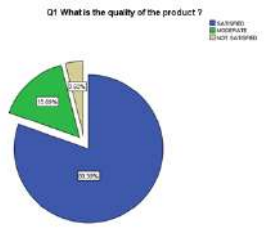


Figure 4.4

According to Figure 4.4, 39% of our respondents are satisfied with our product quality and 15.69% of our respondents choose moderate. The lowest choose is not satisfied with 3.92%

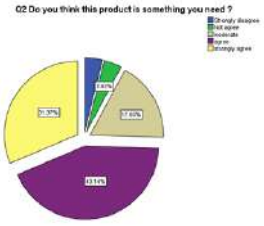


Figure 4.5

According to Figure 4.5, 43.14% of our respondents agree that our product is necessary and 31.37% strongly agree with our product. 17.65% of our respondents chose medium while 3.92% were the same that is not agree and strongly disagree.

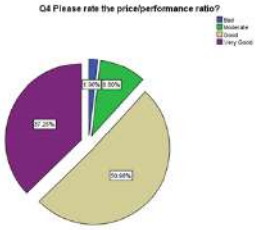


Figure 4.6

According to Figure 4.6 50.98% of our respondents think that the performance ratio is good and 37.25% of respondents think that this performance is very good. The other 9.80% of our respondents choose moderate and 1.96% think our product performance is bad.

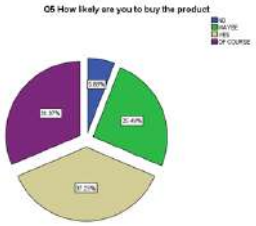


Figure 4.7

According to figure 4.7, 37.25% of our respondent say yes to buy our product and 31.37 % choose of course to our product. The total that chooses maybe is 25.49% and the rest is choose no with 5.88%.

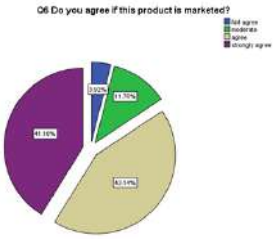


Figure 4.8

According to Figure 4.8, 43.14% of our respondents agree to market our product and 41.18% is strongly agree to market. The total of respondents that moderate to market our product is 11.76% and for the respondent that chose not agree is 3.925.

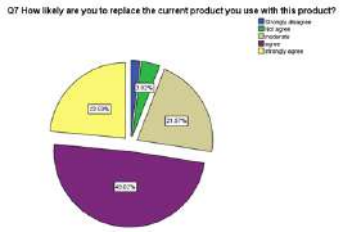


Figure 4.9

According to Figure 4.9, 49.02% of our respondent is agree to replace their current product with our product and 23.53% are strongly agree with our product.21.57% of our respondents moderate and 3.92% are not agree.

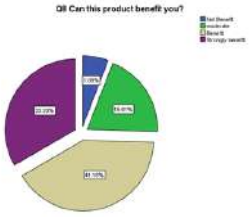


Figure 4.10

According to Figure 4.10 41.18% of our respondent is think that our product is benefit and 33.33% respondent think that this product is strongly benefit. The other 19.61%. Of our respondents choose moderate and 5.88% are think our product didn't benefit.

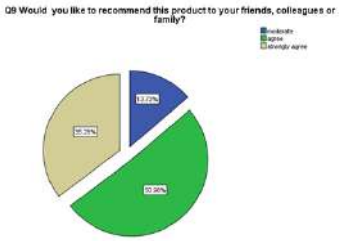


Figure 4.11

According to Figure 4.11 50.98 % of our respondents agreed to recommend this product to their friends, colleagues and family and 35.29% strongly agreed. The rest of the respondents were moderate with 13.73% about our products.

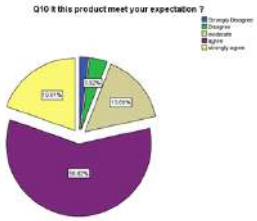


Figure 4.12

According to Figure 4.12 58.82 % of our respondent is agree that our product is meet their expectation and 19.61% are strongly agree. The rest of respondent is moderate with 15.69% and 3.92% are disagree about our product.

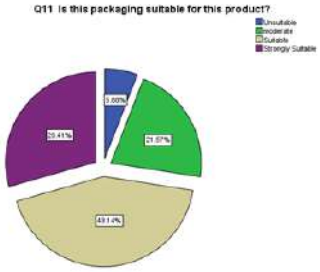


Figure 4.13

According to Figure 4.13 43.14% of our respondents think that this packaging is suitable for our product and 29.41% of respondents think that this product is strongly suitable. The other 21.57% of our respondents choose moderate and 5.88% think our product is unsuitable

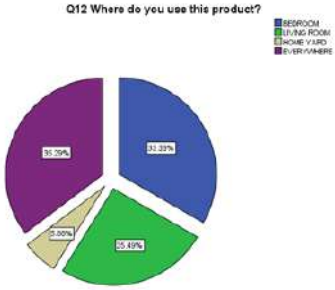


Figure 4.14

According to Figure 4.14 35.29% of our respondents think that this product can be used everywhere and 33.33% of respondents think that this product can be used in the bedroom. The other 25.49% of our respondents chose the living room and 5.88% thought in the home yard

4.3 SWOT ANALYSIS

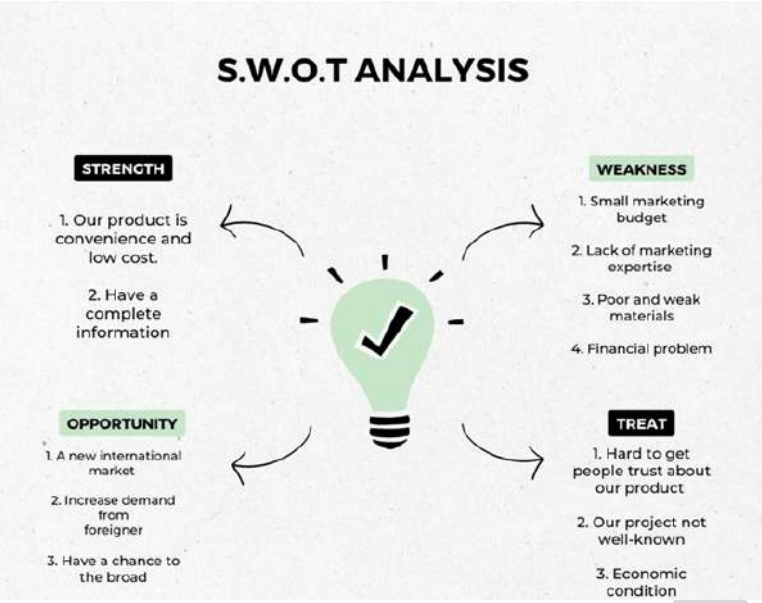


Figure 4.15 SWOT analysis

5.0 RECOMMENDATION

The panel of reviewers at the exhibition commented that cooking oil can not only be used for food but there are several products that can be made from used cooking oil such as candles or scented candles. He said the Secret Candle product fits the green sustainable theme and the product idea is acceptable but needs to be improved. The panel suggested that used cooking oil should be filtered until it is clean so that the smell and taste in Secret Candle cannot be detected because it can cause a person to feel dislike for the smell when installed or heated using a burner and can invite allergic diseases. In addition, the panel suggested to make its own flavors that others have not made yet so that it can attract customers who smell and buy. Future recommendations regarding Secret Candle products, should be sent to a laboratory to check the content contained in this product to provide customers with evidence of the factual content found in Secret Candle. Finally, find a suitable tool or machine to facilitate the Secret Candle process.

5.1 CONCLUSION

As revealed in the section above, the results show the extent to which perceived genuine quality affects the acceptance (or rejection) of the Secret Candle innovation. Overall, this study confirms that the majority of consumers are positive towards innovations in scented candle products, especially sensory quality attributes and ingredient content. The results also show that the perception of pure quality has a relatively strong influence on consumer acceptance of scented candles innovated from used cooking oil. Based on the quality characteristics of the innovation, it is important to improve and maintain the character of scented candles as much as possible in the innovation in terms of the sensory properties of the product, especially taste, smell and texture. In addition, this project aims to use sensory evaluation to identify and improve product weaknesses through the comments of students and lecturers at Kuantan METrO Polytechnic. Next, this study succeeded in finding a way to make used cooking oil so that it succeeded in producing a homemade scented candle with a fragrant smell. Finally, Secret Candle ulfils the “Green Sustainable” theme where this product uses discarded materials such as used cooking oil.

6.0 REFERENCE

Buchbauer, G. (n.d.). Aromatherapy: Do Essential Oils Have Therapeutic Properties?

Gashaw, A., & Teshita, A. (2014). Alemayehu Gashaw, Abile Teshita. International Journal of Renewable and Sustainable Energy, 3(5), 92–98. https://doi.org/10.11648/j.ijrse.20140305.12

Jamilatun, S., Luthfiani, I. N., Putri, D. P., Pitoyo, J., & Rahayu, A. (2022). The Effect of Variations of Stearin Mass and Used Cooking Oil From Purification with Activated Carbon on the Quality of The Candle. Agroindustrial Technology Journal, 6(1), 35. https://doi.org/10.21111/atj.v6i1.7234

Kabir, I., Yacob, M., & Radam, A. (2014). Households' Awareness, Attitudes and Practices Regarding Waste Cooking Oil Recycling in Petaling, Malaysia. In IOSR Journal of Environmental Science (Vol. 8, Issue 10). www.iosrjournals.orgwww.iosrjournals.org

Orjuela, A., & Clark, J. (2020). Green chemicals from used cooking oils: Trends, challenges, and opportunities. In Current Opinion in Green and Sustainable Chemistry (Vol. 26). Elsevier B.V. https://doi.org/10.1016/j.cogsc.2020.100369

VCE_MK_388. (n.d.).

APPENDIX

Figure 1; Logo of Product

STICKER ON PACKAGING

SCRUB ON ME

Haslina binti Ahmad Muzakir, Muhamad Muaz MujahidBin Rusdi, Nur Syu hada Binti Helmi,Nur Khaliesah Laila Binti zizan,Nur Aishah Najwa Binti Azemin

Tourism and Hospitality Department
Polytechnic METrO Kuantan

haslina@pmku.edu.my

ABSTRACT

In this era of modernization, what can be seen around us that many people do not know is that there is a lot of sugarcane waste out there, which cannot be contained with excessive disposal will cause environmental pollution and smell pollution that will be experienced hereby country. Therefore, with the construction of this product is to overcome this pollution problem to prevent our earth from the ozone layer that is getting thinner. With this innovation project we want to use sugarcane in creating products so that we can help the problem of garbage disposal to some extent insteadof spreading it.

1.1 PROJECT OBJECTIVES

a.Kitchen waste problemfrom sugarcane dregs.
b.Odor pollution problemto the environment.
c.Discarded sugarcane dregs are difficultto dispose or treat.

2.0 LITERATUREREVIEW

2.1 SUGARCANE DREGS

One of the agricultural by products from the production of sugar is sugarcane dregs. In Malaysia, this organic waste is not frequently utilized. One tone of sugarcane in Malaysia's sugar industryis thought to result in 280 kilograms of trash. Residue sugarcane is excellent since it is a fibrous organic waste with a high carbon content. The ability of sugarcane dregs to absorb water and oil will be examinedin this study.

In addition, this project aims to decrease the amount of organic waste generated by industry and boost the utilized of dregs. The efficiency of sugarcane dregs as a material to absorb a separate medium is assessed using raw sugarcane dregs and modified dregs chemistry using sulfuric acid, where in this study crude palm oil was used. The various weights for each slag sample as well as the various slag sizes are studied in research.

Due to its high carbon content, dregs can absorb oil from an oil sample, and absorption is one approach for separating two distinct media. Scum that hasn't been changed can absorb more oil than scum that has been sulfuric acid-processed normally.

The ability to absorb sugarcane dregs cannot be greatly increased by chemically modifying sugarcane dregs with merely sulfuric acid. One of the components to separate oil and water is sugar cane dregs. This alternative technique can be used to separate oil from water to clean up waste oil from oil spills as well as to separate oil from waste produced by the palm oil sector.

2.2 ALOE VERA

According to Yunika Purwanti, MuhammadHasdar Hasdar, Wadli Wadli, Elinda Umisara JAMU: Jurnal Abdi Masyarakat UMUS 3 (01), 29-34 2022 Aloe Vera also has antibiotic andantiseptic qualities, making it a useful plant for treating skin conditions including burns and eczema. Aloe Vera skin also has advantages for the internal organs of the body, includinglowering the risk of diabetes and regulating blood sugar levels, treating hair, moisturizing the skin, and many other things.

According to Ashillah Mumtaz Hakim Jurnal Ilmiah Kedoktoran Wijaya Kusuma 9 (2), 245, 2020 Aloe Vera is a group of plants based on herbal plants, which we know these herbal plants have many benefits for humans. Aloe Vera is a type of soft herb that, when processedto obtain its contents after being detached from its outer peel, has a firm gel-like texture inside. Aloe vera is a soft herb of that is simple to grow when planted,looked after, and reproduced. The use of this Aloe Vera plant has several benefits, including the ability to speed wound healing through a sophisticated biological process that is responsible for tissue recovery.

Aloe Vera is good for the health in numerous ways. Because this plant turns out to be full of vitamins and other beneficial minerals that the body needs. These are just a few of the Aloe Vera's helpful ingredients, especially for skin and body health. Aloe Vera meat includes vitaminB, which is helpful for easing muscle and nerve discomfort. Aloe Vera has a healthy amount of vitaminB12 in it. Though typically, this vitamin is only present in animal-based foods.

Aloe Vera is beneficial for boosting skin immunity and reproduction thanks to its vitamin E concentration. Aloe Vera includes folic acid, which is safe for pregnant women to take because it contains many nutrients for both the motherand fetus.

Minerals like calcium, sodium, magnesium, chromium, selenium, zinc, and potassium manganese are all present in Aloe Vera in complete amounts. Antioxidants, Aloe Vera has a tremendous number of antioxidants. Aloe Vera can shield the skin from UV rays because of this. Anti- inflammatory, Brady kinase, an enzyme found in Aloe Vera, has anti-inflammatory properties. Aloe Vera's fatty acid, salicylic acid, and auxin and gibberellin hormone concentration all contribute to the plant's anti-inflammatory properties.

Prevents Ageing Symptoms, Fine lines and wrinkles are quite easy to develop as you age. This is also a result of the skin's state, which starts to lose moisture and flexibility. However, using Aloe can help you fend off the early symptoms of ageing. Aloe Vera is said to delay the onset of ageing due to its capacity to moisturize while assisting in the removal of dead skin cells. Injury Healer, For natural wound healing, Aloe Vera is frequently applied to burns and scratches. Aloe Vera is useful for cleansing and lowering the risk of wound infection thanks to its antibacterial characteristics. Aloe Vera is therefore frequently used to treatburnt skin.

2.3 KAFFIR LIME

According to Nurul Husna Mahmud September 10, 2021 Kaffir lime can eliminate body odor, according to the wisdomof the elderly. According to a study,men sweat twice as much as women despite having 75% more sweat glands overall. Also, each person's body size has an impact on how strongly they smell. Those who are allergic to body scents or underarm deodorants should especially use Kaffir lime. Each person can use treatments or routines to get rid of their own body odor, such as body scrubbing and aurabaths with lemon flavor.
Kaffir lime body washes provide the added benefit of cleaning the body of debris and dead skin cells. cleans, brightens, and pulpiness the skin. Moreover, it can lighten dark areas including the armpits, thighs, knees, and elbows.

CINNAMON POWDER

Cinnamon powder can help remove dead skin cells and restore moisture to your skin. It can be used as fertilizer. The trick is to mix cinnamon bark powder, honey, salt, olive oil and gently rub in a circular motion for two minutes and wash clean. Cinnamon bark can help in removing dead skin cells and restoring moisture to your skin. It can be used as fertilizer. The trick is to mix cinnamon bark powder, honey, salt, olive oil and gently rub in a circular motion for two minutes and wash clean.
According to Nor ‘Asyikin Mat Hayin, 2023. Treats fungus-related illnesses, some fungusinfections are helped by cinnamon oil. 'Candida fungus' infection, which can disrupt blood flow, is efficiently prevented by cinnamon oil, according to a laboratory study from 2016. This is probably a result of the spice's antibacterial qualities.

Researchers discovered that a cinnamon bark extract known as CEppt has compounds that can stop the onset of illness symptoms. Studies on rats who were given cinnamon bark extract revealed a reduction in Alzheimer's symptoms and an enhancement of cognitive function. However, not all this cinnamon is necessarily beneficial forwarding against Alzheimer's disease. Next, according to Isti Prabandari Ayu, 2020, Cinnamon's nutrients can improve the skin's moisture, suppleness, and collagen levels. Indirectly, this can also stop the development of facial fine lines and the darkening of the eye bags.

In addition, cinnamon's antimicrobial characteristics can shield the skin from bacteria or germs that cause acne. The ability of cinnamon stew to shield the body from the hazards of free radicalsis its next advantage. The bark of the aromatic tree trunk's antioxidant content is exactly what is being discussed here. This kind of information is highly helpful in the battle against free radical- induced oxidation in the body. If the body allows free radicals to enter, it becomes susceptible to many ailments. Cinnamon's anti-inflammatory qualities are also highly effective at boosting the body's defense mechanisms. The body can fight off infection and repair tissue damage with the aid of its anti-inflammatory function. By doing so, the body develops stronger and is less vulnerable to numerous illness threats.

2.0 ESSENTIAL OIL

The application of aromatherapy to treat teenage dysmenorrhea. Aromatherapy oil functions asamin yak that can alleviate health issues as well as anxiety that can lead to detrimental issues. This application is a holistic healing therapy that makes use of essential oils, which are various natural plant extracts. Next, having the capacity to work will assist both bodily and emotional wellness. You can also utilize this by applyingit to your skin and using your nose to breathe in theperfume. While the ingredients used to make this essential oil are herbs and plant materials including bark, roots, and petals. Essences, which are the cells that give plants their scent, can beextracted from plants to create essential oils. This aromatherapy oil has several advantages, including the ability to lower stress, anxiety, and despair. Moreover, it promotes calmness and enhances sleep. In addition, it can combatviruses, fungus, and bacteria.

METHODOLOGY

Research Design

The method used to evaluate our product analysis is by using the questionnaire research method,the survey was completed with 50 respondents. The selected respondents are among Kuantan Metro Polytechnic students and lecturers. The population was selected starting from the age of 18 to 50 years. We also use sensory evaluation testing methods to collect more information and data to find out consumer acceptance of Scrub On Me products. We provide 3 types of samples for 3 types of variations, namely sample A, B and sample C. Sensory evaluation tests are performed to find out the smell, colour and texture of the Scrub on Me product. In this test, we also ask some other parts of the question such as knowledge and personal care of our respondents. A scale marking method is also used from strongly dislike, dislike, unsure, like and very like. In addition, we use a variety of applications such as SPSS, Google Classroom and Mandeley to complete reports about our product

Sampling and Population

After successfully collecting the data of 50 respondents for this survey, we used a software called IBM SPSS Statistics 21. This software was used to collect information, analysis, and to make finaldecisions. This software also offers several other advantages such as advanced statistics, text analysis, open source extensible, integration with big data and seamless use into applications. Apart from having various facilities, this software also provides opportunities for all users to improve efficiency, find new opportunities and it can also minimize the risks that may occur when analyzing and gathering information.

FINDING (Data analysis)

For the study that has been carried out to test which ingredient base is more suitable for daily use, as well as can be stored for longer and easy to store anywhere, our study found that using Aloe Vera is better to make clamouring with sugarcane dregs because it is simple stored, weather resistant and no matter to be stored at any temperature. Aloe Vera has been shown to have numerous beneficial properties, but study has also shown that using it can have a positive impact on the user's health as well as the environment because its blend employs natural plants and can lessen environmental pollution.

This means that we will continue to choose Aloe Vera as a base to be mixed with other ingredients such as sugar cane dregs, cinnamon powder, Kaffir peels.

Formulation for our product scrub after experiment that we used.

Ingredients	Sugarcane dregs	Aloe Vera	Cinnamon powder	Kaffir lime peels	Essential oil
Quantity	63.75gm	900gm	4.26gm	12.75gm	3.75ml

Table 4.2.9: Formulation Scrub On Me

All these elements will be processed for the final product in accordance with the recommended procedure from the combination of sugarcane dregs, Kaffir peel, and other extra ingredients. We will offer sugarcane dregs that has been dried and combined with kaffir skin that has undergone the sugarcane dregs machine procedure to obtain a finer texture. Using the predetermined formulation, we will add the Aloe Vera base, cinnamon powder, and essential oil in the following stage, which is the mixing of the two ingredients. and then combined until well combined beforebeing placed in a container that is appropriate for the product.

4.3 ANALYSIS OF FREQUENCY TABLE

			Frequency	Percent
Valid		Male	18	33.3
		Female	34	63.0
		Total	52	96.3
Missing		System	2	3.7
	Total		54	100.0

Table 4.3.1: Gender In Sensory Evaluation Analysis

Based on the analysis that has been recorded in table 4.3.10, which is the gender in sensory evaluation analysis, here we can see the answers that have been given by the respondents. Among the genders that answered this question the most were women because we were able to collect as many as 34 equals to 63.0% of respondents and as many as 18 equals to 33.3% of respondents from men. Here we can explain that there are more women because women take better care of their health and beauty than men

		Frequency	Percent
Valid	YES	45	83.3
	NO	7	13.0
	Total	52	96.3
Missing	System	2	3.7
Total		54	100.0

Table 4.3.11: About Scrub Analysis

Based on the analysis that has been recorded in table 4.4.6, this analysis is related to the knowledge about scrub. Among the most frequent answers is yes which is 25 for 83.3% while there are 7 answers which is equal to 13.0%. Many also know about scrubs, and they are also very aware and aware that there are advantages when using scrubs and they also have a desire to stay beautiful and healthy

		Frequency	Percent	
	PEPPERMINT	18		33.3
	LEMON	22		40.7
Valid		12	22.2	
	ORANGE			
	Total	52		96.3
Missing	System	2		3.7
Total		54		100.0

Table 4.4.12: The Types Of Scent

Based on analysis of table 4.4.12 the types of scent that respondent prefer. Where we can see that there are three types of scent that are found in our answer, among them are peppermint, lemonand also orange. Among the smells with the highest frequency is, lemon which is 22 equals to 40.7%, followed by peppermint 18 times the frequency equal to 33.3% and the least frequent which is 12 equals to 22.2% among the total who answered this question as much as 96.3% and 2 people who did not answer. Therefore, the conclusion in this analysis is that everyone has an interest in a different smell and the one that gets the most response is the scent of lemon, possibly because the smell of lemon is able to provide a scent that can calm the user when wearing it.

4.3 DEMOGRAPHIC PIE CHART

AGE

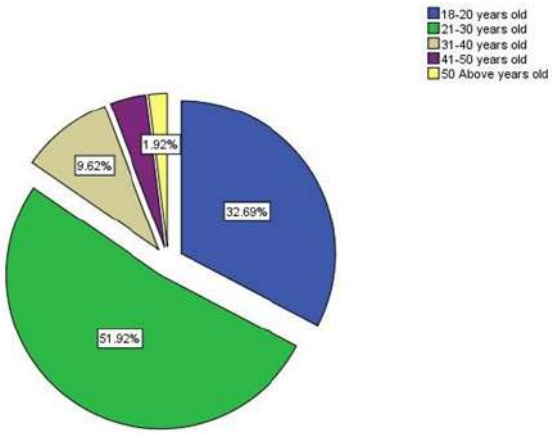


Figure 4.4.9 Section A Demographic

According to figure 4.3.9, age-related demographics are displayed in a pie chart diagram. Most of the population, 27 people 51.92%, are between the ages of 21 and 30. The age group of 18 to 20 years comes in second with a reading of 17 people (32.69%). While 1 person 1.92% of people 50 years of age and older have also tried the Scrub on Me sample, that number is the lowest.

GENDER

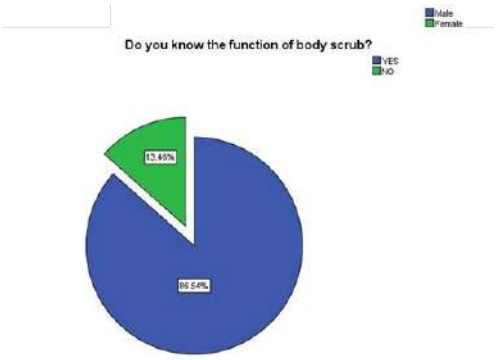


Figure 4.4.10 Function body scrub

According to Figure 4.4.10, 86.45% of the 45 respondents answered (yes) to this question because they know about the function of body scrubs. There are a handful of respondents, 13.46% who chose the answer of not knowing about the function of body scrubs.

DIFFERENT BODY SCRUB THAT USES CHEMICAL AND NATURAL SCR

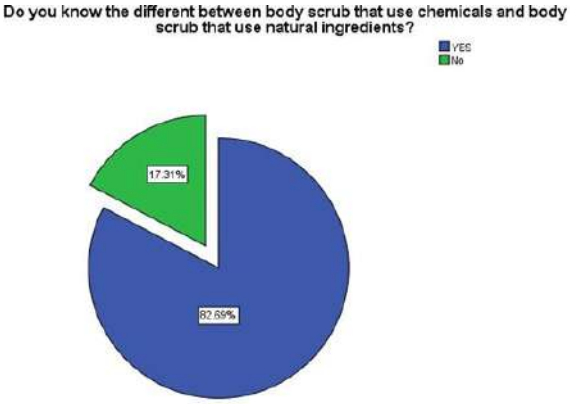


Figure 4.4.11 Different scrub

6.0 CONCLUSION

In conclusion, we are able to state that this Final Year Project can help us discover or hone our talents and attempt new things that we didn't know would make us stand out from the crowd. This study has allowed us to use the knowledge we have been seeking and dofurther research to gain a deeper understanding. This time, we and other group members came up with a product that was made with too much waste from our nation's sugarcane industry without even realizing it. We developed scrubs from sugarcane dregs that benefitthe community and environment in a variety of ways there are numerous ways to do this, one of which is our method of re-purposing sugarcane dregs by incorporating additional components into our scrub, such as Kaffir lime peel, cinnamon bark powder, and Aloe Vera. We are really appreciative that we were able to complete this project successfully and that, in the 13th week's showcase programmed, we were awarded a silver medal. Thelecturer who taught the hospitality project, Dr. Fadly, and our supervisor, Pn. Haslina, deserve a thousand thanks for teaching us a lot about product production, including how to label, how to determine costs, how to register My IPO, giving great ideas, and more.

7.0 REFERENCES

Elvianti Meilany. (2020).Formulation Of Cream Body ScrubFrom Ethanol ExtractOf Cassava Leaves(Manihot Esculenta) AS Antioxidant. Journal of Vocational Health Studies.

faiz. (2021). Boleh Bersihkan Dan Hilangkan Bau, Ini 10 Kegunaan Kulit Limau Dalam Penyucian. siakapkeli.

Gian Alfan, S. (2019). Manfaat Ampas Tebu YangBanyak Terlupakan. Cybext.
Isa, A. M.(2022). Gemar Melakukan Scrub Muka & Badan?Jangan Berlebihan Atau Ini Akibat!Hellodoctor. Jayadi, L. (2023). FormulasiLulur Body Scrub Beras Ketan Hitam (OryzaSativa Var. Glutinosa) Dengan

Perpaduan YogurtSebagai Zat Aktif. JurnalRiset Kefarmasian Indonesia.
PENH, P. (2022). Pinggan Kertas Daripada Hampas Tebu. Media Permata.
Saputra, A. (2013).Aktivitas Antioksidan EkstrakMetanol Beberapa Bagian Tanaman Kayu Manis (Cinnamomum Burmani) Asal Kabupaten Kerinci Provinsi Jambi.prosiding siminar.

Tiya Nurmala, R. P. (2019). Pembuatan Sediaan Lulur Serbuk Tradisional Biji Pepaya (CaricaPapaya L) dan Pati Kedelai(Glycine Max L) untuk Mengatasi Kulit Kering. Journal of Holistic and Health Sciences.

Wellness. (2021). 11 Essential Oils: TheirBenefits and How To Use Them. Healthessentials.

EXTRACTION COCONUT DREGS TO OIL

Noor Syaida Binti Abdul Rahman , Muhammad Alif Izham Bin Abdul Jalil, Muhammad Ikram Fikri Bin Mohd Salleh, Nurul Atiqah Binti Ahmad Rizal, Rubiatul Adawiyah Binti Hasbullah

Tourism and Hospitality Department
Polytechnic METrO Kuantan

syaida@pmku.edu.my

ABSTRACT

This G-Lide Air Freshener is a fragrance made from recycled used materials. We created this product to remove the bad smell in the student's room in the rental house and also the dormitory that is close to PMKu. The materials we use are natural materials without using chemicals that can pollute the air such as the use of aerosols in our fragrances. We replace the use of aerosols with coconut oil from processed coconut husks. Therefore, the innovation we are doing is to reduce the use of chemicals.

1.0 INTRODUCTION

Our project is to make an air fragrance from the coconut husk carried out an air fragrance project by using waste material from coconut husks to produce oil in the manufacture of perfume oil. Boil the coconut dregs that have been soaked with water and we stir the juice from the coconut dregs until the juice turns brown and separates from the oil. According to Litefti, K., Freire, M. S., Stitou, M. & González-Álvarez, J. Adsorption of an anionic dye (Congo red) from aqueous solutions by pine bark. Sci. Rep. 9, 16530 (2019) Coconut husk is an agricultural by-product, which is discarded indiscriminately at times. Coconut husk is a fluffy coconut material that is produced during the separation process of the coconut fibre from the coconut husk.

In addition, we use this coconut dregs to produce oil to replace the use of aerosols that can pollute the air and also harm the health of users who use fragrances with a mixture of chemicals. According to Nevin K.G., Rajamohan T., Clin. Biochem. 37(9), 830-835 (2004). In order to infer the health advantages and clinical importance of ingesting coconut oil as a health promoting dietary fat, it is crucial to comprehend the chemical makeup of coconut oil. The copra, or meat of the coconut, is where most of the coconut oil is obtained. Another method of extracting coconut oil uses a wet method (direct extraction of coconut oil from coconut milk at controlled temperatures), and the end product is VCO, which is made from coconut milk.

1.0 INTRODUCTION

Our project is to make an air fragrance from the coconut husk carried out an air fragrance project by using waste material from coconut husks to produce oil in the manufacture of perfume oil. Boil the coconut dregs that have been soaked with water and we stir the juice from the coconut dregs until the juice turns brown and separates from the oil. According to Litefti, K., Freire, M. S., Stitou, M. & González-Álvarez, J. Adsorption of an anionic dye (Congo red) from aqueous solutions by pine bark. Sci. Rep. 9, 16530 (2019) Coconut husk is an agricultural by-product, which is discarded indiscriminately at times. Coconut husk is a fluffy coconut material that is produced during the separation process of the coconut fibre from the coconut husk.
In addition, we use this coconut dregs to produce oil to replace the use of aerosols that can pollute the air and also harm the health of users who use fragrances with a mixture of chemicals. According to Nevin K.G., Rajamohan T., Clin. Biochem. 37(9), 830-835 (2004). In order to infer the health advantages and clinical importance of ingesting coconut oil as a health promoting dietary fat, it is crucial to comprehend the chemical makeup of coconut oil. The copra, or meat of the coconut, is where most of the coconut oil is obtained. Another method of extracting coconut oil uses a wet method (direct extraction of coconut oil from coconut milk at controlled temperatures), and the end product is VCO, which is made from coconut milk.

1.1 STATE OF PROBLEM

One of the reasons we use coconut dregs is that we want to reduce the rate of waste that occurs between coconut milk sellers who make fresh coconut milk from old coconuts and scrape it to produce fresh coconut milk. This coconut dregs are a waste material from the coconut milk extraction done by the seller. We use all these coconut husks to produce coconut oil from the coconut husks. This coconut dregs are often left outside the shop, ignored by the seller who produces coconut milk from the contents of the old coconut. So, we use this coconut dregs to produce oil to make our project successful in the manufacture of fragrance water. Our main ingredient is oil from coconut husk and we mix it with other ingredients to produce a scent that can eliminate odours in residential areas. According to (Tchobanoglous et al, 1993). The large population of people in cities and communities gave rise to indiscriminate littering and open dumps. These dumps in turn formed breeding grounds for rats and other vermin, posing significant risks to public health. The unhealthy waste management practices resulted in several outbreaks of epidemics with high death tolls.

1.2 OBJECTIVE

Nowadays, young consumers pay special attention to fragrance no matter where they are, whether it is at home, the mall or when they are out and about. So, we created a product called G-LIDE air freshener for us to get rid foul smell and musty in dormitory areas and rental houses in Politeknik METrO Kuantan, Pahang.

In addition, our products also can reduce allergies such as sinus. This is because some users have problems not being able to smell fragrances that are too strong from the use of aerosols by replacing it with coconut oil and distilled water. Coconut oil is a natural material oil without mixing other chemicals that can pollute the air and harm the health of users. It can prevent someone from having an allergy.
Lastly, we want to archive awareness among consumer about the importance of using product from natural ingredients. Some of the people are not aware about the ingredient that might harm to themselves if they used a product that might have a strong chemical ingredient.

2.0 LITERATURE REVIEW

2.1 WASTE

Waste is everything that no longer has a use or purpose and needs to be disposed of. The term certainly applies to discarded material, but there are specific definitions for waste that affect how waste is regulated and must be handled, especially in professional settings. According to (Guarte et al., 1996, Poarch, 2007) Coconut milk is extracted and the flesh is grated before being pressed to produce milk. The by-product of this process is coconut waste. The oil obtained from coconut waste can be used as edible oil or for other purposes such as biodiesel production.

2.2 COCONUT DREGS

The coconut plant is a multi-purpose plant or a plant with high economic value. All parts of the coconut tree can be used for human benefits, so this tree is often called the tree of life because almost all parts of the tree, roots, trunk, leaves and fruit can be used for the needs of human daily life. Coconut dregs is a by-product waste from the manufacture of coconut milk. This agricultural waste is available in large quantities and has not been utilized optimally. There are 2 ways to process fresh coconuts to make coconut pulp, namely the traditional way and using a machine. The utilization of coconut oil for biodiesel will obviously compete those for food and oleo chemical industries. One way to hinder this competition is to produce biodiesel from coconut press cake by in situ transesterification. The press cake still contains 12.2 - 15.9% oil, so that it is very potential to be used for making biodiesel. Up till now, the press cake is mostly utilized as animal feed. Utilization of the press cake for making biodiesel is expected to increased its economic value chain, especially in the coconut

2.3 COCONUT OIL

Coconut oil has many benefits and benefits that we can get among which it is used in skin care products, hair, and bath products. In addition, coconut oil also provides good health benefits because it can help in the process of losing weight and for the digestive system based on According to ((Sursinh Vala et al., n.d.) Coconut oil is very useful for weight loss. It contains short and medium-chain fatty acids that help in taking off excessive weight. It is also easy to digest and it helps in healthy functioning of the thyroid and endocrine system. Further, it increases the body's metabolic rate by removing stress on the pancreases, thereby burning more energy, and helping obese and overweight people lose the weight.

2.4 FRAGRANCES

Virtually all products geared at women, including soap, cosmetics, shampoo, hair spray, and others, have a scent. Just making a product that smells wonderful on the wearer, for personal use, or in the air around it is the sole goal of scent. Using personal hygiene products with fragrance also makes you feel more "clean," especially after a shower. Fragrances also can make from natural sources according to (Sharmeen et al., 2021) the volatile nature of essential oils makes them likely to be useful as fragrances but does not preclude other functions for them in cosmetics. In fact, their intended use has been for a long time principally industrial, whereby standardization of fragrance requiring the blending of essential oils from different plants with the aim of obtaining a specific scent has been a common practice. It has been reported that 300 essential oils out of about 3000 plant species are commercially available in the flavours and fragrances market. The essential oils produced predominantly for industrial purposes are those from orange, corn mint, citronella, eucalyptus, peppermint, and lemon.

3.0 METHODOLOGY

This chapter will discuss about the flow of this Final Year Project from the beginning until finish this project. The flow chart is very important to illustrate the sequence of operations to finish the work. The flow chart is generally drawn in the early stages. It will guide to finish the works. Meanwhile, the giant chart shows how the project planned and seen instantly whether the project is behind or ahead of the schedule. Methodology refers to the overarching strategy and rationale of your research project. It involves studying the methods used in your field and the theories or principles behind them, in order to develop an approach that matches your objective

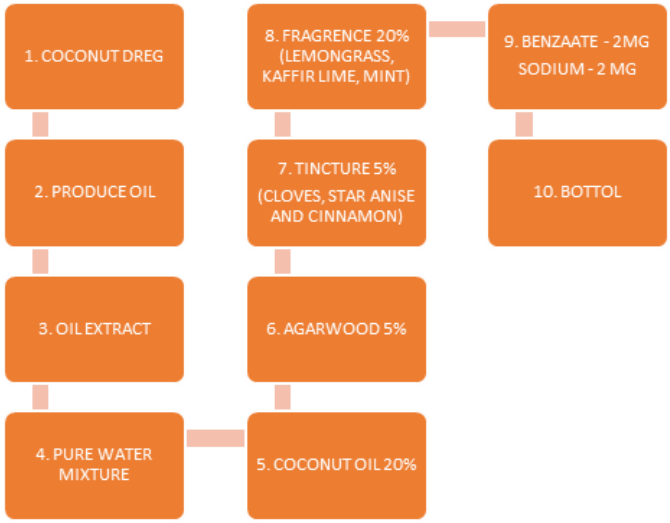
3.1 RESEARCH METHOD

The way we collect data is by doing research using coconut dung. After the coconut dregs are processed, we will get oil to replace the use of aerosols in the perfumes we produce. In addition, we also add some other ingredients such as alcohol and other ingredients. The methodology also includes an explanation of your data collection process. For example, performing experimental tests on samples, conducting surveys or interviews or using data. The method used to value the analysis is survey for the product which will be produced. Respondents will be selected among students who reside in the PMKU area. We also collect data from engaged students to evaluate the products we produce.

3.2 RESEARCH DESIGN

The G-Lide Air Freshener logo is inspired by the element of air which means calm. Matching with our product which has a calm and soft scent. Next there is a water element tucked in our logo which matches with G-Lide Air Freshener which uses water in its manufacturing material.

3.3 PRODUCTION PROCESS G-LIDE AIR FRAGRANCE

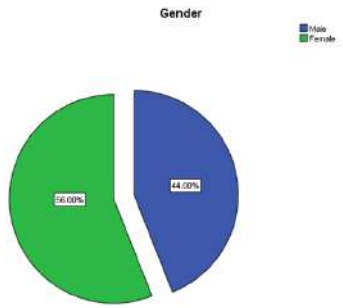


4.0 FINDING

4.1 RESULT

G- lide Air Fragrance trial product that we make, we get the results for our research, we found that many students have problems with bad smells in their homes and bedrooms. Most of the students who tried G-lide Air Fragrance have attracted their interest to get our product and stated that our product is a product that is able to overcome their problem to get rid of bad smell in their home and also their bedroom. The main ingredient we do is oil from coconut husk, we found that oil from coconut husk can produce a musty smell if it is left for a long time. So, we did a test on the durability of the fragrance that had been mixed with oil from coconut husks. We use 2 types of scents which are lavender and spice wood. Throughout the production of our product, we have studied that our product is able to last up to 3 months without the fragrance changing to a musty smell. We created lavender and also spice wood scents. As a result of our research, we found that many people like the scent of lavender compared to the scent of spice wood.

4.2 CHART ANALYSIS



Among the students who live in rented houses and dormitories, there are 56% females compared to 44% males.

Table 4.2.1 Gender in sensory analysis

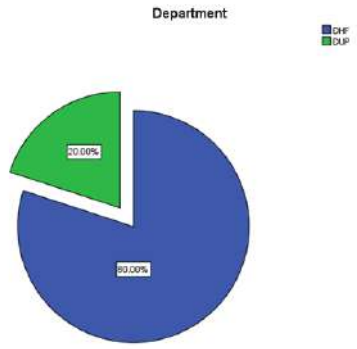


Table 4.2.2 Department in sensory analysis

Students who live in rented houses and dormitories are DHF students which is 80% compared to DUP students which is 20%.

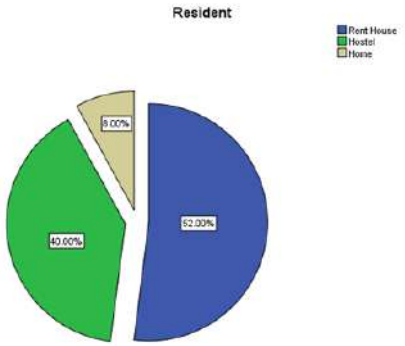


Table 4.2.3 Resident in sensory evaluation analysis

Students who stay in rented houses amount to 52% compared to students who sit in dormitories by 40% and also students who stay in their own homes by 8%. This is a place to stay close to Politeknik METrO Kuantan.

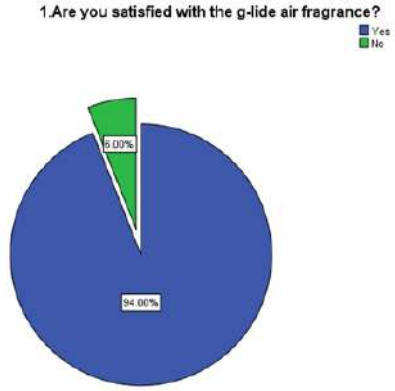


Table 4.2.4

There are 94% of students who live in rented houses and also hostels stated that they are satisfied with G-Lide Air Freshener. This indicates that G-Lide Air Freshener products have attracted their interest to use G-Lide Air Freshener.

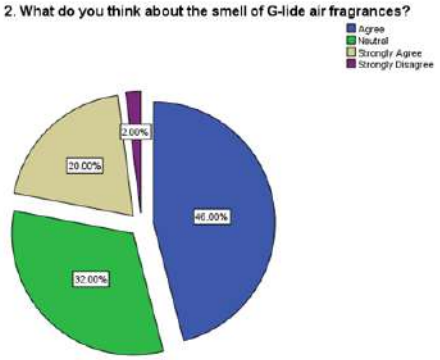


Table 4.2.5

Students from rented houses and also hostels think that they agree with the scent we did on G-Lide Air Freshener which is as much as 46 %. There are also 2% of students who do not like the smell of G-Lide Air Freshener because they do not like the strong and fresh smell. Besides that, as many as 20% of the students strongly agreed with the scent we did because they liked the scent we did.

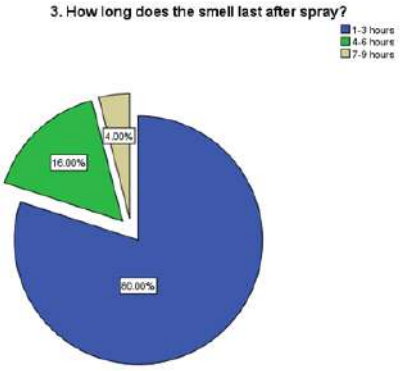


Table 4.2.6

80% of students think that the scent of G-Lide Air Freshener can last for 1 to 3 hours every time the spray is done in their room. This is because we use natural ingredients.

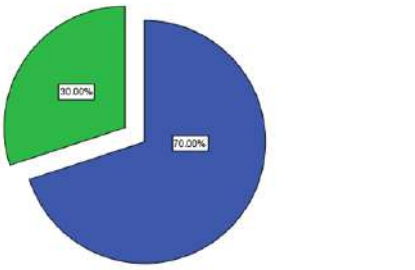


Table 4.2.7

There are as many as 70% of students like fresh lavender compared to spice wood as much as 30%. This is because they prefer a fresh smell compared to a strong smell. Most teenagers like fresh scents to lift the mood in their bedroom.

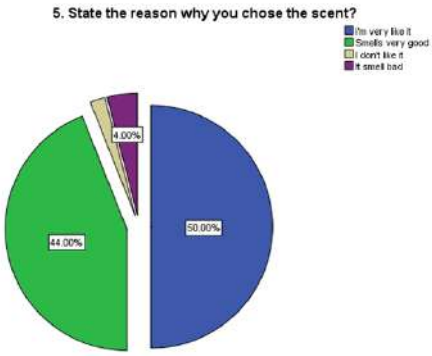


Table 4.2.8

This chart shows that there are 50% students like the smell of G-Lide Air Freshener. This is because the scents we do are according to the tastes of today's teenagers and we don't focus on just one scent, we also mix other scents to make it a refreshing scent.

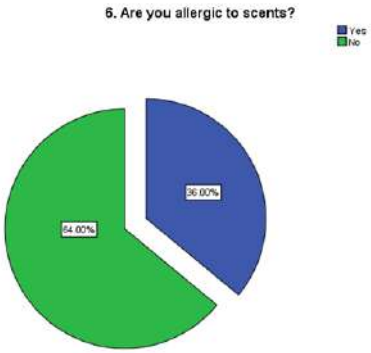


Table 4.2.9

This chart shows that there are 64% of students who are not allergic to the scent we do. Some students can't with strong scents because it can give them a headache if they often smell strong fragrances.

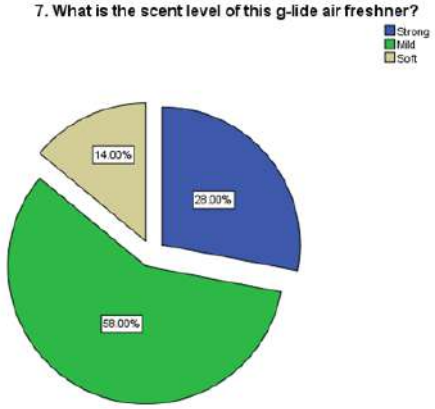


Table 4.2.10

The level of liking of rental house and dormitory students stated that as many as 58% of students agree that the level of G-Lide Air Freshener is below the mild level. The scents we do are not as strong as those on the market because we reduce the rate of chemical usage.

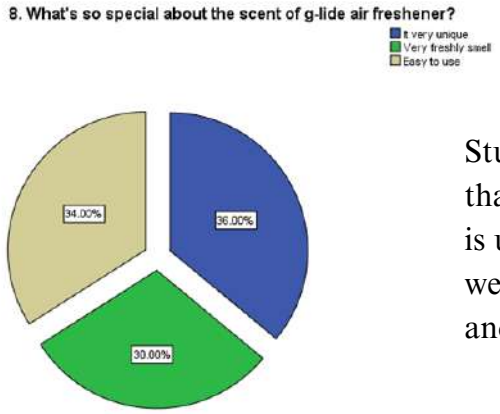


Table 4.2.11

Students who live in rented houses and also hostels think that as many as 36% of students think that the scent we do is unique. This is because we don't focus on one scent alone, we experiment by mixing other scents such as peppermint and other fresh scents.

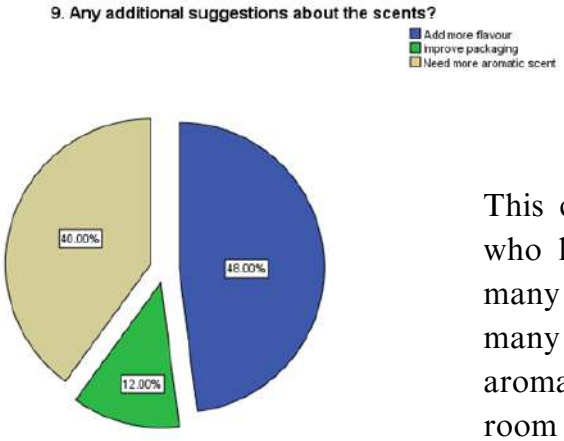


Table 4.2.12

This chart shows that the suggestions given by students who live in dormitories and rented houses state that as many as 48% of students suggest adding other scents and as many as 40% of students also suggest that they need more aromatic scents that can increase their freshness in the room and also their house.

This is an analysis from a study we did through google form. We found that many students are interested in our product which is G-Lide Air Freshener. We did a 2-day study for 3 rental houses and 1 dormitory. We gave them samples to test G-Lide Air Freshener smell and also the durability of the smell in their hostels and rental houses. We found that the students who tried our sample were satisfied with the smell which is also the manufacturing method we did in the processing of making G-Lide Air Freshener. based on table 4.5.10 it was found that the students thought that the fragrance level we did was below the mild level which was not too strong which made them feel disliked to use G-Lide Air Freshener

According to M. Hilden et al. Women's experiences of the gynaecologic examination: factors associated with discomfort A. O. G. S. (2003) said that Aromatherapy is frequently used as an alternative form of relaxation. EEG data from numerous investigations have shown that various aromatic scents have distinct effects on the electrical activity of the brain. According to some reports, lavender essential oil can increase endorphin levels in the brain eight to ten times and induce mental and physical calm within minutes of exposure.

5.0 DISCUSSION AND RECOMMENDATION

For recommendation, the researchers have to studied a few recommendation and improvement about the G-Lide Air Freshener. Firstly, we need to add more scents to attract more user such as sweet smell like vanilla and fruity. Some users prefer a sweet smell compared to a fresh smell. In the findings of our study, students also suggested to add other scents and they also have aromatic scents so that they can raise an interesting atmosphere in the bedroom and in their home. According to (Knudsen et al., 1993) stated that the composite nature of flower smell is made possible by a complex mixture of low-molecular-weight volatile molecules. Because this feature is invisible, people have a poor sense of smell, and the trait is very variable (partially as a result of significant environmental influences), there are no simple, efficient, and precise methods to screen for genetic variation. In addition, we aim to improve our packaging so that people would be drawn to our G-Lide Air Freshener. We also need to enlarge the logo of the product so that the user will be easier to find and recognize our G-Lide Air Freshener. We found the logo we did was too small for our bottle so it was difficult for students to see or find our product brand.

5.1 PROJECT LIMITATION

G-Lide Air Freshener is one of our innovation products by replacing the use of aerosols with coconut oil from coconut husk. Our product limitation is unlimited because our manufacturing materials are easy to obtain. Among the ingredients that are easy to obtain is coconut dregs that can be found in the market by traders who sell fresh coconut milk. In addition to that, it is also an ingredient to make a tincture, which is ethanol mixed with cinnamon, cloves and star anise for a mixture of scents in the scent of spice wood. Next, in order to penetrate the market in Malaysia, our products need to improve in terms of marketing because our products are new in this industry. To achieve a high target, it is

quite difficult to compete with existing air freshener products. Finally, our target for this G Lide Air Freshener is to enter the overseas market next year in order to raise the name of Malaysian products in international eyes.

6.0 CONCLUSION

In conclusion, our product G-Lide Air Freshener has many advantages or benefits that are not known to the public. The products we use natural ingredients without strong chemicals that can pollute the environment such as air pollution. Our main ingredient in the manufacture of Glide Air Fragrance is coconut oil from coconut husk, many people do not know that this coconut oil has many benefits. The use of coconut oil has been practiced all over the world for many years. This coconut oil has Coconut oil benefits the skin, and makes it special, which contains lauric acid. Fatty acids are one of the main components that make this ingredient so strong and nutritious. Once coconut oil is applied topically to the skin, lauric acid effectively penetrates deep into the pores where it destroys bacteria and viruses that can cause inflammation or irritation. In addition, the antimicrobial properties of coconut oil are very beneficial for the skin. It is rich in lauric acid, caprylic acid and other compounds that have antibacterial, antifungal and antiviral qualities. It can help protect the skin from infections caused by bacteria and fungi, and can also be used to treat various skin problems such as acne, eczema, psoriasis and dermatitis. Coconut oil is an excellent moisturizer that can help soothe dry, itchy skin.

It also helps to be protective without blocking the pores. In addition to its antimicrobial benefits, coconut oil's antioxidant properties make it beneficial for reducing inflammation and providing nourishment to skin. According to Nevin K.G., Rajamohan T., Clin. Biochem., 37(9), 830-835 (2004), Due to its high saturated fat content in relation to chronic disorders, especially those affecting the cardiac system, coconut oil's health and nutritional benefits are both compelling and contradicting.

7.0 REFERENCE

Knudsen JT, Tollesten L, Bergstrom GL (1993) Phytochemistry 33: 252–280

Nevin K.G., Rajamohan T., Clin. Biochem., 37(9), 830-835 (2004),

Freire, M. S., Stitou, M., and González-Lvarez, J., together with Litefti, K. Pine bark's ability to absorb an anionic dye (Congo red) from aqueous solutions. 2019; Science Reports 9, 16530.

Nevin, K.G. and Rajamohan, T. (2004) Beneficial effects of virgin coconut oil on lipid parameters and in vitro LDL oxidation. Clinical Biochemistry, 37, 830-835.

R.C. Guarte et al. Drying characteristics of copra and quality of copra and coconut oil Postharvest Biology and Technology (1996).

Sursinh Vala et al., n.d. medical benefit od coconut oil (2014).

Sharmeen, J. B., Mahomoodally, F. M., Zengin, G., and Maggi, F. (2021). Essential oils as natural sources of fragrance compounds for cosmetics and cosmeceuticals. Molecules 26, 666. doi:10.3390/molecules26030666

HIDDEN GEM IN BLACK STONE

Rina Fakhizan Binti Mohd Sukri , Aina Batrisyia Binti Ismail Ali Muda , Izzah Safiyyah Binti Mohd Said , Muhd Nabil Azri Bin Mohd Saufi

[1]Politeknik METrO Kuantan, Pahang, Malaysia

rinafakhizan@gmail.com

ABSTRACT

Our country has been hit by an outbreak of the Coronavirus disease known as Covid-19 for almost 4 years. The tourism industry is one of the areas that has had an extraordinary impact because due to this epidemic, the country cannot accept any tourists either domestically or internationally. The tourism industry also cannot continue because it does not get a regular income and cannot establish a solid business. Because of this, there are some companies that cannot continue their business and there are also companies that have to make the decision to lay off their employees because they cannot pay their salaries. In addition, the purpose of this project is to assist Mawar Villa in improving the facilities and attractions in this area so that tourists can explore the entire Kuantan area. Most tourists or residents of Kuantan are not familiar with Mawar Villa. Because of that, we made a joint decision to develop Mawar Villa because Mawar Villa has a high potential to be developed and introduced to tourists. Among the statements of problems faced by Mawar Villa is, Mawar Villa does not have a suitable website for their tourists. The website is the main product in the formation of this project. Our group has created a website as a proposal to Mawar Villa. Our main purpose in implementing this project is because we want to help MawarVilla in implementing the accommodation businessindustry more widely. We found that Mawar Villa has a beautiful area especially for family members and we have a hope that MawarVilla can expandeven more if they take the development of Mawar Villa seriously. Next, the main objective in the development of this area is to further increase the averagenumber of tourists in the Batu Hitam area due to the impact of the Covid-19 pandemic. In addition, our main respondents in this project are tourists and residents of Mawar Villa. The method that has been used for quantitative data is by interviewing villagers as well as Mawar Villa staff. 40% of the surveys conducted are tourists choosing to add more activities that suit all tourists, regardless of age and race. Finally, the suggestion for improving this area is that Mawar Villa can work with any agency whether it is a travel agency or a game agency to add activities in their accommodation area and it is also open to all.

1.0 INTRODUCTION

This chapter presents an overview of the tourism development that starts with tourism resources inventory, background of project, problem statement, project objectives, significance of project and conclusion. First, an overview of the project is provided although the background of the project wants to implement. This chapter commences with the statement of the problem of the project which has been planned. It then discusses the objectives set for the research. This leads to a discussion of the research question of the project. This chapter continues with the discussion of the definitions and concepts of the project. After that, it discusses the significance of the project to various stakeholders. This chapter concludes with a summary of the chapter in the project by outlining the chapter.

1.1 Problem Statements

The tourism economy has been heavily hit by the coronavirus (COVID-19) pandemic, and measures introduced to contain its spread. Depending on the duration of the crisis, revised scenarios indicate that the potentialshock could range between a 60-80% declinein the international tourism economy in 2020. Beyond immediate measures to support the tourism sector, countries are also shifting to develop recovery measures. These include considerations on lifting travel restrictions, restoring traveler confidence and rethinking the tourism sector for the future.

One of the problems facing this area is not known by many people because it is a little bit far away and it's about 10 kilometers from the center of Kuantan. Tourists think that Batu Hitam has no shopping malls or interesting places. Not only that, but we have also improvedour accommodations. From the problem statement, we innovated that some tourists do not have nature in their life and we have produced a website that can be used by all users.

In addition, Villa Mawar does not have an up-to-date website, and it is not complete in terms of accommodation options, activities offered, and recommended attractions. Therefore, this project aims to help improve and increase the sales of this tourist attraction to foreign tourists. For example, the project will provide a website that makes browsing easier for all users, regardless of race, religion and age. The purpose of this project is also to add other interesting activities, such as making bicycles for tourists who come to Villa Mawar. Also, during the discussion among the group members, it was agreed to organize a campsite and a beach ball in this area.

Another problem that is visible to the naked eye is that there are not many interesting activities around the area for tourists to spend time with family and friends. The municipality of the area needs to further improve the development of activities in the area of Batu Hitam.

1.2 Objective

In general, this study was conducted to identify the factors that influence the satisfaction of tourists to the state of Kuantan. While specifically, this study aims to:

i. To increase activities and facilities at Mawar Villa
ii. To promote Mawar Villa as one of a dominant tourist attraction at Batu Hitam
iii. To promote local product and gain more income

2.0 LITERATURE REVIEW

TOURISM

Forecasting has been an important part in many sectors, not only to predict the future but also for the practitioners to have better planning and attention for upcoming challenges. Athiyaman and Robertson stated that inaccurate forecasts are considerable but accurate ones give an important advantage. Instead of viewing tourismdemand at a broad perspective as tourist arrivals,researchers should focus on visitors at a specific tourist attraction. This indirectly helps the management for a better planning at the specific place and effects in boosting the attendance of tourists to the country as a whole. (N. Abu', S.M. Khaidi', and N. Muhammad'- 27/11/2020).

In the tourism context, a new tourism product can be defined as new facilities and services that are designed for the satisfaction of the visitors. Meanwhile for tourism product, past visitors have a higher probability to not repeat in visiting the same place and the customers are changing, then, results in the falling of the number of visitors to the place. The example of tourism products are natural and geographical attractions such as beaches, highlands, theme parks, shopping malls, museums, and religious or historical buildings. (N. Abu', S.M. Khaidi', and N. Muhammad'- 27/11/2020)

Besides, tourism accommodation such as hotels, resorts and homestays are considered as tourism products and they play important parts in fulfilling the needs of tourists while traveling. Tourismindustry involves large investments and supply for infrastructure, equipmentand workers. Hence, this is the reason for every country to focus on the tourism industry because not only it has large investments but it gives higher returns to the country's economy if it is managed properly. (N. Abu', S.M. Khaidi', and N. Muhammad'- 27/11/2020)

2.2 Adventure Tourism

This chapter considers a definition of adventure tourism that includes physical activity, the natural environment and cultural immersion. Both hard and soft adventures can be important. The trends and numbers involved in this tourism area are discussed, including the growth in demand. Other types of often related niche tourism types are considered and defined, such as ecotourism, wildlife tourism, sustainable and responsible tourism. According to Muller and Cleaver, "Adventure tourism is characterized by its ability to provide the tourist with relatively high levels of sensory stimulation, usually achieved by including physically challenging experiential components with the tourist experience."

Soft adventure refers to activities with a perceived risk but low levels of risk, requiring minimal commitment and beginning skills; most of these activities are led by experienced guides. Soft tourism includes activities like backpacking, camping, hiking, kayaking etc.Soft adventure activities are low risk in nature. These activities are led by professional guides. Soft adventure is a popular category in adventure tourism. On average, 25% trips taken from North America and Europe are soft adventure trips.

Despite its success as being recognized as a distinct market segment of the tourism industry, adventure tourism as a definitive product remains elusive. Adventure tourism is often associated with cultural tourism, nature tourism, and ecotourism (e.g., Wight, 1993), where elements of both cultural and adventure tourism may be experienced together. Similarly, ecological aspects of a tour are often incorporated within an adventure tour experience and vice versa. The same can be said about traveler motivations. For example, Eagles (1992) found that among the travel motivations of Canadian Eco tourists, 'to be daring and adventurous' ranked 13 out of a possible 33 motivations. Therefore, it would appear that adventure tourism may include elements which have been more closely associated with cultural, nature, and ecotourism. Adventure travelers seek well-managed natural environments that are not overwhelmingly crowded, so destinations with well-protected habitats outside of population centers generally earn high praise from adventure- seeking visitors.

2.3 Tourism Development

Pahang, the biggest state in Peninsular Malaysia, has many natural resources suitable for tourism activities particularly for outdoor recreation and some are still not being adequately developed. Pahang has the largest forest reserves, highest peak (Mount Tahan), natural lake (Bera Lake) and national park (Kuala Tahan) in Peninsular Malaysia. Hence, the state has substantial advantages in attractingoutdoor recreation users. The rainforestin Pahang is the oldest in the world, roughly 130 million years old, forest areas cover almost 50 percentof the state. The Malaysian government has gazetted 434359 km of the rainforest as the country's National Park.

The popular entrance to the National Park is Kuala Tahan which is located approximately 195 km (or around two and a half hour's drive) from Kuala Lumpur. Apart from that, there are many populartourism destinations located in the state such as Bukit Tinggi, Cherating, Genting Highlands, Kuantan and Tioman Island. This state manages to offer different tourism products such as; the first casino and theme park in the countryand elephant sanctuary. These two destinations managed to pull a significant number of tourists due to its creativity and uniqueness.

Tourism is one of the most prospective and dynamic businesses in the world. It is of great significance to plan and develop tourism purposefully and sustainably through the search for compromises between environmental, economic and social aims of society. The sustainable tourism development management has to retain a high satisfaction degree of tourists' needs, assure significant experience for consumers, increasetheir consciousness under issues of sustainability, and propagate practices of sustainable tourism among them. The significance of sustainable tourism sector development ambition is analyzed in this paper through the lens of strengthening its competitiveness. The paper analyzes scientific literature and seeks to discover the main forms and factors for the strengthening of the tourism competitiveness by implementing economic, social and environmental targets of tourism destination territories development. The broad systematic literature review provided for some interesting findings: The businessparticipants are interested in the implementation of new technologies in tourism services having positive impact on environment and local communities; however, a lot of challenges exist how to change environment, increase of consumers'motivations for sustainable tourism services and to change their behavior towards more sustainable one. The currentCovid 19 outbreakand high risks of future pandemics have raised new challenges for sustainable tourism development.

The purpose of this study is to measure the satisfaction of local tourists during their holidays in Pahang. This study used the Holiday Satisfaction Model (HOLSAT) to identify the gap between tourist expectations and experiences, based on 47 positive and negative attributes grouped into six categories, namely:accessibility, accommodation, touristfacilities, tourist activities, dining and tourism sights. The results come from a questionnaire survey of tourists visiting Pahang. Analyzethe data using a matrix showing the expected mean, the empiricalmean, and the mean of the difference between the empirical and expected values. The average expected value versus experience is then plotted as a two-dimensional map of positive and negativeattributes. A t-testwas performed to determine significant scores for each attribute at the 1:1000 level. The results provide Pahang tourism stakeholders with insights into local tourist satisfaction levels and call for better improvement strategies for Pahang's future tourism development. In 2010, revenues from the global tourism industry (companies that produce goods and services directly for tourists) amounted to $2,492.3 billion, or 4.3%. As a share of global GDP at the time; in the same year, the GDP of the travel and tourism industry as a whole (provision of goods and services for tourists and other activities that rely heavily on travel and tourism expenditures) would reach $6,771.3 billion, or 11.6% of the estimated global GDP for that year 2010. WTTC estimates that approximately 86.4 million people will work in the travel and tourism industry, with 253.7 million employed in travel and tourism in 2010.

Tourism is currently the second largest contributor to Malaysia's gross domestic product (GDP) after manufacturing. Although a relatively latecomer to Malaysia as a "big era" tourism player, Malaysia's tourism industry has grown by leaps and bounds since the early 1990s. Tourism policy planning in Malaysia is complex and influenced by a three-tiered government system. At the federal level, the Ministry of Tourism provides overall direction for product development and Tourism Malaysia is responsible for tourism promotion. However, this does not prevent state governments from competing for the same market segment. Policy planning at the national level began with the formulation of the National Tourism Policy in 1992. Since then, strategies targeting specific market segments have been developed, such as the National Ecotourism Plan (1996), the Rural Tourism Master Plan (2001) and the Second National Tourism Policy (in progress). All national tourism plans propose to transform Malaysia's current "low-yield" tourism into "high-yield" tourism, with a strong emphasis on regional cooperation. First, this paper will examine tourism policy planning in Malaysia from the perspective of institutional settings and various tourism-related programmed. Second, it discusses the issues and challenges facing the tourism industry in Malaysia. Finally, it will recommend measures to improve the development of tourism products in the country to spread the Malaysian brand. All national tourism plans propose to transform Malaysia's current "low-yield" tourism into "high-yield" tourism, with a strong emphasis on regional cooperation. First, this paper will examine tourism policy planning in Malaysia from the perspective of institutional settings and various tourism-related programmed. Second, it discusses the issues and challenges facing the tourism industry in Malaysia. Finally, it will recommend measures to improve the development of tourism products in the country to spread the Malaysian brand. Tourism Policy refers to the overall plan including objectives and procedures. Policies are often found in formal statements, such as laws and official documents and statements. Tourism Policy is generally considered to be an area of a nation's overall economic policy. It is a public policy designed to achieve specific objectives relevant to tourism established at the municipal, state or federal level. 2 More generally, tourism policy should reflect the overall development policy of the country or region so that tourism is well integrated with it. Policy also evolves from the survey and analysis of present tourism development patterns and infrastructure, tourist attractions and activities, and the tourist market.

This research is carried out for tourists and residents in the Batu Hitam area. It focuses on what tourists and residents want. Mawar villa is located on Pantai Batu Hitam. For the locals, Pantai Batu Hitam is not a strange name. It is called Batu Hitam because of the stretch of Batu Hitam on the white sandy beach. Many people are familiar with Pantai Batu Hitam since it is a good location for activities. Mawar Villa is a place that not only provides accommodation, but also provides a place for events such as weddings,family days. Despitethat, Mawar villa still has the potential to be developed further.

Mawar Villa is less known to many because it doesn't have any package for their guests. Mawar Villa can provide an attractive package at a reasonable price. The parking lot should also be improved because the area is not very wide and not secure because there are coconut trees that grow everywhere in the area. Although Pantai Batu Hitam has a suitable area for activities, it still lacks facilities. Mawar villa should use this opportunity to provide packages to attract tourists to come to Mawar Villa. Mawar Villa can provide various interesting activities to attract more tourists such as banana boat, All-Terrain Vehicle (ATV), bicycle, parasailing and so on with the package Mawar Villa can increase the number of tourists staying at the villa. The advantage found in the villa is that it is located in the interior and close to the beach. Mawar villa can provide facilities for tourists to do various activities. Development in this area needs to be improved to maintain the population in Pahang.

2.4 Conclusion

At the end of the study of this chapter, the secret to a successful new product development idea is simple: focus on product discovery and solve the pain points of your target audience. Therefore, it is important to gather customer insights through customer surveys, interviews, social media interaction monitoring, and ethnographic research. Also, finding products should be an ongoing process. It should cover all phases of the product life cycle i.e. idea generation, idea validation, Proof of Concept (PoC) and prototype validation, Most Valuable Player (MVP) development, pre-launch and post-launch. In other words, product innovation should run through the entire life cycle of a product. To start the renewal of this project, it is something that needs to be emphasized so as not to make a mistake in implementing something that involves collaboration with businessmen and development.

3.0 METHODOLOGY

3.1 Research Design

Qualitative research is defined as a market research method that focuses on obtaining data through open and conversational communication. This approach is about "what" people think and "why" they think that way. For example, suppose a grocery store wants to expand its customer base. Systematic observations concluded that more men visitedthe store. A good way to determine why women aren't visiting your store is to conduct in-depth interviews with potential customers.
For example, when it successfully surveyed and sampled female customers who visited nearby stores and malls, it learned that the store did not have enough women's products. As a result, fewer women visit the store, which can only be understood by interacting with them personally and understanding why they don't visit the store, because there are more products for men than women.

Qualitative data collection is able to gather non-numeric data that helps us examine how decisions are made and provides us with detailed insights. To draw such conclusions, the data collected should be comprehensive, rich and nuanced, and the results should come from careful analysis.

i. The initial phase

This is the initial phase before implementation of the project. At this phase, students are divided into 4 teams and a team of 3 members. Next, each team are decided the title for each project. From the guideline given by the supervisor, there are two titles stated which are Tourism Development. Teams are required to choose one title and have to come out with the idea project. Hidden Gem in Mawar Villa had been chosen as the title. Besides, this project is based on the previous semester project. Before this package was created, each member in a team is given into a small group and required to do a little research according to the title given.

ii. Middle phase

Middle phase explained the development process to the project. First, teams are required to come out with elements that are interesting in the Mawar Villa area. Among them, there are several areas that are suitable to be used as tourist attractions such as Pantai Batu Hitam. According to the elements, heritage and recreation were chosen for the next process. To implement the project, the district of Batu Hitam was chosen as the project area because Batu Hitam is a tourist attraction because it is close to the beach area. In addition, this Batu Hitam area also has fresh air from the beach area in it. From there, other activities in the area of Mawar Villa are suitable for cycling activities. From these checkpoints, several interviews were made to find more about the attraction that needed to be added. Observations around the attraction were done by the team members. The purpose of these observations and interviews is to figure out what we can do, what we can see and what we can buy in those attractions. By the checkpoints, only 6 had been chosen to do the tour in Kuantan City and 7 checkpoints on Cherating because the distance between each checkpoint is near. Then, proceed with the map.

iii. Final phase

This final phase focuses on product making.After the checkpoints were discussed with teammates, the product proceededwith the real maps, packageinside Mawar Villa area's costing of the packages. And then from the detailed checkpoints, maps, package and costing, Mawar Villa comes out with a new package which is provided by the Villa's manager

3.2 Data Collection Method

There are several types of data that can be used in data collection. Therefore, data collection is the process of collecting, measuring, and analysing accurate data from various relevant sources to find answers to research problems, answer questions, and evaluate results. Accurate data collection is necessary to make informed decisions, ensure quality assurance and maintain research integrity. The following is a data collection process to obtain solid information to be used as an adequate answer to help in the development of Mawar Villa.

Data collection breaks down into two methods. As a side note, many terms, such as techniques, methods, and types, are interchangeable and depending on who uses them. One source may call data collection techniques "methods," for instance. But whatever labels we use, the general concepts and breakdowns apply across the board whether we're talking about marketing analysis or a scientific research project.

In this study, the researcher examines the data obtained with two types of methods, namely secondary data and primary data as data collection. The method that will be used in this study is a quantitative method.

The two methods are:
• Primary Data
• Secondary Data

i) Data Primary

Primary data is a type of data that is collected by researchers directly from main sources through interviews, surveys, experiments, etc. The sources of primary data are usually chosen and tailored specifically to meet the demands or requirements of particular research. Also, before choosing a data collection source, things like the aim of the research and target population need to be identified.

ii) Secondary Data

Secondary data is the data that has already been collected through primary sources and made readily available for researchers to use for their own research. It is a type of data that has already been collected in the past. Sources of secondary data include books, personal sources, journals, newspapers, websites, government records etc. Secondary data are known to be readily available compared to that of primary data. It requires very little research and needs manpower to use these sources.

3.3 Research Instrument

i. Survey & Interview

The friendly interview is to find out about Mawar Villa and potential elements to become a tourist attraction. The following is the questionnaire that was presented during the interview session with representatives of Mawar Villa.

No	Question	Respond
1.	Do you agree with our suggestions to improve the facilities and activities at Mawar Villa?	
2.	What other facilities should we improve?	
3.	Do you think adding more activities in Mawar Villa will attract more tourists ?	
4.	What type of activities are suitable for Pantai Batu Hitam?	
5.	Media social can be a good platform in promoting Mawar Villa as a choice of location to a holiday	
6.	How likely are you to recommend local products to others?	
7.	When buying a product, do you look to see where the product is made from?	
8.	Do you agree if Mawar Villa does a collaboration with others local products?	

3.4 Sampling and Population

The population of Pahang state in Beserah district is 548,014 people. Based on the observation of the Batu Hitam, the majority of tourists who travel in this area are from families. In terms of the achievement of info research around the Batu Hitam, 70% from the results of the observation of tourists who travel are aged between 20-39 years. The villagers also had a big impact on this project. In order to achieve the objectives of this project, there are 2 types of sampling design that have been implemented, one of which is, preparing survey questions and also an interview session with villagers, Mawar Villa employees and also tourists around the Batu Hitam.

3.5 Product Development Phase

The purpose of the product development is to attract new clients or develop partnerships with other businesses. It is a series of steps that included the conceptualization, design, development and marketing of newly created or newly rebranded goods or services. Product development includes a product's entire journey from the initial idea to after its market release. The objective of product development from a business standpoint is to cultivate maintenance and increase a company's market share by satisfying consumers demand. The main project development is to upgrade the facilities and activities that can be added in this area because it is very suitable. One of the challenges in developing this project is the possibility of not getting a response from the Mawar Villa's management because the credibility of the responses received from tourists is low as not all tourists get the message they want to convey.

The development of the project involved several stages before it took shape. The first phase involves discussing with the group the format of the project, the places to be explored, the themes to be implemented, and the title of the project and the main objectives of the project. After making some research for the places that need the improvements and sales increased, Villa Mawar is our choice that is located at near Batu Hitam. Villa Mawar is an accommodation for foreign and domestic tourists. However, this villa is not known by many people because it is in the countryside and it takes 30 minutes to get to this destination. Tourists prefer to travel to the city instead of exploring nature. Therefore, the main purpose of this project is to help improve the place by promoting some of the activities and facilities in Villa Mawar.

The second stage is a site visit to explore areas for improvement in accommodation. Based on the observation of the surrounding area, many facilities and activities can be added to attract the attention of tourists and make them more interested in vacationing in this rural area. Next, with observations in the area where the accommodation is located, a proposal paper can be implemented for the purpose of getting approval from the Villa's management.

One of the hottest topics on social media related to product development is the negative impact of tourism on the environment. These include the depletion of local natural resources, as well as pollution and waste issues. Tourism often puts natural resources under pressure through overexploitation, often where resources are already scarce. Tourism places enormous pressure on local land use and can lead to soil erosion, increased pollution, loss of natural habitats and increased pressure on endangered species. This effect will gradually destroy the environmental resources that tourists themselves care about.

3.6 Product Implementation Process

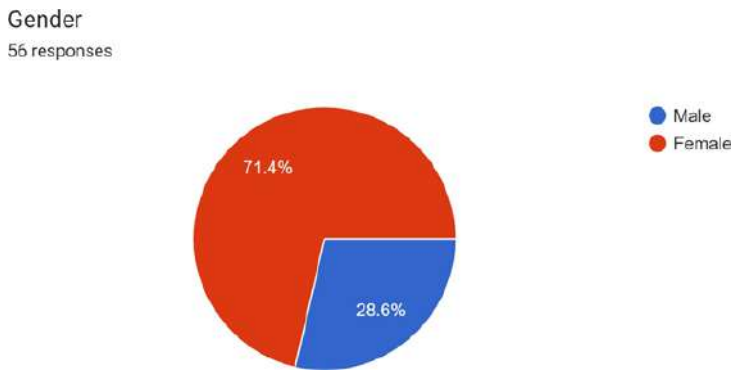
The product implementation process carried out by Hidden Gem at Mawar Villa is to create various activities and facilities for all visitors, be they villagers or tourists. Activities that will be added include quad bikes, glamping, biking and beach ball. In addition, also in this plan, our team wants to update the concept of this villa, including updating the concept of the main visual colour theme, the main vision of this villa being developed. Next, you come up with ideas for hosting dinner and wedding-related packages. With this package, the development of this villa can attract more tourists to stay. Our team will also produce a new website for Mawar Villa to make it easier for all users and tourists to explore Mawar Villa. With the existence of this website, users can undoubtedly learn more about the benefits of staying at Mawar Villa.

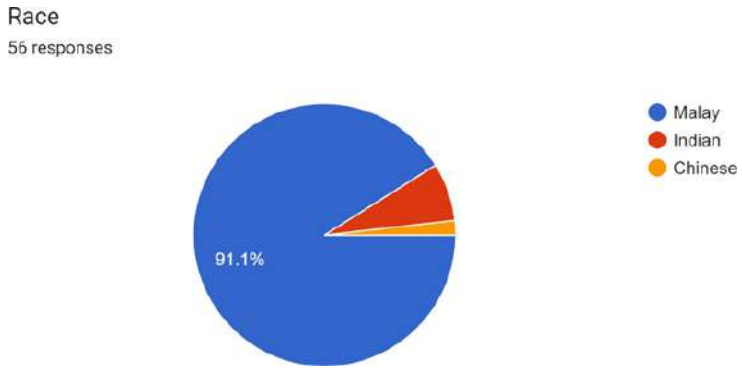
4.0 FINDING

4.1 INTRODUCTION

This chapter will explain more about the objectives of the project that will be implemented to achieve the planned goals and some project ideas, the importance of the project to the community, the environment and the economy around Mawar Villa. At the end of this chapter will describe suggestions for improving the project and summarise the entire chapter from the results of the project.

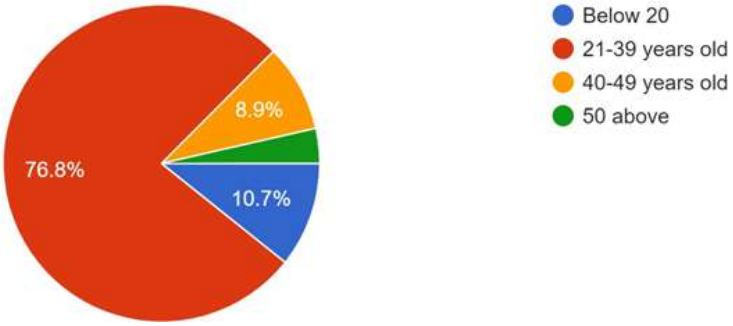
4.2 FINDING – SECTION A – DEMOGRAPHIC





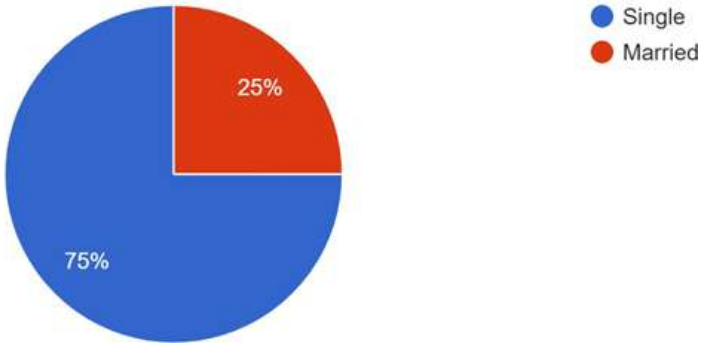
Age

56 responses



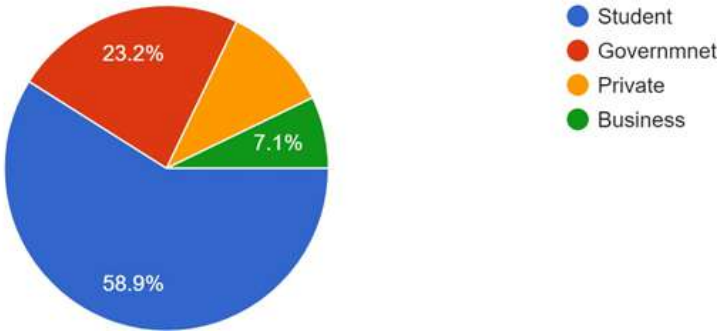
Marital status

56 responses



Occupation

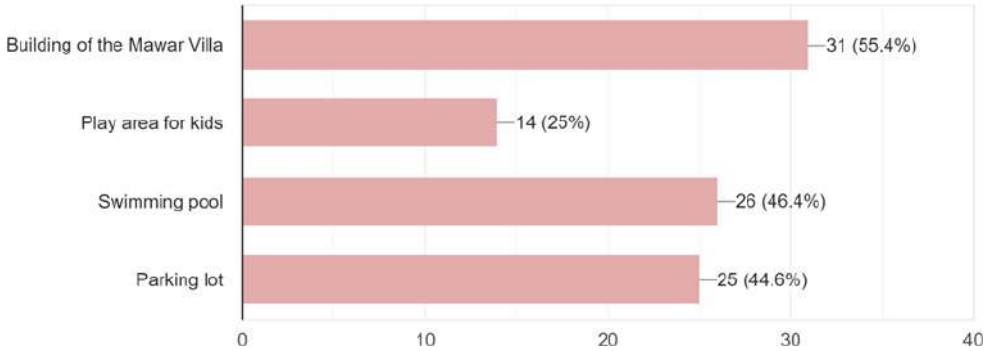
56 responses



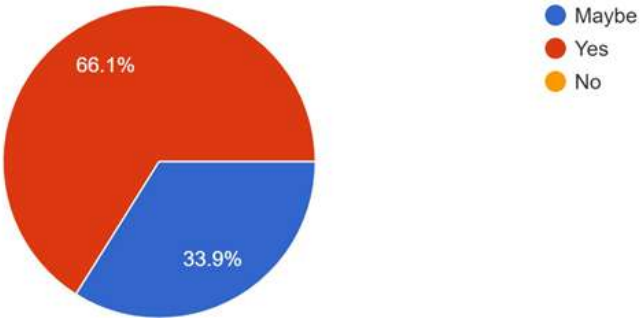
4.3 FINDING – SECTION B

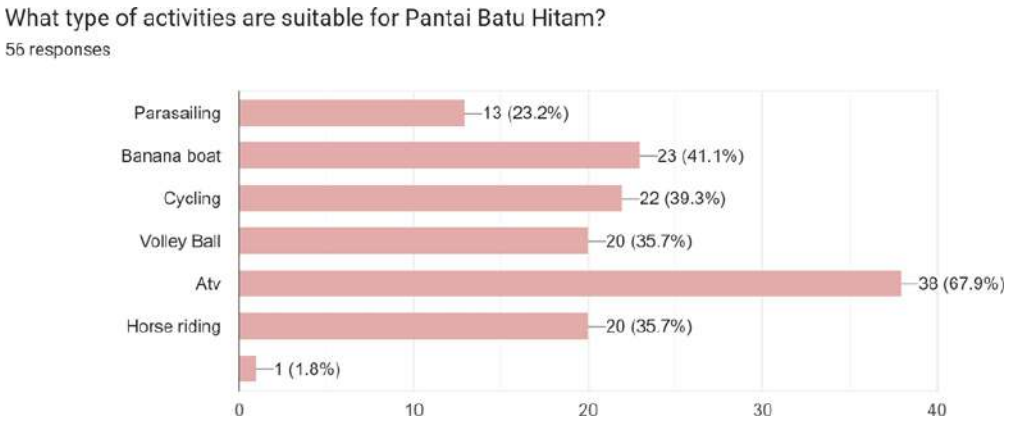
Do you agree with our suggestions to improve the facilities and activities at Mawar Villa?
56 responses

What other facilities should we improve?
56 responses



Do you think, with add more activities in Mawar Villa will attract more tourist ?
56 responses





4.4 FINDING – SECTION C

The average of this question says that 87.5% of 49 people agree about travelling in Pahang. While 12.5% equal to 7 people have never travelled in Pahang.

The most recorded record is 39.3%, equivalent to 22 people knowing Mawar Villa through the internet. While a total of 21 people , 37.5% found out about Mawar Villa from friends and relatives. A total of 12 people that is 21.4% heard about Mawar Villa accommodation from the media and the least record is 1.8% equivalent to 1.8 through flyers/books.

A total of 34 people which is 60.7% strongly agree with the statement social media is a good platform to promote Mawar Villa as a location for vacation. While a total of 6 people equal to 10.7% agreed. 3 neutrals equals 5.4%. A total of 7 people which is equal to 12.5% disagree and lastly 6 people equal to 10.7% strongly disagree with this proposal.

4.5 FINDING – SECTION D

From the observation of local product recommendation records to outsiders, the highest record shows as many as 27 people, 48.2% chose to show off the benefits of the product to outsiders. Meanwhile, a total of 15 people equal to 26.85 chose to recommend it by giving it for free as a trial. Finally, as many as 14 people, equal to 25% chose to give gifts to outsiders as a sign of giving suggestions to outsiders to continue supporting local products.

28 people equal to 50% have agreed to see where a product comes from before making a purchase, while a total of 25 people equal to 44.6% choose sometimes and the least amount of 3 people equal to 5.4% do not care about the place of production of the product.

73.2% of 41 people agree with the idea to create a collaboration between Mawar Villa and local products. While a total of 14 people, equal to 25%, still have doubts. The lowest record is as many as 1.8% of people disagree with this idea.

5.0 DISCUSSION

The following recommendations are based on the student's own idea towards improving the package in Mawar Villa. They represent the theoretical solutions in the sense that they have not been tested in practice, which means that it is not possible to determine whether they could be successful or not. However, the students believe that it is worth considering these recommendations.

6.0 CONCLUSION

At the end of this chapter, I can give a little comment that with the production of the Mawar Villa redevelopment project can help their company fly higher in the tourism industry. Everyone who develops a business, wants an increase in each of their sales. . Finally, with hope that this project can be sustainable and will be implemented in the future.

i) Package

Packages are something that is often made by every accommodation company regardless of whether the company has a large number of tourists or not. Based on the survey that has been done, it can be seen that Mawar Villa does not have an attractive package to attract visitors. This project has given suggestions to Mawar Villa to create some new packages for their accommodation development. Hence, the new package can encourage tour operators to promote and sell Mawar Villa packages to customers since then they finally did a new package.

ii) Collaboration

In order to further improve the development of Mawar Villa, the company manager should hold a collaboration with any party involved in tourism, for example the company management can come up with an idea to collaborate with any ATV renter that can be placed in the area around Batu Hitam beach.

iii) Promotion

Promotion is one of the ways to increase sales for everyone who has a business. Promotion is not only from selling, but it is also classified with advertising, personal sales, direct sales and communication within the public. Without promotion, package from Mawar Villa will never be know to the public and the tourists, below are the listed social media which are well know by its potential in promoting the products:

- Facebook

Facebook is one of the platforms that is often used by users aged 30 and over. Because for them, Facebook is the right platform to find more information. It provides a platform where the tourists can get the information they need regarding the place. Facebook also can advertise the ongoing promotions to people by age, interests, behavior, and location on Facebook.

- Instagram

Instagram has its own features that easily attract the attentionof users. In this era of GenerationZ, teenagers and adults are more friendly with the use of Instagram because this platform is easy to upload photos or videos with the result of adding filters to each video or photo. This platform is also easy to use because Instagram has created a feature where, for every sale, the price is listed.

- Tiktok

Tiktok is the right official platform for users to upload promotional videos of interesting places around the Mawar Villa area. With this platform, users can produce high quality videos to promote the places listed along with the package.

7.0 REFERENCES

Adi Bhat. 2023. Retrieved from https://www.questionpro.com/blog/data-collection-methods/. [6 May 2023]

Fansurina Abdullah & Muhammad Muslimi Abd Rahim. 2023. Retrieved from https://pahangmedia.my/sasar-13-juta-pelancong-ke-pahang-tahun-. [13 April 2023]

Indeed Editorial Team. 2022. Retrieved from https://www.indeed.com/career-advice/career-development/example-of-methodology-in-research-paper. [3 April 2023]

Norhayati Muhammad, Sarah Mohd Khaidi & Abu. 2020. New tourism product forecasting – application of Bass Diffusion Model and Grey Forecasting Model. Jurnal Data Analytics and applied mathematics 1(1): 037-043.

Wikipedia.org. 2023. Retrieved from https://www.en.wikipedia.org. [1 March 2023]

Sesi I
2023/2024

DIET GUIDER, WEBSITE.

Fatkhurrahman bin Manani [1], Umar Amirul bin Raslan [1], Norizah binti Md Idris [1], Nisrina Naifah binti Idham [1], Farah Zahirah binti Ridzuan [1]

[1]Politeknik METrO Kuantan, Pahang, Malaysia
*fatkhurrahmanmanani@pmku.edu.my

ABSTRACT

In Southeast Asia, Malaysia has the highest rate of obesity. Obesity and overweight are conditions characterized by abnormal or excessive fat accumulation that is harmful to one's health. There are now established techniques or approaches for calculating BMI. In the 19th century, Adolphe Quetelet created it. In the 1970s, researchers observed that BMI seemed to be a decent proxy for adiposity and difficulties connected to being overweight, particularly based on the data and report from the Seven Countries study. (WHO, 2010). The body mass index, or BMI, is a statistical measure that calculates body fat in both males and females of any age based on a person's height and weight. (Weir CB, Jan A., 2019). We can use the established scale to determine our nutritional status once we have measured our height and weight. Over 18.5 and under is considered underweight; 18.5 to 24.9 is considered normal weight; 25.0 to 29.9 is pre-obesity; 30.0 to 34.9 is class I obesity; 35.0 to 39.9 is class II obesity; and above 40 is class III obesity. The National Health Morbidity Survey (NHMS) 2019 and the Ministry of Health, 2014 report that 19.7% and 30.4%, respectively, of adults are obese and overweight. Obesity is a risk factor for young adults, particularly as they enter college and take on more responsibility for their daily food and lifestyle choices. (TC, 2018)

1.0 INTRODUCTION

1.1 PROBLEM STATEMENT

Given that most paid weight loss programs have time limits in addition to a rather hefty fee, most students with financial difficulties are unable to engage in them. This makes it difficult for students who struggle with their weight to find solutions, so they give up. Some of them also experience negative effects from their lifestyle choices, such as unhealthy eating habits and a lack of energy. These consequences can lead to depression, loneliness, and a decreased ability to socialize with peers or in class. Due to the strength of the antibodies, health hazards may not manifest during youth but will manifest in old age. Numerous illnesses, such as diabetes, heart failure, and other undesirable chronic illnesses, will manifest at that point. Student weight issues are particularly risky since being overweight can undermine a student's self-confidence when it comes to public speaking or giving a presentation in class. Create a website that can assist people in reaching their goal weight for free by offering a time-efficient program with multiple options. For instance, it can offer guidance on consuming a healthy daily caloric intake based on the food pyramid's recommendations by offering a range of menu options and simple-to-follow recipes. Conduct a survey by giving out a questionnaire to PMKu students, asking them about their requirements, desires, or suggestions for how to solve their weight problems in a way that best suits their financial situation and their schedules as students.

1.2 RESEARCH OBJECTIVES

i. To develop a website to solve their body weight issues without charge

ii. To guide them on their journey to get their ideal weight

iii. To survey acceptance among PMKU students on the needs of the website

2.0 LITERATURE REVIEW

2.1 DIARY MOBILE APPLICATION

A study has been done by Bee Kon Poh 2017 on the acceptability and compliance of young adults using a food mobile application. It is more convenient to report dietary intake by mobile phone because of the high accessibility and camera functionality. This study aims to evaluate the acceptability and compliance of their user's and identify issues with the food app and collect recommendations to improvise dietary assessment through qualitative and quantitative methods. Twenty-eight university students Report their dietary intake using a food mobile application for seven days. They also attend to one of the five focus group interviews.

Through the seven days period of observation there is 42% decline in reporting compliance. Each day, 4.8 meal data were uploaded. Meanwhile, an average of 5.9 days were reported. Based on questionnaire, Majority of users agreed that the food app is useful (69.3%), easy to use (77.1%), attitude (73.6%), social influence (33.4%), mobile phone experience (91.1%), enjoyment (62.6%), however the intention to use scored (38.1%).

The result of the focus group interviews highlights the topics of mobile application features, potential use, utility issues, and suggestions of improvements. In conclusion, the mobile food app was well accepted by the users which are young adults.

2.2 CORNERSTONES OF HEALTHY EATING PATTERNS

Alissa D Smethers 2018 reported that a clinical trial shows a key strategy for weight management that can be applied across dietary patterns is to reduce energy density. A variety of practical strategies and tools can help facilitate successful weight management by reducing energy density, providing portion control, and improving diet quality.

A number of dietary patterns can lead to weight loss such as macronutrient patterns and food-based patterns for weight loss. In recent years, dietary guidance has emphasized the importance of considering whole diets and patterns of consumption rather than a reductionist approach that focuses on single foods or nutrients. For example, the 2015 Dietary Advisory Committee recommends that individuals who have overweight and obesity achieve weight loss by adopting a healthy eating pattern.

Add a low-energy-dense first course. Another way to increase the proportion of low-energy-dense foods and reduce dietary energy density is through the addition of a low-energy-dense first course. "Filling up first" with a 100- to 150-calorie broth-based soup, leafy green salad, or whole fresh fruit before a meal is a simple strategy to lower intake of higher-energy-dense main dishes and decrease meal energy intake. Daily intake patterns can help to lower dietary energy density. Eating breakfast every day help with maintenance of weight loss. Meanwhile, evidence on the influence of snacking on body weight is mixed, but it does indicate that choosing low-energy-dense snacks, such as vegetables and fruits, helps moderate energy intake.

Providing individuals with tools and resources for managing portion sizes can help them make sustainable changes to their dietary patterns. Smartphone applications provide another tool that may help control energy intake by providing a platform for individuals to monitor their dietary intake. Self-monitoring helps individuals become aware of the foods and portion sizes they are consuming, and has been associated with increased and sustained weight loss, Digital photography can be used to help monitor intake by providing estimates of food portion sizes, 103-105 However, using photographs with smartphone applications has limitations. It is difficult to measure and assess the energy density of the food in a photograph without knowing the recipes, and this limitation makes it challenging to estimate a patient's energy intake. Portion control tools using smartphone applications and photographs seem promising, but most are not evidenced-based, so they require further development in order to be improved for use in weight loss interventions.

2.3 DIETARY INTAKES AND OBESITY OF MALAYSIAN ADULTS

A study reported by Yi Yi Lee 2019 was conducted to determine the dietary intake of a sample of Malaysian adults and its relationship with obesity indicators. This study evaluated the dietary intakes of the two sexes and looked at whether food consumption met nutritional recommendations. Using a standard protocol, the waist circumference and body mass index (BMI) of 490 adults in Malaysia were measured of these, 422 adults had their dietary intakes thoroughly examined for three days.
More than half of the participants are overweight (52.8%). Based on the data analysis, 1,550 kcal/day is the mean energy intake. In terms of energy and macronutrient intake, male participants had higher rates than females. Nonetheless, their energy contribution and protein intake surpassed the recommended range. They also eat fewer fruits, vegetables, and milk products than the recommended number of servings for a healthy diet. Compared to the female participants, the males consumed substantially more meat, fats, oils, carbohydrates, and sweets. The study found that only the carbohydrate intake among the chosen dietary intake variables had a negative correlation with BMI.
The assessment was about the relationship between the obesity indicators and the food intakes of a sample of adult Malaysians. The findings show that in order to lower the rates of overweight and obesity among Malaysians, modifications to diets are required

3.0 METHODOLOGY

3.1 MATERIALS

The instrument used in data collection to identify the nutritional status of Semester 5 Kuantan MetrO Polytechnic students is a digital scale and also a measuring tape, by using that equipment we record the weight and height of all students and then make an analysis to obtain the percentage for each category of their nutritional status.

3.2 METHOD OF DATA COLLECTION

We gathered all DHF Semester 5 students in a class, took their height and weight measurements and recorded the data, and made an analysis as shown in the diagram below. For data collection methods we use quantitative method. Quantitative research is a type of educational research where the researcher decides what to study, asks specific questions, narrows the scope of the question, collects quantifiable data from participants, analyzes the numbers using statistics and conducts inquiry in an objective and unbiased manner.

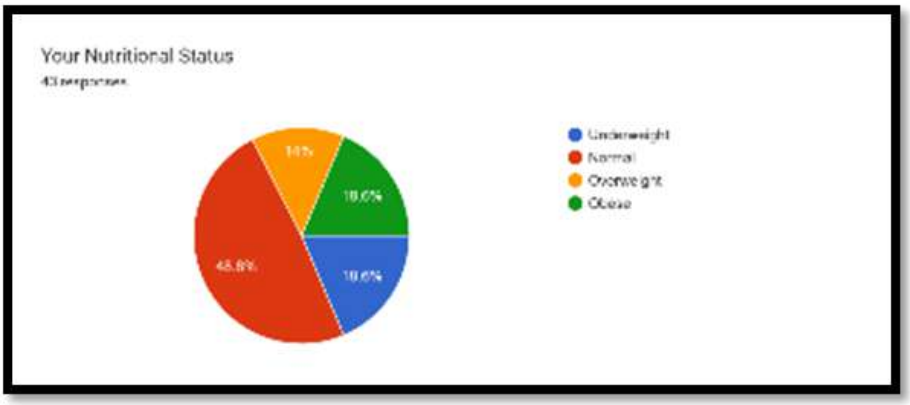


Figure 3.1 Body Mass Index (BMI) chart

From Figure 1.2 of the Body Mass Index (BMI) chart, we can see that less than half of the students have a normal BMI. This is something that is not wanted among PMKu students. For this reason, we try to help among PMKu DHF semester 5 students only.

3.3 PROCESS METHOD

To create a website nowadays is quite easy because there are many website builders available on google. With that, we chose to use a website builder called 'Wix'. We chose 'Wix' because it is very easy to use for people who are less skilled in the IT field. Also, we chose Wix because it's free to use. Most of the existing website builders usually pay to create a website.

Figure 3.2 Wix

Wix was founded in 2006 by Israeli developers Avishai Abrahami, Nadav Abrahami, and Giora Kaplan. With its main office in Tel Aviv, Wix is backed by investors Insight Venture Partners, Mangrove Capital Partners, Bessemer Venture Partners, DAG Ventures and Benchmark Capital. The company entered an open beta phase in 2007 using an Adobe Flash-based platform.
To use this Wix, you need to sign up like figure 3.2 above. You are given the choice of whether you want to sign up using Facebook or Google. Because of this, we say that this Wix is user-friendly. Anyone is eligible to build their own website if you have a Google or Facebook account.

3.4 RESEARCH DESIGN

The purpose of the study design is to provide insight into the methods applied in this research. The research design defined here is based on the method used to collect information. The purpose of this research is to identify the needs and requests for research in the nutritional status of DHF Semester 5 students. From the analytical study, the understanding of the literature studied and the analysis of the questionnaire will lead to the initial need for the web. The Website Builder was used as a methodology for the DIET GUIDER WEBSITE because the immediate requirement for the next step was to design a system, followed by designing a calculator template and putting it into the web to get more details about nutritional status.
There are several features loaded into the DIET GUIDER WEBSITE, among which are calculations to obtain Nutritional Status, after knowing their nutritional status, then we will go to the next feature which is the second calculation to guide them to get the ideal body weight in the time period they themselves determine by entering the total number of days for which they want by reducing the daily calorie intake.

In addition, there are also third template calculation features that allow them to add or reduce weight by entering information in the calculation template. DIET GUIDER also provides a variety of healthy and appetizing recipes to allow users to cook them at home to control excess oil intake.

The Food On The Go service is provided for users who have limited time to cook by ordering online without being charged any delivery charges around Kuantan City.

4.0 FINDING (Data analysis)

Based on the answers from our acceptance questions, Kuantan Metro Polytechnic students (PMKU) especially DHF semester 5 students agree with the web that we have developed. In addition, our web successfully attracts students because our web can be accessed for free at any time for all students. Next, this website also successfully achieves the wishes of students such as wanting to lose or gain weight. Finally, the students who have tried to access our website have also expressed various opinions to further improve or raise the standard of the website by adding more features.

We also hope that this website that we have developed can further expand the scope of our project and can help everyone out there to get an ideal weight. We plan to create a website because we feel that young people these days are closer to their mobile phones. Automatically we can shape teenagers outside to practice healthy food and lifestyle.

5.0 DISCUSSION

Based on the survey we have conducted, we found that our website needs some improvements. Some recommendations are, firstly, website theme design or colour. Ensure the colour scheme is user-friendly align with now a day fast changing trend, with good contrast for readability. Secondly, a user-friendly interface to easily explore and select suggested exercises. Implement a smart suggestion algorithm for exercises based on user preferences, fitness goals, or previous activities. Also, consider integrating instructional videos or images for each suggested exercise to enhance user understanding. Thirdly, use pop-up animations judiciously highlighting important information or calls to action. It is also to ensure that pop-ups are not intrusive and can be easily closed by users. Thirdly, add more recipe in the website by Regularly update and expand recipe database to keep content fresh and encourage users to return. Other than that, allow users to submit their recipes or provide feedback on existing ones. Most importantly, categorize recipes for easy navigation, such as by meal type, dietary restrictions, allergen, or cuisine. Lastly, create our own domain to make it easier to search on Google. That can be done by, register a custom domain that reflects the identity and purpose of the website. Meanwhile, optimize website's SEO (Search Engine Optimization) to improve visibility on Google. It is Important to ensure that the domain is easy to remember and related to the content or services you provide.

6.0 CONCLUSION

In conclusion, the "DIET GUIDER" website aims to guide PMKu students in achieving their ideal body weight by providing features that can help with the problem, among which we provide a menu of healthy dishes that are easy to order, along with some recipes that are easy to prepare and nutritious. In addition, we also provide a daily calorie calculation that should be taken or reduced and a calculation to gain or lose weight according to the information that has been filled. It aims to help students who have weight problems at the same time do not have enough money to follow weight loss programs that are out there. In addition, promote healthy eating habits, and reduce health problems caused by excess weight and excess calories found in food bought outside.
The impact of using a diet website is multifaceted, with both positive and negative aspects. Users should approach these platforms with a critical mindset, seeking personalized advice when necessary and focusing on sustainable, healthy practices. It's crucial to recognize that individual responses to diet websites can vary, and what works for one person may not work for another.
Furthermore, the success of incorporating a diet website into one's lifestyle is contingent upon personal adherence and the ability to integrate recommended changes into daily routines. The cultivation of a supportive community can enhance accountability and motivation, but users must remain cognizant of the unique nature of their health needs

7.0 REFERENCES

TC, Y. (2018). Dietary habits and lifestyle practices among university students in Universiti Brunei Darussalam. NATIONAL LIBRARY OF MEDICIAN.

Wan Mohamed Radzi CWJ, S. J. (2019). Analysis of Obesity among Malaysian University Students: A Combination Study with the Application of Bayesian Structural Equation Modelling and Pearson Correlation. International Journal of Environmental Research and Public Health.

Weir CB, Jan A. (2019). BMI Classification Percentile And Cut Off Points. EROPE PMC.
WHO. (2010, MEI 06). A healthy lifestyle - WHO recommendations. HISTORY BMI.

Lee, Y. Y., & Wan Muda, W. A. M. (2019). Dietary intakes and obesity of Malaysian adults. Nutrition research and practice, 13(2), 159–168.

Smethers, A. D., & Rolls, B. J. (2017). Dietary Management of Obesity: Cornerstones of Healthy Eating Patterns. Medical Clinics of North America, 102(1), 107-124.

Chen, Y. S., Wong, J. E., Ayob, A. F., Othman, N. E., & Poh, B. K. (2017). Can Malaysian Young Adults Report Dietary Intake Using a Food Diary Mobile Application? A Pilot Study on Acceptability and Compliance. Nutrients, 9(1), 62.

MULTIPURPOSE SAUCE

Siti Rohani Binti Mohd Idris, Muhammad Aliff Ahzha Bin Mohd Afandi 1, Nurzetty Farisha Binti Zulazri, Wan Nur Alyaa' Binti Wan Asyraf, Damia Khalish Binti Khairul Zaman

Tourism and Hospitality Department
Polytechnic METrO Kuantan

ABSTRACT

The objective of this product is to develop a versatile lemongrass-based product that can open up new uses for the lemongrass. Dumping of lemongrass on the market is a frequent problem. Lemongrass is only used in food. Furthermore, Lemongrass is also rarely used as a product. Due to the use of natural components, this product aims to make it easier for students, lecturers, and the general public to prepare quick, easy, and healthy meals. The age range for this product is from 12 to 60. Lemongrass offers various health benefits, which is why this product is produced. The purpose of this product is to make it easier for individuals to cook wherever they are. In addition, this product was created to make it easier for users to prepare a variety of different cuisines. With this product, it can attract the interest of consumers who do not like to cook and persuade them to use the product. This product is very easy to carry because of the high-quality packaging.

1.0 INTRODUCTION

-Problem Statements

The first issue raised is the widespread usage of lemongrass in medicine. Lemongrass is most commonly utilized as an essential oil, where it is used to treat digestive and respiratory issues. Lemongrass has a lot of antioxidants, helps the body regulate cholesterol and enhances overall health. The body and mind can benefit greatly from the nutritional content of lemongrass. It has vitamins including folate, vitamin B1, vitamin A, vitamin B2, vitamin B3, and vitamin B6 in it. Additionally, it is abundant in healthy forms of minerals like calcium, zinc, iron, copper, and potassium.

The second problem statement is that the sauce in the market does not have a variety of flavors and its uses are limited. Most of the sauces on the market have only one flavor and cannot be used to make a variety of dishes because of their very limited use. Like chili sauce is only used to add flavor, but not all dishes are suitable for add on chili sauce

-Objective

Making lemongrass a food product other than medicine. Where it can be consumed by our body and the lemongrass content used is more than the essential oil used in medicine

The second objective is to create a sauce that has a variety of flavors other than chili and tomato. In addition, to create a sauce where it can be used in various types of cooking such as sautéing, marinating and as a dip.

2.0 LITERATURE REVIEW

-Related topic

Most people know that lemongrass is often placed in cooking as a flavour enhancer. Lemongrass has many specific properties. Lemongrass is also widely used in traditional medicine to treat various health problems (article from JiwaSihat, 2023). Therefore, by creating this innovative product which is a multipurpose sauce, where this product is produced to produce the latest product from lemongrass and make lemongrass as the main ingredient in the production of this product.

-Theory/Conceptual/Model

The Poaceae family, which includes lemongrass (also known as Cymbopogan citratus worldwide), is well-known for producing cellulose, hemicellulose, and lignin. This review discusses the composition, uses, and characteristics of lemongrass. This plant's antiseptic, antibacterial, antifungal, and anti-inflammatory qualities make it widely utilized in pharmaceutical activities. Prior research had mostly concentrated on the biological activities of its constituents in food preservation, medicinal applications, cosmetics, and agriculture. (Characteristics and Properties of Lemongrass (Cymbopogan Citratus): A Comprehensive Review, Zatil Hafila Kamaruddin)

Early, thorough studies on lemongrass extracts (tea) may have shown contradicting results, but the revival of claims made by practitioners of traditional medicine called for more investigation into the tea's effectiveness. Several biocompounds are present in lemongrass tea's decoction, infusion, and essential oil extracts. In order to substantiate the initial pharmacological claims, lemongrass tea's antioxidant, anti-inflammatory, antibacterial, anti-obesity, antinociceptive, anxiolytic, and antihypertensive properties were clearly demonstrated. In many underdeveloped nations, practitioners of alternative medicine widely regard lemongrass tea as non-toxic and non-mutagenic. (Olorunnisola et al., 2014)

One of the most widely used herbal remedies in Brazil, lemongrass is atoxic but lacks hypnotic or anxiolytic qualities. It is believed to have CNS-depressant effects. (Journal of Ethnopharmacology Volume 17, Issue 1, July 1986, Pages 75-83)

Lemongrass is an aromatic plant that has antibacterial and antioxidant qualities. It is used to make essential oils and to make therapeutic tea. Studies in the past have demonstrated that phenolic chemicals linked to health benefits can be found in extracts of lemongrass leaves. (Blends of lemongrass derivatives and lime for the preparation of mixed beverages: antioxidant, physicochemical, and sensory properties, Dirlei Diedrich Kieling, Sandra Helena Prudencio, 09 August 2018)

Since ancient times, lemongrass essential oil has been utilized in traditional medicine as a treatment to enhance immunity, stabilize menstrual cycles, improve circulation, and encourage digestion. Perfumes, flavours, detergents, and medications are also made with it. Steam distillation has been proven to be the most effective method for extracting lemongrass essential oil since it allows for the extraction of the oil without compromising the quality of the final product. (Majewska et al., 2019)

In addition to lemongrass, bird's eye chili is another ingredient in this product. Adapted from International Journal of Stress Management and Bioresources. The underappreciated bird's eye chili (Capsicum frutescens L), which shares many characteristics with commercially grown chili species (Capsicum annum L), is still a crop. Similar to other chilies, bird's eye chilies are high in pro-vitamin A (β Carotene), vitamin C (ascorbic acid), and vitamin E (tocopherol), which is widely recognized for its essential role as an antioxidant. 69% of its pungency is attributed to capsaicin (N-varillyl-8-methyl-6-nonera-mide, C18H27NO3) and di-hydro capsaicin. The ideal pH range for bird's eye chili growth is 6.0 to 7.0 in the soil. It grows in climates where daytime highs during the growth season range from 18 to 27°C, and nighttime lows between 15 and 18°C. The majority of bird's eye. (International journal of Bio-resource and Stress Management, Year: 2012, Volume: 3, Issue: 3)

Based on the functional characteristics of soy sauce and the metabolism genes of strains for fermentation journals, we utilize Shrimp Fan Cap brand soy sauce. In China, soy sauce is regarded as the most significant culinary condiment due to its unique flavour and aroma. Soy sauce, which is highly prized for its distinct flavours and tastes, also has numerous health benefits, including 4-hydroxy-2(or 5)-ethyl-5(or 2)-methyl-3(2H)-furanone and 4-ethylguaiacol. Asian nations have long used soy sauce in their cuisine. Given the distinctive flavours and tastes' quick rise in popularity, it's critical to have a thorough understanding of their functional advantages. In the meanwhile, the genes that code for the primary metabolic enzymes play specific tasks. This study is a useful resource for the several metabolic genes found in strains and the most recent information on. (Functional properties of soy sauce and metabolism genes of strains for fermentation, 07 November 2012)

Because of its unique Flavors, soy sauce has been used extensively throughout the world as the primary condiment in Asian countries to improve the flavour of food while it is cooking. Soy sauce has a distinct flavour that combines umami, sour, salty, and sweetness. In addition to lemongrass, bird's eye chili is another ingredient in this product. Adapted from International Journal of Stress Management and Bioresources. The underappreciated bird's eye chili (Capsicum frutescens L), which shares many characteristics with commercially grown chili species (Capsicum annum L), is still a crop. Similar to all other chilies, bird's eye chilies are abundant in pro-vitamin A (β Carotene), vitamin C (ascorbic acid), and vitamin E (tocopherol), which plays a crucial. (International journal of Bio-resource and Stress Management, Year: 2012, Volume: 3, Issue: 3)

Many benefits found in black pepper such as antioxidant, antifungal, antibacterial, antiepileptic, increase libido, anti-diarrhea associated with piperine, the main ingredient in black pepper. This has led to a large body of research on the chemical composition of black pepper and its pharmacological properties. (Wulandari, 2021)

Garlic is one of the ingredients used in this product. It has been proposed that garlic affects a number of cardiovascular risk factors. Garlic and its organic sulfur component, allyl, have also been demonstrated to be potent cancer-process inhibitors. It's critical to develop biomarkers to determine which people benefit most from garlic's ability to inhibit the development of carcinogens, bioactivation, and tumor growth. Cloves, garlic powder, and garlic oil all interfere with cyclo-oxygenase-mediated thromboxane production, which has antiplatelet and anticoagulant properties. It has also been discovered that garlic and proton pump inhibitors work in concert to combat Helicobacter pylori. In addition to its antioxidant properties, the active ingredient allicin can influence atherosclerosis through lipoprotein alteration and inhibition. Next ingredients are shallot sclaes. Shallot scales (ROS) contain large amounts of flavonoids that are responsible for their reported antioxidant activity, immune enhancement and anticancer properties. (Rana et al., 2011)

The term "palm sugar" also refers to sugar ants. Sap or stem juice from palm plants is the source of this sugar. While granulated sugar has a glycemic index of up to 58 with a total of 400 calories in 100 grams of material, palm sugar (palm sugar) has a lower glycemic index value of 35 with a total of 368 calories in 100 grams of material compared to cane sugar. (National Standards Agency, 2004). (Listyaningrum et al., 2018)

3.0 METHODOLOGY

-Product Development

1. Prepare the ingredients: Lemongrass, sweet chili sauce, water, oyster sauce, soy sauce, palm sugar, bird eye chili, garlic and black pepper
2. Put all the ingredients in the blender
3. Grind till smooth
4. Then bring the sauce to a simmer at medium heat on the stove

-Materials and tools

1. Chopping board
2. Paring knife
3. Chef knife
4. Wok
5. Spoon
6. Food processor
7. Digital scale
8. Ladle
9. Bowl

-Quantitative/Qualitative/ Mix Method (Questionnaire Survey/ Interview/ Both)

This topic is a continuation of topic 3, which is data collection, Respondents obtained are from PMKu staff, DHF and DUP students. The data obtained through questionnaires and has been recorded and the overall data has been analyzed. In addition, a total of 80 respondents filled out the provided questionnaire. This topic will summarize all the data obtained.

-Instrument Development (Questionnaire)

In this chapter will explain in more detail about the data that has been collected through Statistical Software Suite (SPSS). Data was collected from the distribution of questions through google form and then entered into Statistical Software Suite (SPSS). The distribution of this question was carried out when the product sample was given. With this, we can see more detailed results through responses from staff and students at PMKu regarding the product that has been produced, which is Multipurpose Sauce

4.0 FINDING (Data analysis)

This respondent consists of an age group starting from 18 years old and above. This graph shows the number of respondents found to be 18-20 years old, indicating the majority age for this data. This is because this product is mostly focused on PMKu students. For respondents aged 18-20 years there are 64 respondents equal to 80%. While for respondents aged 21-25 years, 6 respondents represent 7.5%. Next, for the age of 26-30 years, there is 1 respondent equal to 1.3% and aged 35 and above get 9 respondents equal to 11.3%.

5.0 DISCUSSION

This chapter will explain the conclusions that can be made from the research findings from the Multipurpose Sauce that we have implemented. The conclusion of the study shows that lemongrass can also be used as a product called Multipurpose Sauce apart from being used in medicine. To make this Multipurpose Sauce there are many steps to implement. This Multipurpose Sauce can be used in many ways and this product has achieved the objective we wanted. Some improvements that need to be corrected in terms of texture so that this product can go further in the future.

6.0 CONCLUSION

The results of the research that has been carried out show that the staff and students at PMKu can accept the product innovation that we have done, which is Multipurpose Sauce where it is made from lemongrass as the main ingredient. Next, this study successfully discovered the method of using lemongrass to produce a Multipurpose Sauce that has many uses such as marinating, dipping and stir-frying. The ingredients used in this Multipurpose Sauce also have various way that can be used for users, namely PMKu staff and student especially lemongrass which is full of nutrients and lemongrass is also the main ingredient in the making of this Multipurpose Sauce.

This Multipurpose Sauce is able to be marketed anywhere because the use of this sauce which can be used in various ways such as stir-frying to make fried rice, as a marinade for barbeque and as a dip with keropok lekor, tauhu begedil and tempe where it can replace chili and tomato ketchup. The ability of this Multipurpose Sauce is able to attract people's interest especially to the staff and students at PMKu. This Multipurpose Sauce can save the user's time to cook faster and there is no need to use other ingredients because this Multipurpose Sauce has a complete set of uses.

Finally, we have succeeded in producing our innovative product, Multipurpose Sauce, which is based on lemongrass and can be used in many ways. Overall, our objective has been achieved and the acceptance of this innovative product among PMKu staff and students has a very positive view based on the analysis of the data we have collected in chapter 4

7.0 REFERENCES

Rana, S. V., Pal, R., Vaiphei, K., Sharma, S. K., & Ola, R. P. (2011). Garlic in health and disease. In Nutrition Research Reviews (Vol. 24, Issue 1, pp. 60–71). Cambridge University Press. https://doi.org/10.1017/S0954422410000338

Wulandari, W. (2021). Review: Black Pepper (Piper Nigrum L.) Botanical Aspects, Chemical Content, Pharmacological Activities. International Journal of Pharmaceutical Sciences and Medicine, 6(1), 83–91. https://doi.org/10.47760/ijpsm.2021.v06i01.007

Rana, S. V., Pal, R., Vaiphei, K., Sharma, S. K., & Ola, R. P. (2011). Garlic in health and disease. In Nutrition Research Reviews (Vol. 24, Issue 1, pp. 60–71). Cambridge University Press. https://doi.org/10.1017/S0954422410000338

Wulandari, W. (2021). Review: Black Pepper (Piper Nigrum L.) Botanical Aspects, Chemical Content, Pharmacological Activities. International Journal of Pharmaceutical Sciences and Medicine, 6(1), 83–91. https://doi.org/10.47760/ijpsm.2021.v06i01.007

https://www.healthshots.com/healthy-eating/superfoods/lemongrass-health-benefits-and-5-ways-to-use-it/

GREASE TRAP (FILTER)

Ahmad Saiful bin Manaf , Nur Aireqa Mastura binti Adam Matthew, Nurul Airanis binti Aziz, Nurnadzatul Syahira binti Noryazmi

Tourism and Hospitality Department
Polytechnic METrO Kuantan

ABSTRACT

A grease trap is the dirt that is under the sink usually in restaurants and hotels, this happens because there is a lot of excess waste that is thrown into the sink and causes oil, fat, and food waste to accumulate under the sink. It is even worse if the waste is not cleaned often, this will cause the sink to clog and emit a foul smell in the kitchen. Because of that, we are looking for a way to solve the problem easily and quickly. We created a product which is a 'dreck distill' product. This aims to provide convenience to food industry workers to solve their problems in ensuring that the residual dirt in the grease trap container is always clean and odorless, in addition, this product can help reduce their burden in cleaning activities. When we were studying in the polytechnic kitchen, a few students tried to avoid cleaning the grease trap because they did not feel comfortable and were amused when trying to clean the dirt. Therefore, we created this product so students no longer feel uncomfortable cleaning the stains in the grease trap.

1.0 INTRODUCTION

Nowadays many people are venturing into the field of cooking and taking advantage of their career to generate daily income. Because of that, it can open opportunities for people to create a product that can be used in the kitchen and help solve the problems faced. in the kitchen. Therefore, we also took this opportunity to think together to help solve the problems faced in the industrial kitchen. The problem we are trying to solve is about the dirt under the kitchen sink better known as 'dreck distill '. Grease trap means grease trap that is oil and fat, the purpose of this grease trap was created because it aims to help separate air from food waste and oil, grease trap is also known as a grease preventer and recovers oil from pipelines.

The product we created is based on the weaknesses that occur in industrial kitchens, for example, Metro Polytechnic kitchens. This campus offers 2 study specialties, the first is for tourists and the second is for halal practice food (DHF). This problem focuses on students who take. halal practice food (DHF) because it involves the use of the kitchen for those special students in the subject that has been set. As we all know if it involves cooking there will be problems in the kitchen, all students who take that special feel burdened because there are many weaknesses in the kitchen. Therefore, our lecturers are trying to solve the problems we face and have tried various ways to make it easier for students to solve their problems and help them save time cleaning the dirt found on the bottom of the kitchen. emitting a foul smell, the industry also makes it difficult for students to wash because there is a lot of fat, oil, and food waste in the area. Therefore, they have to work hard so that the traces of oil, fat, and food waste disappear.

The importance of research has been studied to create this product, in addition to helping polytechnic kitchens, it can also help entrepreneurs in the industry to solve the same problems faced by poly students. Our purpose is to create this product because when cleaning dirt it takes a long time and eats it up. a lot of energy to clean it. Therefore, we realized this product to reduce the problems faced.

PROBLEM STATEMENTS

The main thing that affects this problem is that the grease and waste get trapped in the oil trap due to the disposal of oily and greasy food waste directly into the sink. This problem also occurs because the user does not filter the waste first. In addition, the user also does not clean and maintain and clean the oil trap properly.

Maintenance is not carried out perfectly probably because the user has difficulty in cleaning the oil trap. Or maybe it's because they don't have an awareness of the pollution that may occur due to oil traps that are not cleaned perfectly. For example, the oil trap will be blocked and the water cannot flow out through the channel, causing the wastewater to fill up in the oil trap and overflow. This can affect the cleanliness of the kitchen because there will be bad smells, wet kitchen floors, and more. All these things will make it difficult for users to do work in the kitchen.

Therefore, after we identified the problem that occurred, we thought, if there is a disposable tool that can be used to filter waste and oil from entering the accumulated water, of course, it can help the user to maintain the cleanliness of the oil trap because the user does not need to scrub the place again and even just remove the tool and throw it away, then replace it with a new one for the next day. Based on our discussion with our supervisor, we have already created a disposable tool as described above and we named it Grease Filter.

The impact of our products on consumers is to be able to shorten the time during kitchen cleaning. In addition, it can lighten the work, if the user no longer needs to scrub the oil trap. This can also keep the kitchen clean and prevent water from overflowing. It can also avoid premises in compounds under the Local Government Act 1976 and the Food Establishment By-law 1991.

OBJECTIVE

Our objective in manufacturing this product is to make it easier for workers in the food industry and Kuantan Metro Polytechnic students who use the polytechnic kitchen in the process of cleaning the grease trap. Besides that, we also want to save the time it takes to clean the grease trap. Next, we want to know the level of effectiveness of our products in terms of resistance to heat and the rate of holding dirt and oil. We also want to know how far our products will be accepted by Kuantan Metro Polytechnic students and workers in the food industry. Finally, we want to know if our product can help reduce time and lab consumption or not if they use our product.

2.0 LITERATURE REVIEW

Somasundram a/l R. Vethiah (2016)
• Is a type of device installed in food premises to separate food waste and oil from wastewater. It aims to filter the wastewater from the premises before the water is channeled into the sewage system. The installation of an oil trap is the most practical step in dealing with the management and cleaning of food waste, oil, and grease.

Dinny Adriana (2023)
• A tool used to maintain the cleanliness and health of the airways that are usually used to wash kitchen utensils. Especially during the manufacturing process, food containing a lot of fat can clog pipes and drains.

Specialist oil separator (2018)
• Is a tool to trap fat or oil and food waste. This tool helps to separate the oil from the water so that the oil does not clump and freeze in the drainpipe and clog the pipe. Using a grease trap is one of the most important parts of wastewater management.

Stef Ardian Arika Jaya (2023)
• Grease trap that is usually installed under the kitchen sink and its function to separate fat and oil from water. In a fat trap system, there are at least two to three partitions that are connected. Wastewater mixed with oil and food waste will go into the first room. Dirt will settle to the bottom of the fat separator, and oil will float to the top.

Singapore's National Water Agency (2023)
• It is a catch, tank, or pit located above or below ground that allows the separation of grease from used water. Fats, oils, and grease discarded from food manufacturing are the main cause of blockages in public sewer systems. Without a properly sized and maintained grease trap, grease will enter the sewer and accumulate.

3.0 METHODOLOGY

Nowadays there are many activities that people do in their daily life. Jobs that are done to continue daily life. With technology that is developing day by day from year to year, many things are designed and innovated to make activities easier to do and can save time and energy. Therefore, in this topic, we will talk about how this product is produced and used and the materials we will use to create the product we want to provide. As we all know, in the food industry we will not run away with the problem of the kitchen sink being clogged, we plan to create a product that can solve the problems that often occur in the kitchen of this industry. As students who take the subject of halal food, we feel the same difficulty with the food industry because we also use the kitchen to carry out our learning activities there.

The product that will be created will use materials that are easy to find and easy to use. Among the materials are oil paper, nets to catch food waste, cloth tissue, and sand as a water filter, even so, this product still needs to be improved because there are still shortcomings in it, but this product can still help solve the problems faced by many people involved in the food industry. We as students who are always close to this industry will feel happier if this product can be marketed more widely because its usefulness is very encouraging.

RESEARCH DESIGN

Before this product is produced, we first search for information about applied grease and its weaknesses. The first product we want to release is a product where we want to create a spray liquid that is used to clean the dirt on the grease trap before the cleaning process. find the method that the product is already on the market in addition to that the product as suggested also still requires a lot of time and energy to use.

Therefore, the idea that we want to create is to make the work done by them easier. The product we want to create, we have studied it so that we can create it according to the problems faced by those in the food industry. To create this product, we need a lot of patience because we need to find the right items to create this product. In addition, we also need to sew around the hole to ensure that the sand inside does not come out before sending it to the tailor to be finished. We went through a lot to create this product because we had to sacrifice a lot of time and energy to make this product that we wanted to create a success.

SAMPLING AND POPULATION

The sample of the product that will be used as an example to produce this product, this sample will not be sold because it is only a source of reference to produce this product. Only in case of confusion during the production of this product. This sample will also be released when we run our showcase, therefore students, lecturers, and panelists can see and feel for themselves the products that are produced. Some samples will also be released to demonstrate to the panelists when they want to see how this product works. In addition, we also created a video to display so that people can see our products in action in the kitchen. The video we provide is also produced at our test site, which is in the polytechnic kitchen.

4.0 FINDING (Data analysis)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Semester	40	2.00	5.00	4.4500	.81492
Gender	40	1.00	2.00	1.6250	.49029
Age	40	1.00	2.00	1.3250	.47434
How often in a week do you use PMKU's kitchen ?	40	1.00	2.00	1.3750	.49029
Do you feel that our grease trap filter meets your expectations ?	40	1.00	2.00	1.1250	.33493
How effective do you find our Dreck Distill (grease trap filter) in trapping grease ?	40	4.00	5.00	4.5500	.50383
How would you rate the quality of Dreck Distill (grease trap filter) ?	40	4.00	5.00	4.4500	.50383
How satisfied are you with the durability of our Dreck Distill (grease trap filter) ?	40	4.00	5.00	4.4250	.50064
Do you feel that our Dreck Distill (grease trap filter) helps reduce time to clean grease trap ?	40	1.00	1.00	1.0000	.00000
Is our Dreck Distill (grease trap filter) easy to use ?	40	1.00	1.00	1.0000	.00000
Valid N (listwise)	40				

5.0 DISCUSSION

The product we produced is to solve the problem that students often face in PMKu's kitchen, which is the problem of cleaning the grease trap. Most students often avoid cleaning the grease trap because it takes a long time, and the smell is unpleasant. Therefore, we have designed a product that can save time to clean the grease trap. We have distributed questions in a Google form for DHF students from semester 1 to semester 5. Most of the students who answered the questions were students from semester five and were aged between 18 and 21 years. Most students think that our product is very helpful in reducing students' time and energy when cleaning the grease trap. It is also easy to use because it only needs to be covered on the iron box found in the grease trap. Most students also stated that our products trap dirt and oil residue.

6.0 CONCLUSION

In summary, our product, Dreck Distill, boasts numerous advantages and benefits that may not be widely recognized. Notably, we prioritize the use of environmentally friendly materials that are recyclable and devoid of potent chemicals that could potentially harm the environment. The construction of our product involves layering oil-absorbent paper, reusable tissue, net, and sand, followed by sewing and inserting rubber to create an effective filter. The incorporation of oil-absorbent paper and reusable tissue serves to minimize the passage of oil through the filter, while the inclusion of sand prevents residual fat from entering the grease trap tank. Consequently, only water passes into the tank, as the fat and oil have been effectively filtered. Our aspiration is that these products find a market within the domestic sphere and become integral in various industries, given the manifold benefits they offer to kitchen users.

7.0 REFERENCES

·Hassan, H. (2019, September 13). 10 Kegunaan Arang Teraktif (Activated Charcoal). Hello Doktor. https://hellodoktor.com/kesihatan-mulut/penjagaan-mulut/10-kegunaan-arang-teraktif-activated-charcoal/

·Byrd, J. (2023, October 18). 14 Components & Parts of an RO Water Purifier System. WaterFilterGuru.com. https://waterfilterguru.com/parts-of-ro-water-purifier/

·What is a Grease Trap & How Does a Grease Trap Work? | Aqua Cure. (2018, October 9). Aqua Cure. https://www.aquacure.co.uk/knowledge-base/what-are-grease-traps-how-do-they-work

·Peirce, J. J. (1998, January 1). Water Treatment. Elsevier eBooks. https://doi.org/10.1016/b978-075069899-3/50007-9

·Reijnen, J. (2022, August 17). How does a sand filter work? Filter Technologies. https://royalbrinkman.com/knowledge-center/technical-projects/water-filter-technologies-horticulture/sand-filter

·Filtration, F. (2020, May 12). Waste Water Treatment Filter: The Ultimate FAQ Guide. Filson Filter. https://www.filsonfilters.com/waste-water-treatment-filter/

CUCURBITA ENERGY BAR

Syed Mohd Hafizal Bin Syed Ali [1], Muhammad Danial Hakim Bin Mohd Hatta [1], Ali Bin Sabar [1], Muhammad Nur Haikal Bin Ahmad Abdul Kalam [1]

[1]Politeknik METrO Kuantan, Pahang, Malaysia

ABSTRACT

Energy bars, also referred to as nutrition or protein bars, are becoming more and more well-liked in our hectic, health-conscious society. This practical snack is perfect for individuals who are on the go or who wish to fuel their bodies during intense physical activity because it is made to provide a quick and efficient source of energy. These bars, which include carbohydrates, proteins, and fats along with vitamins and minerals, are carefully formulated to offer a balanced macronutrient profile. Depending on how the energy bar is going to be used, the precise makeup might change. Some, with a higher protein content to aid in muscle growth and regeneration, are made specifically for athletes and fitness enthusiasts. We have used this to investigate our products among PMKU staff members and students. We have gained a lot of fresh ideas from this research that will help us elevate our offerings to the level of premium goods.

1.0 INTRODUCTION

1.1 PROBLEM STATEMENT

These days, the majority of people dislike eating vegetables because they don't taste very good. Because of this, the majority of people in today's world are unable to follow a healthy diet, such as including vegetables in their meals; instead, they would much rather eat unhealthy snacks like sweets. This type of lifestyle causes a number of issues, such as obesity in the populace, which leads to numerous other illnesses. Secondly, there is a lack of choice for the community to diversify their nutrient-dense diet due to the lack of energy bars on the market that incorporate vegetables. In addition, the majority of people today lack certain nutrients in their bodies as a result of not eating enough vegetables and other healthful foods. These days, this leads to a lot of growth issues.

1.2 RESEARCH OBJECTIVES

i. To create or vary a healthy vegetable energy bar product for consumers who do not like to eat vegetables in their daily diet.
ii. Expand the range of energy bars available in the market.
iii. Provide awareness to the public about the benefits of vegetables and healthy eating practices

2.0 LITERATURE REVIEW

2.1 ENERGY BARS

According to Preah Narang, (2017) in the 80s, the first "power" bars were commercially launched for athletes. Their selling point is that they are packed with high protein, and perfect as a post-workout snack. It is only a matter of time before this energy bar is marketed with a different perspective. In addition, according to Ryland et al, (2010) Wyatt , (2011) Energy bars, easy and healthy ready-to-eat foods that provide balanced nutrients and reduce hunger. However , nowadays, most energy bars on the market use ingredients that have a high sugar content (fructose). syrup) and does not have good nutrient content. This includes energy snacks from big brands in the world market. Whatever the name, protein bars, health bars, snack bars, food bars, granola bars all share the same story and aim to serve the same purpose. However, it is wise to check ingredients carefully just to make sure that it is what it says. They can range from healthy and wholesome to artificially flavored, sweet and highly processed.

2.2 PUMPKIN DESCRIPTION

Every vegetable in the world has a unique set of benefits. There is one vegetable, that offers consumers a number of benefits. The vegetables is pumpkin. According to Ms. Bex, (2023) Native American communities cultivated pumpkins "long before the arrival of Europeans," as they are a type of squash native to the Americas. Another name for this vegetable is "nutrient-packed pumpkin," as it contains a lot of fiber, vitamins, and minerals. Next, Because of the benefits of the pumpkin vegetable, a variety of products, including pumpkin powder, have been made from the vegetable. This powdered pumpkin is produced by combining various drying techniques, including drying, microwave drying, and microwave drying. According to the findings, bioactive are abundant in every part of the pumpkin (Hussain et al., 2021b). This pumpkin powder product has numerous applications. To fortify food products, particularly bread and dairy products, this powder can be utilized as a concentrated source of nutrients like fiber, minerals, vitamins, and protein (Johari et al., 2022).

2.3 PUMPKIN PRODUCTS IN THE MARKET

Additionally, pumpkin chips are another product that is produced. Because they are health-promoting, these pumpkin-based snacks make a great substitute snack for people of all ages (Aydin, 2022). The effects of various drying techniques, such as freeze-drying, blast-suction drying, and hot air drying, were investigated in relation to the nutritional value, texture, and physical characteristics of pumpkin chips. The most promising methods for creating nutrient-dense pumpkin chips with increased color retention, total carotenoids, total phenolic content, and antioxidant capacity have been shown to be freeze drying and blast drying (Koprualan et al., 2021). A thriving community and the nation's market economy can both flourish with so many products of this kind available on the market.

3.0 METHODOLOGY

3.1 Product creation process

The process of making this 'Cucurbita Energy Bar' product doesn't take too long to produce with its not very complicated steps. In order to produce a project of high quality and taste, the preparation steps must be followed. Each step must be carried out efficiently and follow the standard recipe so that there is no negligence when running this project.
One of the first steps in the production of this product is to first clean ingredients such as pumpkin and spinach. Remove the skin of the pumpkin first. Make sure all the ingredients have been cleaned thoroughly.

After that, the second step is to roughly chop the pumpkin and speed up the softening process during the boiling process. After that, all the ingredients that have been separated according to their respective types. However, the process must be done carefully to avoid the ingredients being too mushy and contamination. Lastly, grinding the pumpkin that had been boiled into puree smoothly.
Next, Put butter and honey in a pot/pan. Put on the lowest flame. Slowly stir the butter until it melts and mix with the honey. Add 3 tablespoons of filtered pumpkin puree paste, then stir until combined. Increase the heat (just a little) and stir slowly until bubbling and viscous. Stir moderately fast until the colour becomes "milky" milky and a bit thick. Slow down the heat again, add oats, beans and pumpkin seeds. Mix well until it becomes a dough. Close the fire. Flatten the dough on a tray lined with baking paper. Allow to cool naturally. Cut into small pieces to become energy bars. Lastly, Ready to eat.

Ingredient and Equipment

Total: 6 pieces

- 100-gram butter
- 1/3 cup almond
- 3/4 cup honey
- 1/3 cup cashew nut
- 1 cup pumpkin puree
- 3/4 cup pumpkin seed
- 1 cup rolled oat
- 1/3 cup sunflower seed

Equipment:

- Pot
- Blender
- Cooking knife
- Cutting board
- Bowl
- Baking pan
- Ladle

4.0 FINDING (Data analysis)

The Kuantan Metro Polytechnic (PMKU) staff and fifth semester students approved of the product we made based on their responses to our admissions questions. Students have also shown interest in our product because some of them, even those who dislike veggies, find it appealing. that, due to its ease of eating and carrying, this product offers convenience to students who participate in sports or other physically demanding activities. Lastly, the majority of staff members and students who have used our product have offered numerous suggestions for how to make it better. We want to help people live healthy lives with our products. Lastly, we also hope that our products will be able to reach a large portion of the market. This will help the individual to grow up healthy.

5.0 DISCUSSION

We have identified certain improvements that need to be made to our product based on the results of the survey that we conducted. One of the things that needs to be improved is the size of our product; this will help to make it more relevant. Due to a lack of equipment, we are unable to maintain consistency in the size of our product. We anticipate being able to resolve this issue in the future when adequate equipment becomes available. Furthermore, we would like our product to smell better. In order for our product to stand out from the scents of the other ingredients, like nuts and honey, we want to intensify the pumpkin flavor. This could represent our product made of pumpkins. We then want to make improvements to this product's sweetness. Owing to varied perspectives regarding the level of sweetness in this product, we aim to create a balance between sweetness and suitability for all age groups. Lastly, since there are differing views regarding the humidity of our product, if there is an opportunity to improve it in the future, we would like to lower it. With the current state of technology, we hope to enhance our offering.

6.0 CONCLUSION

As a conclusion, there will be a lot of advantages if this CUCURBITA ENERGY BAR product is developed and sold. This is a result of the fact that our novel product was made entirely of organic ingredients and without the use of any unhealthful additives. If they so choose, this can help users' health. They eat our product every day. There are numerous other ingredients, like honey, cashew nuts, almonds, and kuaci, that have health benefits in addition to our main ingredient, pumpkin. It is not only one of the sunnah foods but also very beneficial. We believe that customers who wish to follow a healthy diet will benefit from our novel product. We also hope that a large number of customers will understand how crucial it is to maintain a healthy diet.

7.0 REFERENCES

Kathlen M.Z (2022). Health benefits of kabocha squash, Retrieved from
https://www.webmd.com/diet/health-benefits-of-kabocha-squash

Luisa.P (2022), Nutrional value, phytochemical potential, and Therapeutic benefits of pumpkin, Retrieved from
Nutritional Value, Phytochemical Potential, and Therapeutic Benefits of Pumpkin (Cucurbita sp.) - PMC (nih.gov)

Sunita.M (2016),Nutrient for energy bars, Retrieved from
(PDF) Nutrient Energy Bars Mainly Formulated for Athletes (researchgate.net)

Shahana.W (2023),cucurbita seeds reduce anxiety and depression and improve memory, Retrieved from
Cucurbita maxima Seeds Reduce Anxiety and Depression and Improve Memory (hindawi.com)

Ashiq.H (2022),utilization of pumpkin,pumpkin powder extract and isolated and pumpkin based functional food products, Retrieved from
Utilization of pumpkin, pumpkin powders, extracts, isolates, purified bioactives and pumpkin based functional food products: A key strategy to improve health in current post COVID 19 period: An updated review - PMC (nih.gov)

Burrows,George.E (2013), cucurbita, retrieved from
Cucurbita - Wikipedia

EZ COOLER (PORTABLE WATER COOLER)

Hasni Bin Hassan, Nurain Maisarah Bt Almizar, Muhammad Dinul Amin Bin Mohd Kamal, Nuha Munir Benmahfouz Bt Shaikh Ahmad Munir

Polytechnic METrO Kuantan

hasni@pmku.edu.my

ABSTRACT

The purpose of this report is to provide a comprehensive overview of the design, construction, and performance analysis of a water cooler that incorporates Peltier cells as the primary cooling technology. The objective of this study is to examine the viability of utilizing Peltier cells for the purpose of water cooling, with a specific focus on evaluating energy efficiency, environmental implications, and practicality. The report encompasses an elaborate exposition of the various constituents of the system, the methodologies employed in conducting experiments, the outcomes obtained, and an analysis of the findings, along with suggestions for potential enhancements.

1.0 INTRODUCTION

1.1 Problem Statements

Currently water machine makers such as Coway, Cuckoo and others are sophisticated because it is easier to directly transmit, but it is difficult to carry it anywhere if there is no electricity, so we want to further perfect it and make it easier. Commercial class is very suitable for using portable water. this colour.

1.2 Objective

One of the objectives or purposes of this project is to:

i. Commercial class.
ii. Focus to student

2.0 LITERATURE REVIEW

2.1 A portable water cooler is a device used to cool water easily and portable. It is usually designed to ensure that the water produced is cool and fresh. Portable water coolers are very useful at home, college, or other places where access to cold water is essential. With a portable water cooler, you can enjoy fresh, cold water whenever you need it. It is a practical and pleasant tool to meet the drinking needs of students and the public. Portable water coolers are usually equipped with several useful features. Thermoelectric Cooler, etc. Air compression allows water coolers to produce cold water quickly and effectively. In today's market, there are many types of portable water coolers to choose from. Some models have a simple and portable design, while others may have additional features such as a temperature display or adjustable temperature control. Whatever your needs, there's a portable water cooler that's right for you. In summary, a portable water cooler is a great solution to easily provide cold and fresh water wherever you need it. It is a practical and useful tool to meet your daily drinking needs. So, if you are looking for a portable and effective water cooler, consider getting a portable water cooler today.

3.0 METHODOLOGY

This chapter will discuss about the research methodology is a simple and structured plan for the travel process this final semester project. To facilitate the final project process, methodology should be arranged in an orderly manner. With that, every stage of the project journey does not deviate from the set track or more precisely the final result of the study will meet the needs and requirements of the solved problem.

Therefore, it is important to know and understand each process found in the methodological structure of the study. Among the things to do is to get all the information related to the analysis of the study flow. The next method is how to identify and overcome problems when studying. The manufactured product or equipment will be tested for solve problems faced and get information from users of the product.

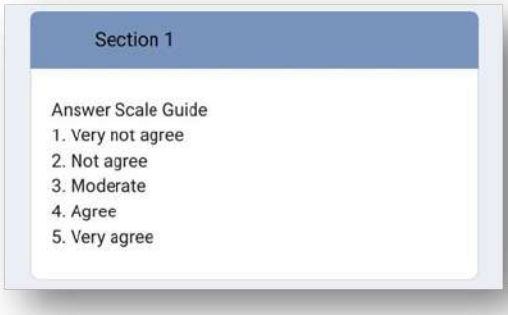
3.2 STUDY DESIGN

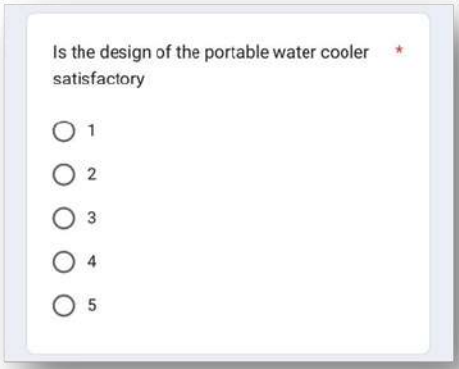
I. RESEARCH METHOD

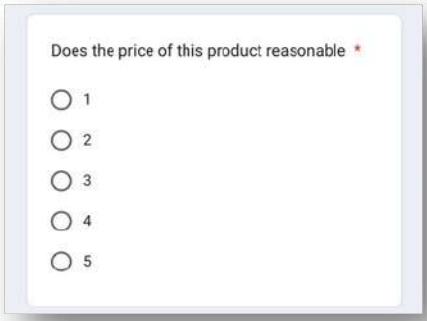
The way we collect data is by doing a previous study about water coolers. After the data and ideas collected, we decided to make a water machine, which is a portable water cooler. commercial classes are already students. after that we start by looking for the right components to create a portable water cooler.

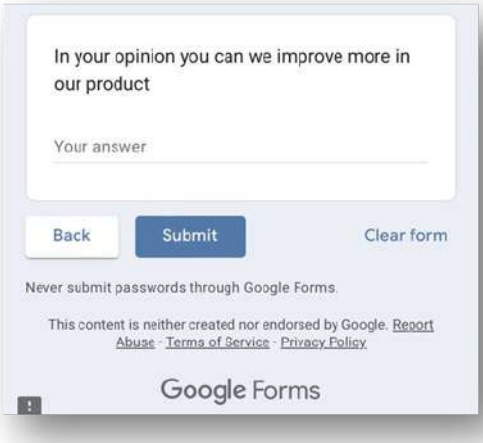
The methodology also includes an explanation of your data collection process. For example, performing experimental tests on samples, conducting surveys or interviews, or using data. The method used to value the analysis is survey for the product which will be produced. Respondents will be selected among students who reside in the PMKU area. We also collect data from engaged students to evaluate the products we produce.

II. RESEARCH QUESTION

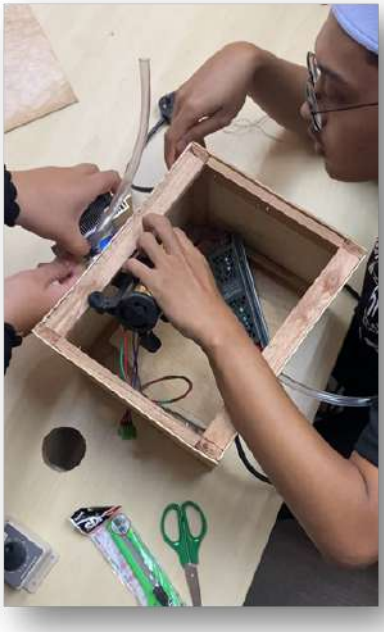


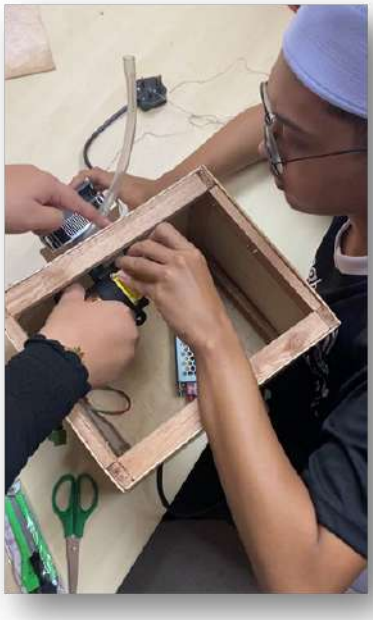


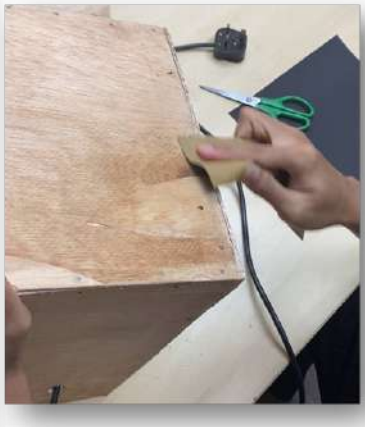




III. SAMPLING







Sampling is the selection of a subset of the population of interest in a research study. In most research endeavors, participation of the entire population of interest is not possible, so smaller groups rely on data collection. There are five types of sampling

13 Random, Systematic, Convenience, Cluster and Stratified. Simple random sampling is one of the best probability sampling techniques that help in saving time and resources is the Simple Random Sampling method. It is a reliable method of obtaining information in which each member of the population is selected randomly, just by chance. There are four main random sampling methods which are simple random sampling, systematic sampling, stratified sampling, and cluster sampling. We use random sampling method for our project on how to select the type of thermo peltie that has been selected.

By using this method, we can find the most suitable thermo peltie to be used as material for this project. In addition, we used the same method to obtain data and information about the project this time, which is by giving a simple questionnaire to the objective of our scope study, which is Kuantan Metro polytechnic students (PMku).
A simple random sample is a randomly selected subset of the population. In this sampling method, every member of the population has an equal chance of being selected. This method is the simplest of all probability sampling methods, as it involves only a single random selection and requires little prior knowledge of the population.

Because it uses randomization, any research done on this sample should have high internal and external validity, and have a lower risk of research bias such as sampling bias and selection bias.

3.4 DATA COLLECTION METHOD

Data collection methods are techniques and procedures used to gather information for research purposes. These methods can range from simple self-reported surveys to more complex experiments and can involve either quantitative or qualitative approaches to data gathering. Some common data collection methods include surveys, interviews, observations, focus groups, experiments, and secondary data analysis. The data collected through these methods can then be analysed and used to support or refute research hypotheses and draw conclusions about the study's subject matter. matter. The choice of data collection method depends on the researg question being addressed, the type of data needed, and the resources and time available. You can categorize data collection methods into primary methods of data collection and secondary methods of data collection. Primary data is collected from first-hand experience and is not used in the past. The data gathered by primary data collection methods are specific to the research's motive and highly accurate. Primary data collection methods can be divided into two categories quantitative methods and qualitative methods. We use the method Quantitative techniques for market research and demand forecasting usually use statistical tools. In these techniques, demand is forecasted based on historical data. These methods of primary data collection are generally used to make long-term forecasts. Statistical analysis methods are highly reliable as subjectivity is minimal in these methods

3.5 DATA ANALYSIS METHOD

Data analysis is the process of collecting, modelling, and analysing data using various statistical and logical methods and techniques. Businesses rely on analysis processes and tools to extract in sight 20 hat support strategic and operational decision-making. In predictive data analysis, we use information from descriptive and diagnostic frameworks to anticipate the future outcomes of a decision or process. Fadictive analysis reviews past data to identify potential trends. Analysing data can further mission, vision, and goals. This information can help suggest continuous quality improvements, product expansions

3.6 REFERENCE ATTACHMENT

I. GANTT CHART

Table 3.6(i) gantt chart progress activies project

WEEK/ PROJECT ACTIVITIES	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13
BRIEFING BY COODINATOR													
ALLOCATION OF GROUP													
TOPIC SELECTION													
PREPARATION OF PROPOSAL													
PROPOSAL PRESENTATION AND EVALUATION													
PROPOSAL REPORT SUBMISSION													
METHOD FINALIZATION													
EQUIPMENT PREPARATION													
PROJECT IMPLEMENTATION													
PAPER WRITTING													
SPSS ANALYSIS													
FINAL PROJECT PREPARATION													

II. ESTIMATED COST

TABLE OF COSTING PORTABLE WATER COOLER

PRODUCT	PRICE	QUANTITY	TOTAL
POWER SUPPLY	RM24.50	1	RM24.50
THERMOLECTRIC COOLER COOLING SYSTEM	RM59.59	1	RM59.59
SELF PRIMMING AUTOMATIC	RM34.80	1	RM34.80
PWM MOTOR SPEED CONTROLLER	RM22.53	1	RM22.53
		TOTAL	RM 141.42

3.7 RESEARCH DESIGN

The EZ COOLER logo is inspired by the element of water which means calm. match our products that have peace of mind and a soft smell. next there is a water element tucked into our logo that matches the EZ COOLER that uses water in its material manufacturing.

4.0 FINDING (Data analysis)

The Kuantan Metro Polytechnic (PMKU) staff and semester 5 students approve the products we make based on their answers to our admissions questions. Students have also shown interest in our products because some of them, even they find it attractive, because the product is easy to carry and small this product offers convenience to students participating in sports or other physically demanding activities. Finally, most staff and students who have used our product have offered many suggestions to make it better. We want to help people live a healthy life with our products. Finally, we also hope that our products will be able to reach a large part of the market. This will help the individual to grow up healthy.

5.0 DISCUSSION

This is an analysis from a study we did through google form. we found that many students are interested in our product which is EZ Portable water cooler. We did a 2-day study for all students near us. We gave them samples to test our product if suitable for their use. we found that the students who tried our sample were satisfied with the product which is also the manufacturing method we did in the processing of EZ Portable water cooler.

6.0 CONCLUSION

In conclusion, our product EZ COOLER has many advantages or benefits that are not known to the public. Our products using natural materials without strong chemicals that can pollute the environment such as air pollution. Our main ingredient in the manufacture of EZ COOLER is a peltier theme which is a device that cools water without using any harmful substances and a water pump. The function of this water pump is to pump water in the container and channel it in the thermo peltier part to produce cold water in the main container. we use unquestionable items such as water lines and main containers. In addition, we also use environmentally friendly products such as saving costs and reminding users because that is one of the objectives of our project and is suitable in today's innovative age. As an additional benefit or advantage of using this machine is not wasting to pay service costs monthly, giving an interesting impact for students and commercial

7.0 REFERENCES

- Recycling & Recovery - Cenviro. (2023, July 31). Retrieved from https://www.googleadservices.com/pagead/aclk?sa=L&ai=DChcSEwjI496ikpiDAxUIBaIDHaplADcYABACGgJsZQ&gclid=CjwKCAiA1fqrBhA1EiwAMU5m_2C23tLr2rzElI1Vhq4BfhpeGpLJiz3nu2c-jOd8aAVu6CyloS-oIhoC7TIQAvD_BwE&cit=CkUKCQiA1fqrBhDxARI0AEHY4Dyb6EGI_kn8G8nU118jA0HaTlkqxgI9sIVSv4DkqkW2BKYB8V06kw10eQQaFi4u8xoCeJjw_wcB&ei=wcl_ZZ6NOLfMseMPw5yMiAo&ohost=www.google.com&cid=CAESVeD2-lQR1SB1hZrRRNHomhjULccCy68Kt7VUPeWts8t1Y3ip2QCCuMZG7ckWSaixtjMMjeUcL72Ti7Q4KblqmNFFKX_PKkF7tw0QRKh3GQXPnVM6Zdw&sig=AOD64_2F7il-OwE6oBBQlI40yYuZj4NvKA&q&sqi=2&adurl&ved=2ahUKEwje8cyikpiDAxU3ZmwGHUMOA6EQ0Qx6BAgLEAE

- 40 Ways to Be More Eco Friendly in 2023 | GreenMatch. (2023, November 27). Retrieved from https://www.google.com/url?q=https://www.greenmatch.co.uk/blog/how-to-be-more-eco-friendly&sa=U&sqi=2&ved=2ahUKEwjK1JiBkpiDAxVbUGwGHVw5BHcQFnoECBUQAQ&usg=AOvVaw2wkqib2ClMPSUF8lEU76d0

- What is innovation? (2023, November 8). Retrieved from https://www.google.com/url?q=https://www.bdc.ca/en/articles-tools/business-strategy-planning/innovate/what-is-innovation%23:~:text%3DSimply%2520put%252C%2520innovation%2520is%2520about,be%2520a%2520new%2520business%2520model.&sa=U&sqi=2&ved=2ahUKEwj_rt6VkZiDAxXubmwGHdAXDugQFnoECCYQBQ&usg=AOvVaw0veXHEvK0RjLOwLgHoHBZK

MANGOSTEEN SKIN BISCUITS

Rina Fakhizan binti Mohd Sukri, Wan Farid Shahmi bin Wan Azmi, Muhammad Haqim Hazramie bin Fakhrul Rozi, Muhammad Danial Irfan bin Mohd Yusrizal

Tourism and Hospitality Department
Polytechnic METrO Kuantan

rinaf@pmku.edu.my1

ABSTRACT

Mangosteen skin is rarely utilized since society now favors fruit that is more aesthetically pleasing in terms of color, texture, and flavor. Therefore, the research we are doing aims to innovate in the usage of mangosteen skin so that it can be offered to the public and become a food innovation product that attracts interest. During our investigation, we also learned new facts, such as how to lessen the bitterness of mangosteen skin and the appropriate temperature of 85 C for baking with mangosteen skin. Finally, this project can lessen the amount of mangosteen skins disposed of in the food business.

1.0 INTRODUCTION

Mangosteen is classified as a fruit rather than a vegetable. Due to its blend of sweet and sour flavors, it is referred to as the Queen of Fruits. Garcinia mangostana is its official scientific name. Mangosteen is a fruit that is indigenous to Southeast Asia, and you can find it in Malaysia, Thailand, and Indonesia. After that mangosteen is very nutrient-dense and has several health advantages. It is low in calories but high in nutrients including vitamin C, vitamin B9 (folate), vitamin B1 (thiamine), vitamin B2 (riboflavin), manganese, copper, and magnesium. The fruit also contains a lot of fiber.

Biscuits are one of the most popular snacks because they have a pleasing taste and aroma, are ready to eat, available in a variety of shapes, have a long shelf life, and are reasonably priced One of the most extensively consumed and manufactured types of biscuits is the chocolate kindCommercial chocolate cookies include minimal amounts of useful chemicals that operate as antioxidants and are mostly made of fat and carbohydrates.Antioxidant substances—especially those belonging to the flavonoid family—are necessary to fend off free radicals and stop oxidative stress, which can cause degenerative illnesses. Still, there is a present surge in the use of functional food products. It demonstrates how food product orientation contributes to a more favorable influence on health in addition to meeting daily nutritional demands.

One approach to achieving high functional value biscuit products is to formulate them with bioactive substances rich in antioxidants. Strong antioxidant-containing substances have been found in mangosteen peel extract. Antioxidants include, for instance, xanthones, flavonoids, anthocyanins, tannins, saponins, and other polyphenolic chemicals that are present in mangosteen peel extracts. However, because polyphenolic chemicals are unstable, readily oxidized, reactive, and sensitive to processing and environmental conditions like heat, light, and oxygen, mangosteen peel extract cannot be put straight to product formulations. Moreover, it may provide an unpalatable bitter and astringent flavor. Therefore, to maintain the antioxidant chemicals, present in mangosteen peel, an encapsulating technique is needed. Encapsulation can stop or lessen fat oxidation, the bitter and astringent flavor in food, and chemical breakdown during roasting.

It is also important to think about the number of microcapsules containing mangosteen peel extract that are added to biscuit items. It will have an impact on the functional and physicochemical characteristics of the created chocolate biscuits. Microcapsules containing high-concentration mangosteen peel extract are added to increase the number of flavonoids, polyphenols, and antioxidant activity. However, it will adversely affect the organoleptic and physical characteristics of the final chocolate cookies. Mangosteen peel extraction and encapsulation techniques have been widely used. There has not been enough research done on the addition of these encapsulants to chocolate biscuit goods, though. Thus, the physicochemical, antioxidant, and sensory characteristics of chocolate cookies containing encapsulated mangosteen peel extract at varying concentrations will be investigated in this study.

Mangosteen may have several health advantages, including:
1) Mangosteen contains potent antioxidants, particularly xanthones, which may have anti-inflammatory, anticancer, anti-aging, and anti-diabetic.
2) Mangosteen and may aid to lessen inflammation and the risk of inflammatory disorders like diabetes, heart disease, and cancer.
3) Immunity-boosting: Antioxidants and vitamins found in mangosteen are known to increase immunity and shield against illnesses including cancer.
4) Better gut health: Studies have revealed that mangosteen has certain advantages for gut health
5) Blood sugar levels: Mangosteen may help reduce blood sugar levels, according to certain research.

Problem Statements

Even though mangosteen provides more nutrients than some fruits in Malaysia, such as longans and oranges, it is nevertheless uncommon for Malaysians to not eat mangosteen since they prefer fresh, easy-to-eat fruits. The purpose of this research project is to identify the elements that contribute to Malaysia generating less mangosteen fruit. And base future choices on the knowledge gained from previous problems. We performed research to find a way to make mangosteen skin less bitter and more appealing to the public by turning it into biscuits, even though mangosteen skin has many health benefits.

People of all ages frequently eat biscuits, which are a favorite snack. They are adaptable, convenient, and shelf stable. However, most biscuits are low in fiber, vitamins, and minerals and heavy in calories, fat, and sugar. As a result, adding mangosteen peel extract to biscuits can enhance their nutritional value and offer customers health advantages. Additionally, the unique purple hue and fruity perfume of mangosteen peel extract can improve the flavor and color of biscuits.

Objective

1) Purpose of this project is to reduce the amount of used mangosteen skin that is disposed of.
2) This can also to let the market know that mangosteen peel is ideal for usage as a food item that can intrigue consumers who prefer to try new things.
3) This also show that mangosteen can be used to make or create variety of product using mangosteen.

LITERATURE REVIEW

Have five articles about skin mangosteen, it was about benefit from skin mangosteen. First article is from Mellia Harumi, Dosen Technology Pangan, Unika Soegijapranat. This article it about effect what we get after take skin mangosteen. In several studies, xanthone compounds refer to compounds with high antioxidant activity in mangosteen. The xanthone content in the mangosteen skin is much greater than in the flesh. In addition to xanthones, mangosteen skin also contains tannin, phenolic acid and anthocyanin bioactive compounds that function as antioxidants, antimicrobials, and anti-inflammatory. The antioxidant activity of mangosteen peel extract has a higher strength than extracts from many other fruit peels. The consumption of mangosteen peel extract for humans orally 220-280 mg per day for 24 weeks is considered quite safe. Significantly, the extract can increase the antioxidant capacity of red blood cells and reduce protein damage in red blood cells due to oxidation.

Based on the level of toxicity, mangosteen peel extract has been tested using test animals. A dose of 1200 mg/kg/day for 12 weeks did not produce toxic effects on test animals. This is reinforced by other studies that state that giving doses up to 1000 mg/kg/day for 6 months also does not give signs of pharmacotoxicity. Mangosteen skin powder contains 30% coarse fiber, 9% water, 7% sugar, 3% protein, 3% ash and the rest are fat, tannin and other antioxidant compounds. The level of safety and content in the skin of the mangosteen fruit makes it potentially used as a functional food ingredient.In Indonesia, mangosteen peel powder is commonly used in drinks such as juice and tea. Cake preparations can also be made using mangosteen peel flour. The use of mangosteen skin as a food or drink preparation may cause a bitter taste and a changed texture so the processing needs further research.Food waste can be processed into functional and economically valuable food.

Through these efforts, it is hoped that the community can care about their health by consuming supplements that are needed by the body precisely. That article from mellia Harumi about effect if take skin mangosteen. Second article from husnul abdi about nutrition skin mangosteen. The benefits of mangosteen skin are so popular. Until now there are still many people who use the benefits of mangosteen skin to overcomevarious health problems. The benefits of mangosteen skin are claimed to prevent and cure various diseases.This dark purple fruit with white flesh has a sour and sweet taste that many people like. This very popular mangosteen peel extract is processed as an herbal medicine. This mangosteen peel extract is rich in antioxidants, vitamins, minerals, and amino acids. The benefits of mangosteen skin are certainly influenced by its nutritional content. An important substance in the mangosteen skin that makes the mangosteen fruit very valuable is the substance Xanthones. This substance can be a natural substance in overcoming health problems, such as preventing diabetes, preventing cancer, and fighting free radicals.

Third article is from noer Erin meilina and aliya Nur hasanah about antibacterial activity of mangosteen peel extract against acne-causing bacteria. Acne is an inflammatory disease that can occur on the skin of the face, neck, chest and back. This disease is caused by excessive oil gland activity and is aggravated by bacterial infection. Bacterial infections in acne can be treated with antibiotics. Mangosteen skin contains the compound a-mangosteen, which is a derivative of xanthone, where the compound has antibacterial activity. The purpose of this literature review is to find out the antibacterial activity of mangosteen (Garcinia mangostana L.) skin extract against acne-causing bacteria. Mangosteen skin extract has antibacterial activity against several acne-causing bacteria, namely Propionibacterium acnes, Staphylococcus aureus, and Staphylococcus epidermidis, so mangosteen skin extract has the potential to be used as an alternative therapy from plants as an antibacterial agent for acne. This article like to talk about skin mangosteen can reduce acne-causing bacteria problem at skin.

Fourth article from dr. Muhammad isman is about if have extract skin mangosteen for healthy. Mangosteen skin is rich in various active substances, such as xanthone, flavonoids, saponins, and tannins. Because of that, this fruit has long been used for traditional medicine in some regions because it is considered to have health benefits. Not only the skin, other parts of the mangosteen fruit are also actually used. For example, fruit pulp, leaves, and mangosteen root bark. People used to use mangosteen skin as a traditional medicine because it was believed to be able to dilute phlegm, treat inflammation of the bladder (Cystitis), overcome diarrhea, dysentery, fever, and treat skin diseases such as eczema and pruritus. Currently, various studies to find out the benefits of mangosteen peel extract have been done. Even so, the average research is still limited to lab or animal research only. Research on humans is still limited.

Fifth article is from Doctor Rizal Fadhli. He said there are many benefits found in this mangosteen skin, such as lowering LDL levels, supporting the body's immunity, preventing cancer growth, overcoming inflammation due to diseases, and lowering blood sugar levels. That is the goodness found in the mangosteen skin that many people do not know. Mangosteen skin also has other benefits besides the above such as mangosteen skin comes from several active ingredients in it. Examples are xanthones, flavonoids, saponins, and tannins. Xanthone itself is an active compound that is antibacterial, antifungal, and anti-inflammatory. This mangosteen skin has many benefits to be used as a medicine. Therefore, we are trying to produce a product based on mangosteen skin, namely mangosteen skin biscuits by turning them into biscuits that may attract the interest of many groups of people such as children, teenagers, and the elderly.

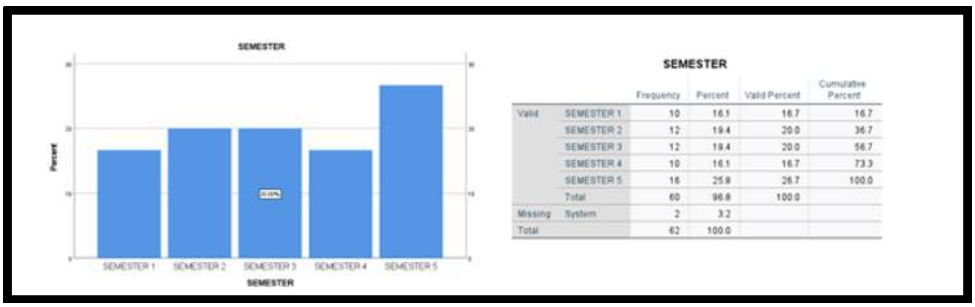
METHODOLOGY

Methodology is a systematic procedure, combining the adaptation of research approaches and data analysis in line with its own rules to ensure that the performance of research studies can be achieved well and perfectly. Apart from that, the methodological level also explains the methods and techniques used throughout the study based on the stated objectives and scope of the study. To achieve the objective targets of the research conducted, several methods have been used, namely data collection methods and the distribution of questionnaires to respondents. Next, make an analysis of the data obtained throughout the study. With that, the research carried out is more perfect and organized and in line with the objective of the research. Not only that, the search for information and data will be easier if the researcher knows the methods of conducting the study. In addition, it is used to obtain as much data as is necessary to complete this study. All steps are taken in stages so that the project journey can be completed smoothly and more orderly.

PART A: DEMOGRAPHICS

I) PERCENTAGE OF SEMESTER STUDENT.

Our responders in terms of semesters are Diploma in Halal Food Service students semester 1, semester 2, semester 3, semester 4, semester 5 as shown in the next graph. The percentage of semester one students is 16.7%, or ten persons. Furthermore, the percentage of students in the second semester is 20%, which is 12 persons. Semester 3's proportion is 20%, which equates to 12 persons. The percentage for semester 4 is the same as the percentage for semester 1, which is 16.7%. Finally, in the fifth semester, the proportion of students was 26.7%, or 16 persons.



SEMESTER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SEMESTER 1	10	16.1	16.7	16.7
	SEMESTER 2	12	19.4	20.0	36.7
	SEMESTER 3	12	19.4	20.0	56.7
	SEMESTER 4	10	16.1	16.7	73.3
	SEMESTER 5	16	25.8	26.7	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

II) PERCENTAGE OF EACH CLASS.

Responders in terms of each class for DHFA and DHFB. The precentage for DHFB have more repondent which is 63.3%. Meanwhile DHFA is less than DHFA which is 36.75.

CLASS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DHF	22	35.5	36.7	36.7
	DUP	38	61.3	63.3	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

III) PERCENTAGE OF AGE.

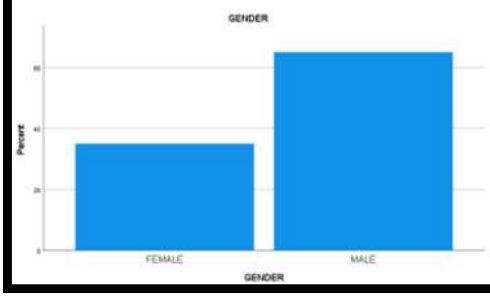
Our replies range in age from 18 to 24 years old, 25 to 34 years old and older. According to the graph, the majority of respondents in this project's data group are between the ages of 18 and 24. This is because the majority of my kuantan metro polytechnic students have recently passed their Sijil Pelajaran Malaysia. The overall number of responders aged 18 to 24 years is 93.3%, while it is comparable to 6.7% for responders aged 25-34 years.

AGE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	56	90.3	93.3	93.3
	25-34	4	6.5	6.7	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

IV) PERCENTAGE OF GENDER.

This project's respondents were divided into two genders between male and female. The graph illustrates that the percentage of male respondents is higher than the percentage of female respondents. The proportion of male respondents is 65% equivalent, whereas the proportion of female respondents is 35% equivalent. These responses include diploma in Halal Food Service student.

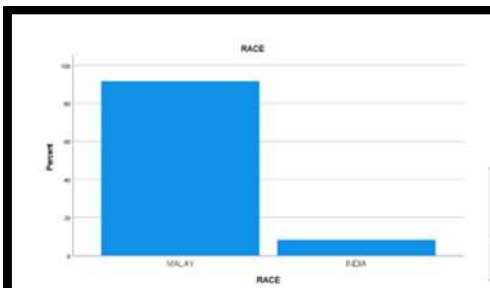


GENDER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FEMALE	21	33.9	35.0	35.0
	MALE	39	62.9	65.0	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

V) PERCENTAGE OF RACE.

This project's respondents' race were Malay and India. The graph illustrates that the percentage of Malay respondents is higher than the percentage of India respondents. The proportion of Malay respondents is 91.7% equivalent, whereas the proportion of India respondents is 8.3% equivalent. These responses were diploma in Halal Food Service student.

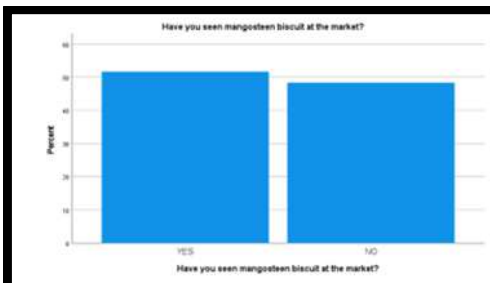


RACE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MALAY	55	88.7	91.7	91.7
	INDIA	5	8.1	8.3	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

VI) PERCENTAGE OF STUDENT SEEN MANGOSTEEN BISCUIT AT THE MARKET.

For the next graph, a group of us calculated the percentage of people who had seen mangosteen skin biscuit. The graph illustrates that 51.7% of people have done the activity before, where as 48.3% have never done it.

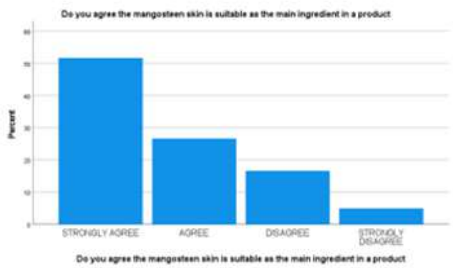


Have you seen mangosteen biscuit at the market?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	31	50.0	51.7	51.7
	NO	29	46.8	48.3	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

VII) PERCENTAGE OF AGREEMENT THAT MANGOSTEEN SKIN IS SUITABLE AS THE MAIN INGREDIENT IN A PRODUCT.

For the first question, the agreement that mangosteen skin is suitable as the main ingredient in a product. To date, 60 respondents have indicated whether they strongly agree (4 marks), agree (3 marks), disagree (2 marks), and strongly disagree (1 mark). A total of 51.7 % said they strongly agreed, and 26.7% said they agreed. The majority of our responders picked strongly agree and agree since they believe our product is good and outstanding.

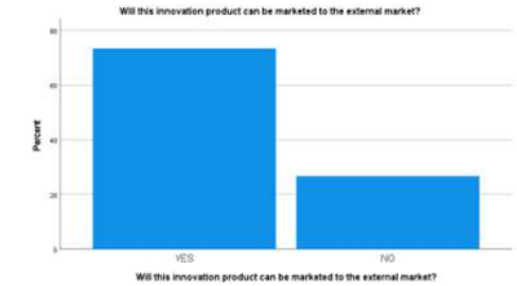


Do you agree the mangosteen skin is suitable as the main ingredient in a product

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STRONGLY AGREE	31	50.0	51.7	51.7
	AGREE	16	25.8	26.7	78.3
	DISAGREE	10	16.1	16.7	95.0
	STRONGLY DISAGREE	3	4.8	5.0	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

VIII) PERCENTAGE OF DETERMINE THIS INNOVATION PRODUCT CAN BE MARKETED TO THE EXTERNAL MARKET.

For the next graph, a group of us calculated the percentage of people who had ever participated in batik canting activities. The graph illustrates that 76% of people have done the activity before, where as 24% have never done it.

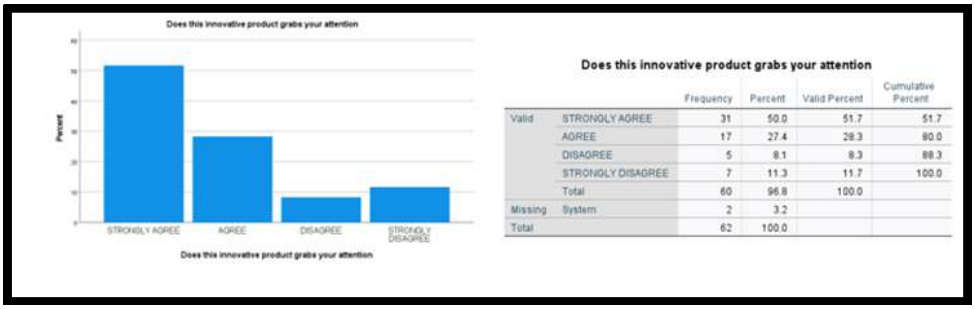


Will this innovation product can be marketed to the external market?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	44	71.0	73.3	73.3
	NO	16	25.8	26.7	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

IX) PERCENTAGE OF HAVE THIS INNOVATIVE PRODUCT GRABS YOUR ATTENTION.

For the second question, Percentage of have this innovative product grabs student's attention. To date, 60 respondents have indicated whether they strongly agree (4 marks), agree (3 marks), disagree (2 marks), and strongly disagree (1 mark). A total of 51.7% said they strongly agreed, and 28.3% said they agreed. The majority of our responders picked strongly agree and agree since they believe our product is good and outstanding.



Does this innovative product grabs your attention

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STRONGLY AGREE	31	50.0	51.7	51.7
	AGREE	17	27.4	28.3	80.0
	DISAGREE	5	8.1	8.3	88.3
	STRONGLY DISAGREE	7	11.3	11.7	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

X) PERCENTAGE OF MANGOSTEEN SKIN BISCUIT TASTE.

For the third question, Percentage of Mangosteen skin biscuit taste. To date, 60 respondents have indicated whether they strongly agree (4 marks), agree (3 marks), disagree (2 marks), and strongly disagree (1 mark). A total of 58.3% said they strongly agreed, and 35% said they agreed. The majority of our responders picked strongly agree and agree since they believe our product has a tasty taste and delicious.

Mangosteen biscuit taste

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STRONGLY AGREE	35	56.5	58.3	58.3
	AGREE	21	33.9	35.0	93.3
	DISAGREE	4	6.5	6.7	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

XI) PERCENTAGE OF MANGOSTEEN BISCUIT TEXTURE.

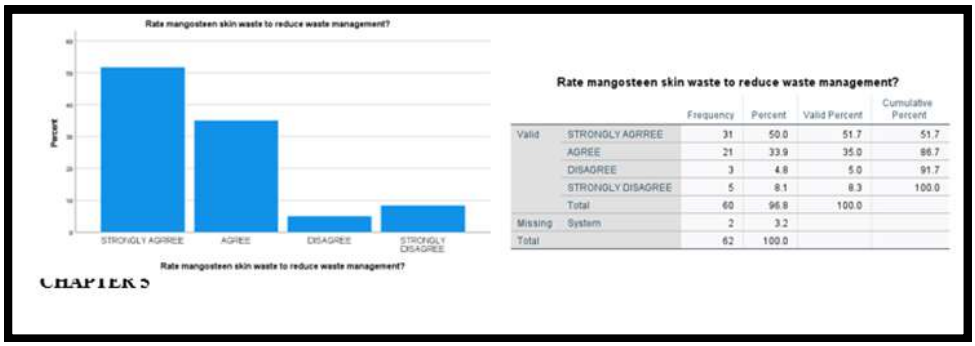
For the fourth question, Percentage of Mangosteen skin biscuit texture. To date, 60 respondents have indicated whether they strongly agree (4 marks), agree (3 marks), disagree (2 marks), and strongly disagree (1 mark). A total of 76.7% said they strongly agreed, and 8.3% said they agreed. The majority of our responders picked strongly agree and agree since they believe our product has a crunchy texture after eat.

Mangosteen biscuit texture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STRONGLY AGREE	46	74.2	76.7	76.7
	AGREE	5	8.1	8.3	85.0
	DISAGREE	5	8.1	8.3	93.3
	STRONGLY DISAGREE	4	6.5	6.7	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

XII) PERCENTAGE OF AGREEMENT OF THE THROW AWAY FRUIT CAN BE USED TO MAKE INNOVATION.

For the fifth question, Percentage of the agreement of the throw away fruit can be used to make innovation. To date, 60 respondents have indicated whether they strongly agree (4 marks), agree (3 marks), disagree (2 marks), and strongly disagree (1 mark). A total of 65% said they strongly agreed, and 21.7% said they agreed. The majority of our responders picked strongly agree and agree since they believe our product can make innovation using mangosteen skin powder.

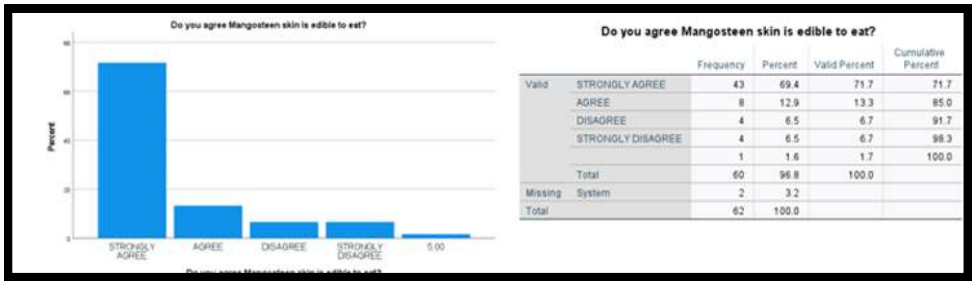


Rate mangosteen skin waste to reduce waste management?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STRONGLY AGRREE	31	50.0	51.7	51.7
	AGREE	21	33.9	35.0	86.7
	DISAGREE	3	4.8	5.0	91.7
	STRONGLY DISAGREE	5	8.1	8.3	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

XIII) PERCENTAGE OF AGREEMENT IF MANGOSTEEN SKIN IS EDIBLE TO EAT.

For the sixth question, Percentage of the agreement if mangosteen skin is edible to eat. To date, 60 respondents have indicated whether they strongly agree (4 marks), agree (3 marks), disagree (2 marks), and strongly disagree (1 mark). A total of 71.7% said they strongly agreed, and 13.3% said they agreed. The majority of our responders picked strongly agree and agree since they believe our product is edible and has many efficacies

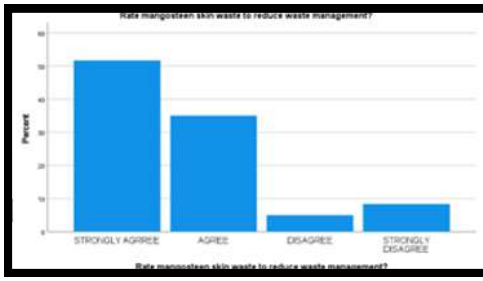


Do you agree Mangosteen skin is edible to eat?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STRONGLY AGREE	43	69.4	71.7	71.7
	AGREE	8	12.9	13.3	85.0
	DISAGREE	4	6.5	6.7	91.7
	STRONGLY DISAGREE	4	6.5	6.7	98.3
		1	1.6	1.7	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

XIV) PRECENTAGE OF RATE MANGOSTEEN SKIN WASTE TO REDUCE WASTE MANAGEMENT.

For the seventh question, Percentage of rate mangosteen skin waste to reduce waste management. To date, 60 respondents have indicated whether they strongly agree (4 marks), agree (3 marks), disagree (2 marks), and strongly disagree (1 mark). A total of 51.7% said they strongly agreed, and 35% said they agreed. The majority of our responders picked strongly agree and agree since they believe that our product can create innovation for green product.



Rate mangosteen skin waste to reduce waste management?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STRONGLY AGRREE	31	50.0	51.7	51.7
	AGREE	21	33.9	35.0	86.7
	DISAGREE	3	4.8	5.0	91.7
	STRONGLY DISAGREE	5	8.1	8.3	100.0
	Total	60	96.8	100.0	
Missing	System	2	3.2		
Total		62	100.0		

Data Analysis

Mangosteen skin biscuit product that we make already have the results from our research and we found that many students have problems with Bitternes of mangosteen skin. most of the students who taste our Mangosteen skin biscuit have their interest to get our product and stated that our product is suitable to eat and did not taste to bitter because of combination of almond and chocolate chips in the recipe. the main ingredient we use is mangosteen skin because mangosteen skin can help digestion and improve our skin. So, we did a test on the mangosteen skin to blend it to become a powder so that the process to create a biscuit is successful. we use 2 types of additional ingredient to less the bitterness of mangosteen skin which is almond and chocolate chip. As a result of our research, we found that many people like the taste of mangosteen skin biscuit because this product good for health and taste really tasty and crunchy.

DISCUSSION

This chapter discusses the methodology used to carry out the study conducted by the researcher which covers the entire study design, the selection of respondents, the target location of the study, the data collection procedure taken as well as the procedure for analyzing the study data along with the software used. This can help researchers facilitate the process of analyzing research data to be easier, faster, and more systematic. The research methodology used is consistent and does not run away from the original objective and purpose of the study.

CONCLUSION

In conclusion, our product Mangosteen skin biscuit has many advantages or benefits that are not known to the public. The products we use natural ingredients without strong chemicals that can be determine as green technology product because we recycle the unwanted waste to become a product. Our main ingredient in the mangosteen skin biscuit is mangosteen skin from mangosteen fruit, many people do not know that this mangosteen fruit has many benefits. The use of mangosteen has been practiced all over the world for many years.

This mangosteen skin biscuit has xanthones benefits the skin, and makes it special, which contains in addition to xanthones, mangosteen skin also contains tannin, phenolic acid and anthocyanin bioactive compounds that function as antioxidants, antimicrobials, and anti-inflammatory The antioxidant activity of mangosteen peel extract has a higher strength than extracts from many other fruit peels. Humans can safely consume 220-280 mg of mangosteen peel extract orally twice a day for 24 weeks. Significantly, the extract can boost red blood cell antioxidant capacity and prevent protein damage caused by oxidation. It may be beneficial. This substance may be a natural substance for conquering health issues such as diabetes prevention, cancer prevention, and free radical combating. Mangosteen skin can also be used to fight acne-causing germs. Acne is an inflammatory skin condition that can affect the skin of the face, neck, chest, and back. . According to Mellia Harumi, Dosen Technology Pangan, Unika Soegijapranat. The xanthone content in the mangosteen skin is much greater than in the flesh.

REFERENCES

Wan Mohd Aizat a, Faridda Hannim Ahmad-Hashim a, Sharifah Nabihah Syed Jaafar b, (2023 December 2). Show more Journal of Advanced Research."Valorization of mangosteen,The Queen of Fruits and new advances in postharvest and in food and engineering applications: A review". https://www.sciencedirect.com/science/article/pii/S2090123219301079

Alyna Turner, PhD, A review Research a. " Adjunctive Garcinia mangostana Linn. (Mangosteen) Pericarp for Schizophrenia: A 24-Week Double-blind, Randomized, Placebo Controlled Efficacy Trial: Péricarpe d'appoint Garcinia mangostana Linn (mangoustan) pour la schizophrénie : un essai d'efficacité de 24 semaines, à double insu, randomisé et contrôlé par placebo". https://journals.sagepub.com/doi/full/10.1177/0706743720982437

Grant Tinsley, Ph.D., CSCS,*D, CISSN, (2023 December 2), Medically reviewed. "Everything you need to know about mangosteen".https://www.medicalnewstoday.com/articles/mangosteen#what-mangosteen-is

Wikipedia, (2023 December 3) the free encyclopedia." Mangosteen". https://en.wikipedia.org/wiki/Mangosteen

Melissa Petruzzello, M, (2023 December 3), Entertainment & Pop Culture. "Mangosteen tree and fruit". https://www.britannica.com/plant/mangosteen

Ansley Hill, RD, LD, (2023 December 3). NUTRITION."11 Health Benefits of Mangosteen (And How to Eat It". https://www.bing.com/searchq=biscuit+mangosteen&cvid=362876684bf6456e91a8bf54fe7e5c68&gs_lcrp=EgZjaHJvbWUyBggAEEUYOTIGCAEQRRhA0gEIOTU4MWowajSoAgCwAgA&FORM=ANAB01&PC=ACTS

Rossi Indiarto,J, (2023 December 4). Original Article. “The physicochemical, antioxidant, and sensory properties of chocolate biscuits incorporated with encapsulated mangosteen (Garcinia mangostana L.) peel extract”. https://www.tandfonline.com/doi/full/10.1080/10942912.2022.2159429

Husnul Abdi KLY, (2023 December 4). KapanLagi Youniverse All Rights Reserved. “8 Manfaat Kulit Buah Manggis bagi Kesehatan, Mengandung Berbagai Nutrisi “.https://www.liputan6.com/hot/read/5300262/8-manfaat-kulit-buah-manggis-bagi-kesehatan-mengandung-berbagai-nutrisi?page=5

(Noer Erin Meilina & Aliya Nur Hasanah), (2023 December 4). REVIEW ARTIKEL. “Aktivitas Antibakteri Ekstrak Kulit Buah Manggis (Garnicia mangostana L.) terhadap Bakteri Penyebab Jerawat”. https://jurnal.unpad.ac.id/farmaka/article/view/17550

Mellia Harumi, M, (2023 December 4). Dosen Teknologi Pangan, Unika Soegijapranata . “Kulit Manggis Punya Potensi Jadi Bahan Pangan Fungsional Anti Kanker”. https://www.unika.ac.id/news/media-massa/online/kulit-manggis-punya-potensi-jadi-bahan-pangan-fungsional-anti-kanker

The Library, Technological University of the Shannon: Midwest. (2023, December 2). Methodology. https://lit.libguides.com/fyp/methodology

Edustoreng, J, (2023, December 4). Academic Research. “HOW TO WRITE A RESEARCH METHODOLOGY OF YOUR FINAL YEAR PROJECT”. https://eduprojecttopics.com/write-research-methodology-final-year-project/

(Tiffany Budert-Waltz & Kimberly Moffitt 2023), (2023, December 4). Research Methodology. “Definition, Techniques & Examples”. https://study.com/academy/lesson/research-methodology-approaches-techniques-quiz.html

Charlesworth, J, (2023, December 6). Services provide expert English language editing and publication support services. “Difference between Methodology and Method”. https://www.cwauthors.com/article/difference-between-methodology-and-method

Karin Kelley, J,(2023, December 8). Data Science & Business Analytics. “What is Data Analysis?: Process, Types, Methods, and Techniques”. https://www.simplilearn.com/data-analysis-methods-process-types-articl

ORANGE SKIN STRIP(Used an orangeskin)

Mohd Fadly Lamri , Muhd Rahizam, Nur Zahirah , Arif Iskandar , Wardina Nur Sofinaz

Politeknik METrO Kuantan , Pahang ,Malaysia
fadly.lamri@pmku.edu.my

ABSTRACT

Oranges are the richest source of phytochemicals. Oranges are rich in vitamin C and antioxidants. Orange peel can be converted to a valuable product called orange skin strip. orange peel is the primary fruit in some food products such as orange juice. This is important for preventing heart disease since high levels of LDL can lead to plaque build-up in the arteries which may eventually cause blockages and lead to heart attack or stroke. Our method is to produce food products containing orange peel skin and become an alternative to avoid waste. Our focus is to provide knowledge to the public about the benefits of orange peel in everyday life. We are targeting in particular the Politeknik METrO Kuantan semester 5 students with a total of 80 people. We will conduct a study through Google Form through SPSS analysis or known as Descriptive Statistical Analysis. Study design We use the quantitative data survey method through Google Forms. All of the questions or responses from the tester will measure in statistics of the product such as taste, edible and cost.

Keyword : Used orange skin

1.0 INTRODUCTION

Oranges are the primary fruit in some food products in the most recent modern era. Orange fruit is frequently employed in a variety of cuisine creations. People frequently eat orange fruit as a side dish on a daily basis. Citrus sinensis, a Rutaceous citrus fruit tree, is the official name for an orange. The best fruit for phytochemicals is oranges. It has antioxidant and nutritive qualities. Oranges' nutritional analysis reveals that they have fibre and other macro- and micronutrients. Because of its strong antioxidant content, it helps shield the body from a number of chronic illnesses, (Das L, Bhaumik E, Raychaudhuri U, Chakraborty R 2012) . Oranges come in a variety of varieties. Navel oranges, Valencia oranges, Cleopatra oranges, and Mandarin oranges are the orange varieties consumed in Malaysia.

Oranges (Citrus Reticulata) are among the imported fruits originating from North India or Southwest China that are imported to Malaysia and all over the world. If researched, an orange fruit can supply a variety of natural food nutrients. In addition to being important to supply fibre and improve intestinal health, compared to oranges that have been made into pills that only have one nutrient. However, there is little information in the literature on the digestion of orange waste. According to , (Kaparaju, P. L. N., & Rintala, J. A. , 2006) studied the laboratory-scale thermophilic anaerobic digestion of industrial orange waste (peel and pulp). The objective of this investigation was to evaluate the feasibility of anaerobic digestion of orange peel residue obtained from the production of orange juice in both mesophilic and thermophilic environments. This was done following a pre-treatment to extract D-limonene without the need for binder and pH neutralisation.

Since ancient times, orange peel has been used as a medicine for various diseases in a natural way. Good served as food and drink. However, oranges are rich in vitamin C and antioxidants, they can also enjoy the freshness and benefits stored behind the orange peel. That is by processing it to be applied to wateror made into a product that can supply vitamins. In addition to being easier, practical and having a fresh taste, here are some benefits of orange peel for health. Sinesis Citrus Known by its common name, orange, L. Osbeck is a rich source of vitamins and minerals, including potassium, calcium, folate, magnesium, niacin, and thiamine. Sixty percent of all citrus foods produced globally are orange in nature. Every year, a bigger portion of orange fruits is used for industrial extraction, which adds to the majority of residue, which includes the peel. The main product, peel, makes up between 50 and 60 percent of the weight of the fruit. (Mandalari, G., Bennett, R. N., Bisignano, G., Saija, A., Dugo, G., Lo Curto, R. B., ... & Waldron, K. W. 2006).

1.1 BACKGROUND OF STUDY

Nowadays, peoplebecome more environmentally conscious and try to recycle or reuse the wastethey generated. Typical kitchen waste such as orange peel can be converted to a valuable product which is known as “Oranges Skin Strip” by undergoing a fermentation process. The annual production of orange peel waste is 32 million tonnes, but the world's orange production is projected to be 60 million tonnes annually. The information that is currently available indicates that orange peel has an adsorption capacity of 3–5 mg/g and a water uptake of less than 1 mg/g. Orange peel is a great biosorption material due to its low water uptake and the availability of biomass found in nature. Orange peel is currently thrown away in households, but because of its nutritional content, it is utilised in many ways in the commercial sector to improve wellbeing. Frequent orange peel eating has a significant number of health benefits, including the prevention and treatment of a number of illnesses. (Hegazy & Ibrahium, 2012).

Basically, this "homemade orange peel candy" solution is the result of fermentation of fruit waste in a mixture of sugar, gelatine, citric acid and water after the manufacturing period. It is a process fermentation with the main ingredients of sugar and gelatine that are metabolized to form solids. It is then reduced to citric acid and homemade grated orange peel. There are several benefits of orange peel , the vitamin C content in oranges can prevent heart disease due to low cholesterol levels. Vitamin C in this orange fruit can also prevent the blood from clotting as well as prevent the risk of heart attack. Citrus peels are a great source of natural products for the food industry and human health, including sugars, flavonoids, carotenoids, folic acid, vitamin C, pectin, and essential oils. A popular nutraceutical that prevents cancer at the molecular level is citrus peel. (El-ghfar et al., 2016). Citrus peels are also a good source of phenolic chemicals, which can be isolated and used to create functional foods or as natural antioxidants to stop some foods from oxidising. (M. Babiker, 2013). Citrus peels are considered a rich source of distinctive phenolic compounds specific to citrus, particularly the flavanone glycosides that are distinctive to citrus (primarily naringin, hesperidin, narirutin, and neo hesperidin).

There are many benefits of the orange peel to produce gummies made by the peel . One of the advantages is we can save money by converting the kitchen waste such as orange peel to useful products . However , thanks to their excellent vitamin c content in orange peel . So , there are many nutrients and benefits found in orange peel that can be optional to any producing product . (Rawdkuen, S., Faseha, A., Benjakul, S., & Kaewprachu, P. 2020).

1.2 Problem statement

This study chooses products based on used orange peel because it wants to makea healthy snack and suitable for allages by the community . However , the first problem is that the kitchen waste population is increasing . In this era , society likes to throw kitchen waste that has been used in the dustbin or everywhere . This has led to an increased environmental pollution issue in Malaysia and abroad . It has been claimedto be able to act as a healthy snack to society . We know that children and teenagers love sweets. These healthy orange peel gummies have been approved by people who love sweets . The use of orange peel in the kitchen that is used every day causes a lot of used orange peel to be wasted in the PMKU kitchen and every house that disposes of orange peel waste . By using waste material such as orange peel , we can avoid waste pollution and can save the environment well .

1.3 Research objective

1.To identify the different types of food that can be made using the main ingredient which is orange peel.
2.To create a good packaging for Orange Skin Strip Product
3.Taking feedback from the PMKU about our product

1.4 Research Question

1. What kind of food can be made if orange peel is used as the main ingredient in a product?
2. What is the process involved in making ready-to-eat foods based on orange peel?
3. How to know if our product is tasteful

1.5 Scope of the research

The study that will be conducted is to ensure that the waste that is orange peel is controlled by using it to make a product that can be eaten and has benefits for the public. At the same time, it is also easy to produce by the public and has a good taste. The orange peel is turns out to have many good properties for the human body. It is suitable to be used as a side food ingredient for humans. Firstly , The people that are targeted for the purpose of this research are all semester 5 from DHF and DUP students . Other than that , we need to conducted to ensure that the waste of orange peel is controlled and its also can be a good product for people.

1.6 Project importance

The findings of the study will contribute to the use of orange peel waste as the main ingredient to make sweets that have a good taste at the same time as it can reduce the disposal of waste to the environment. This research involves studies involving food waste that can also be made into good sweets especially for children. On the other hand, it can also produce sweets that are easy to produce at home and do not use expensive manufacturing costs.
i)To reduce natural pollution caused by irresponsible human behavior by throwing waste into the river.
ii) Can save expenses and can take advantage of food that should be thrown away for good food.
iii) To reduce the cost of disposal of food waste that is thrown in landfills.

1.7 Expected project results

At the end of this study, it is hoped to be able to produce food products that are made into sweets made from orange peel waste as the main ingredient in the production of these sweets. Orange peel waste that is usually thrown away and not used is made into a food product that can be eaten and has a good taste. The product can be more famous and its can be introduced to all communities.

2.0 HISTORY OF ORANGE FRUIT

Tropical fruits are a diverse and exotic group of fruits that thrive in warm tropical climates near the equator. These fruits are known for their bright colours, unique taste, and nutritional richness. They play an important role in the diets and cultures of tropicalregions around the world and have gained popularity in many other parts of the world for their delicious taste and health benefits. Malaysia is blessed with a tropical climate and abundant rainfall, making it an ideal environment for growing a variety of tropical fruits. Malaysian tropical fruits are not only popular in the country but are also exported to many places in the world according to the (Arizal Arshad & Normaz Wana Ismail, 2020). Research indicates that fruits are an abundant natural supply of antioxidants, which can help prevent degenerative and chronic illnesses as well as ageing. This study shown that practically unknown tropical fruits that are edible had noticeably increased antioxidant activity. (Pereira-Netto, 2018). Apart from genetic disorders, antioxidants offer protection against a range of diseases, such as eczema, diabetes mellitus, cerebral ischemia, arthritis, asthma, atherosclerosis, autoimmune diseases, bronchopulmonary dyspepsia, cancer, cataract, and gastrointestinal inflammatory diseases as well as heart disease. An orange, one of the tropical fruits is a type of citrus fruit that has a round shape, a bright orange colour, and a sweet and sour taste. It is one of the most popular and widely cultivated fruits in the world, and it has many health benefits. The orange fruit belongs to the genus Citrus sinensis which is the member of the Citrus family, along with mandarins (tangerines), lemons, limes and grapefruit. The fruit of Citrus sinensis forms a significant part of human diet and is usually regarded as a good source of food according to (Etebu & Nwauzoma, 2014).The orange is a hybrid of the pomelo and the mandarin, and it originated in Southeast Asia, where it has been cultivated for thousands of years. The word “orange” comes from the Tamil word “naru”, which means “fragrant”, via Persian and Arabic languages according to (Talon, Manuel; Caruso, Marco; Gmitter, Fred G. Jr. 2020).

2.1.1 Benefits of Orange Peel

Orange peel is a rich source of nutraceuticals, which are food or food components that have physiological and pharmacological benefits. Nutraceuticals can help prevent and treat various diseases, such as inflammation, obesity, cancer, diabetes, and high cholesterol. Orange peel contains high amounts of dietary fibers, phenolic compounds, and phytochemical agents that have antioxidant, anti-inflammatory, anti-obesity, anti-cancerous, anti-diabetic and anti-hypercholesterolemic properties (Nazir et al., 2022). Orange peel also contains essential oils, flavones, polyphenols, and pigments that have industrial and therapeutic applications. For example, orange peel can be used as a natural preservative, flavoring agent, colorant, cosmetic ingredient, and antimicrobial agent. Orange peel can also be used to produce biofuels, bioplastics, and biodegradable materials (Abou Baker, D. H., Ibrahim, E. A., & Salama, Z. A. E. R. 2021).

2.1.2 Benefits of Orange Leaves

Bitter orange leaves that have been dried are utilised for dietary and therapeutic purposes. The infusion made from the leaves is used to treat respiratory illnesses including bronchitis, coughs, and colds as well as digestive diseases like dyspepsia, indigestion, nausea, and colitis. Furthermore, its leaves are a great natural anxiolytic and help with constipation, diarrhoea, gastritis, colic, and intestinal pain. (Jorge de Jesús et al., 2021). Another lists the potential health benefits of orange leaves, including boosting the immune system, maintaining blood sugar levels, helping with weight loss, improving cardiovascular health, fighting cancer, and possessing antibacterial properties (Teixeira-Lemos et al., 2021)

2.2.1 Leaves to preserve food

The use of leaves to preserve food in Nigeria is quite popular and acceptable. It uses cut across the teeming populace in every geographical part of the country. Depending on location and locality, various types of plant leaves are used as wrappers, e.g. Musasapentium, Musaparadisiaca, Cola nitida, Cola acuminata, Piliostigmareticulatum, Theobromae cacao, Colocasiaesculenta, Cannaindica, Megaphryniummacrostachyum and Thaumatococcusdaniellii leaves (ADEOGUN et al., 2017).

2.2.2 Orange Peel Powder for Biscuits

Antioxidants and dietary fibre are abundant in orange peel. People's awareness of functional essential components is growing in the present lifestyle context, which is driving up demand for functional foods. The purpose of this study was to create useful biscuits by adding powdered orange peel. After carefully cleaning, peeling, and chopping the fruit peels into tiny bits, the oranges were oven-dried and crushed into a fine powder according to (Rani et al., 2020).

2.2.3 Development and characterization of healthy gummy jellies containing natural fruits

Gummy jellies, a product that is typically lacking in nutrition, now has some increased health attributes thanks to the reduction of sugar and the addition of healthy ingredients. Consequently, the goal of this research is to create two types of gummy jellies using only natural components and no added sugar or additives: one will have orange juice and honey that has been softly sweetened, and the other will contain puree created from a varietyof berries. (Teixeira-Lemos et al., 2021).

2.3 SUMMARY

Oranges are a great source of essential nutrients such as vitamins, minerals, and antioxidants. They are high in fiber and low in calories, making them a healthy snack option. Oranges are also rich in vitamin C, which helps boost the immune system by producing infection-fighting white blood cells that fight off infections such as colds or flu. Additionally, oranges contain flavonoids like hesperidin and rutin that help maintain healthy blood vessels while lowering cholesterol and triglyceride levels. This is important for preventing heart disease since high levels of LDL can lead to plaque build-up in the arteries which may eventually cause block age sand lead to heart attack or stroke

3.0 METHODOLOGY

Our method is to produce food products containing orange peel skin and become an alternative to avoid waste. Our focus is to provide knowledge to the public about the benefits of orange peel in everyday life. We are targeting in particular the Politeknik METrO Kuantan semester 5 students with a total of 82 people. We will conduct a study through Google Form through SPSS analysis or known as Descriptive statistical Analysis.

3.1 Study design

We use the quantitative data survey method through Google Forms. All of the questions or responses from the tester will measure in statistics of the product such as taste, edible and cost.

3.0.1 Research design

1.Questionnaire
a. Through Google Form platform
b. Analysis in SPSS (Statistical Package for the Social Sciences)
c. Analysis Descriptive Statistic

2.Quantitative
a. For the sampling, we choose to all of Semester 5 included DHF and DUP

3.1.4 Budgeting

Table 3.1.4 for costing orange skin stripe type of flavour

NO	INGREDIENTS	PRICE PER UNIT(RM)	QUANTITY USED	PRICE PER UNIT USED
1	ORANGE SKIN	RM 0.00	(1pcs whole orange skin /200g)	RM 0.00
2	CITRIC ACID (50g)	RM 3.00	(1pcs/2.5g)	RM 0.15
3	SUGAR (1kg)	RM 2.85	(1pcs/125g)	RM 0.36
4	WATER	RM 0.00	(1pcs/185ml)	RM 0.00
5	EGG YOLK COLOURING (50ml)	RM 3.14	(1pcs/0.02ml)	RM 0.01
6	GELATIN(50g)	RM 4.80	(1pcs/29g)	RM 2.78
TOTAL		**RM 13.79**		**RM 3.30**

Cost of raw material= RM 13.79
Price of one batch = RM 3.30
Price of one unit = RM 3.30 ÷ 7 slice
Cost of one unit = RM 0.50 (1pcs)

3.2.1 Sampling

A sample is a subset of individuals from a larger population. Sampling means selecting the group that will actually collect data from in your research. For example, if researching the opinions of students in the university, it could survey a sample of 100 students.

3.2.2 Sampling method

- Simple Sampling

This method is done because the basis in sampling is not probability. Moreover, it is easy to carry out because it only concentrates on existing studies. For example, questionnaires. A disadvantage of simple sampling is that it does not ensure the representation of the population under study.

3.2.3 Analysis data method

(a) Data collected through instruments such as questionnaires research needs to be processed to give meaning. There are some statistical packages for this purpose: SPSS the Statistical Package for Social Sciences or SPSS Statistical Analysis System. Examples used the theme of this book is SPSS. Data that will enter using SPSS in this writing is a response to the questionnaire. Measurement is the collection of numbers to something an object or event based on a set of rules. Generally, there are four types of measurement scales such as nominal, ordinal, interval and ratio.
(b) Technically, using all 4 elements to create statistics related to this product. This is to record important data such as how many people like or dislike this product and the price of the product.

4.1 Results and Discussion

Orange Skin Strip product that we make, we get the results for our research. In this result, we found that many students have taste the sample answering the question in the Google Form. About 82 students from Semester 5 in PMKu included DHF and DUP have tasted the sample. Data was analyzed using IBM SPSS Statistics software version 27.

4.2 Analysis of Mean

	N	Std. Deviation	Mean
CLASS	82	2.6434	1.07950
GENDER	82	1.6951	.55974
AGE	82	1.9634	.18890
RACE	82	1.0488	.21673
H1. Does the shape of our Orange Strip Peel product have a unique shape	82	3.8780	.98620
H2. Does the Orange Strip Peel color appeal to you	82	4.0854	.84913
H3. Does Orang Strip Peel have a sour taste	82	3.7561	1.01301
H4. Does Orange Strip Peel have a sweet taste	82	4.1098	.83157
H5. Does Orange Strip Peel have a chewy texture	82	3.8049	1.30941
H6. Do you think this product suitable for all age level	82	3.6585	.91920
F7. It is not perishable	82	3.9146	.80433
F8. Does Orange Strip Peel have good packaging	82	3.8659	.73303
F9. Orange Strip Peel has a sticky texture on the packaging	82	2.8171	1.36199
F10. Do you agree with Orange Strip Peel packaging that is easy to carry / eat	82	4.4024	.68240

F11. How long it can last	82	4.3171	.66440
G12. Do you think this product can reduce waste / save the world	82	4.3293	.77068
G13. Do you think the packaging is eco-friendly	82	4.0976	.82566
G14. Do you think the production process is good for environment	82	4.3293	.70369
G15. Do you think the production process take a long time	82	3.7195	.1.12518
G16. Do you think this waste is suitable to be used as a product	82	4.1585	.72809
C17. Does the price of this product reasonable	82	4.2317	.72519
C18. Does this product worth to buy again	82	4.1463	.81834
C19. Does this portion of the product suitable with the price	82	2.9268	1.34972
C20. Does this product are overpriced	82	4.1463	.97020

The mean is the mathematical average of a set of two or more numbers. The arithmetic mean and the geometric mean are two types of mean that can be calculated. The formula for calculating the arithmetic mean is to add up the numbers in a set and divide by the total quantity of numbers in the set. This shows the mean is .80433 which is the respondent fully answer the questionnaire given while the Std. Deviation is above 1.0488 because the respondent fully 100% giving the commitment.

4.3 Discussion

For the demographic question, there are four types such as class, gender, age and race.

CLASS					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	DHF 5A	19	13.1	23.2	23.2
	DHF 5B	23	15.9	28.0	51.2
	DUP 5A	21	14.5	25.6	76.8
	DUP 5B	19	13.1	23.2	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

In this result, this shows that the most respondent is from DHF 5B which is 28% of 23 people more than DHF 5A 23.2% of 19 people, DUP 5A 25.6% of 21 people and DUP 5B 23.2% of 19 people.

GENDER					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Male	29	20.0	35.4	35.4
	Female	53	36.6	64.6	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

In this result, this shows that the most respondent gender is from female which is 64.6%of 53 people more than male which is 35.4% of 29 people.

AGE					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	< 20 years old	3	2.1	3.7	3.7
	20-25 years old	79	54.5	96.3	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

In this result, this shows that the age of the respondent most from 20-25 years old which is 96.3% of 79 peoplemore than below 20 years old which is 3.7% of 3 people only.

RACE					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malay	78	53.8	95.1	95.1
	Chinese	4	2.8	4.9	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

In this result, this shows that the respondents are from Malaywhich is 95.1%of 78 people more than Chinese which is 4.9% of 4 people only.

H1. Does the shape of our Orange Strip Peel product have a unique shape					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly not agree	2	1.4	2.4	2.4
	Not agree	3	2.1	3.7	6.1
	MODERATE	24	16.6	29.3	35.4
	agree	27	18.6	32.9	68.3
	strongly agree	26	17.9	31.7	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the people agree with Orange Strip Peel product have a unique shape which is 32.9% of 27 people more than strongly not agree 2.4 % of 2 people, not agree 3.7% of 3 people, moderate 29.3 of 24 people and strongly agree 31.7% of 26 people. This shows that the product has a unique shape of the product which is rectangle.

H2. Does the Orange Strip Peel colour appeal to you					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not agree	1	.7	1.2	1.2
	MODERATE	23	15.9	28.0	29.3
	agree	26	17.9	31.7	61.0
	strongly agree	32	22.1	39.0	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the student strongly agree about the colour of the Orange Strip Peel which is 22.1% of 32 people more than not agree, 1.2% of 1 people, moderate 28% of 23 people, agree 31,7% of 26 people. This shows that the colour is beautiful and fits with orange theme.

H3. Does Orang Strip Peel have a sour taste					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly not agree	2	1.4	2.4	2.4
	Not agree	6	4.1	7.3	9.8
	MODERATE	24	16.6	29.3	39.0
	agree	28	19.3	34.1	73.2
	strongly agree	22	15.2	26.8	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the student was agree about the sour taste of the product which is 34.1% of 28 people more than strongly not agree 2.4% of 2 people, not agree 7.3% of 6 people, moderate 29.3% of 24 people and strongly agree 26.8% of 22 people. This shows that the product have a sour taste because of the citric acid.

H4. Does Orange Strip Peel have a sweet taste					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Strongly not agree	1	.7	1.2	1.2
	MODERATE	18	12.4	22.0	23.2
	agree	33	22.8	40.2	63.4
	strongly agree	30	20.7	36.6	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the student was agree about sweet taste which is 40.2% of people more than strongly not agree 1.2% of 1 people, moderate 22% of 18 people, and strongly agree 56.6% of 30 people. This result shows the student want a sweet taste of the product.

H5. Does Orange Strip Peel have a chewy texture					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Strongly not agree	10	6.9	12.2	12.2
	Not agree	4	2.8	4.9	17.1
	MODERATE	7	4.8	8.5	25.6
	agree	32	22.1	39.0	64.6
	strongly agree	29	20.0	35.4	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the student was agree about the chewy texture which is 39% of 32 people more than strongly not agree 12.2% of 10 people, not agree 4.9% of 4 people, moderate 8.5% of 7 people, and strongly agree 35.4% of 29 people. This shows student taste a chewy texture of the product.

H6. Do you think this product suitable for all age level					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Strongly not agree	2	1.4	2.4	2.4
	Not agree	3	2.1	3.7	6.1
	MODERATE	32	22.1	39.0	45.1
	agree	29	20.0	35.4	80.5
	strongly agree	16	11.0	19.5	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the student was moderate about the suitable for all age level which is 39% of 32 people more than strongly not agree is just 2.4% of 2 people, not agree 3.7% of 3 people, agree 35.4% of 29 people, and strongly agree 19.5% of 16 people. This shows that the product is suitable for all age level such as kid, teen, adult and old. Most of the students agree about the perishable product which is 46.3% of 38 people more than not agree 3.7% of 3 people, moderate 25.6% of 21 people and strongly agree 24.4% of 20 people. This shows the product it is not perishable which means the product physically strong. Most of the student agree about the packaging product which is 52.4% of 43 people more than not agree 2.4% of 2 people, moderate 26.8% of 22 people, and strongly agree 18.3% of 15 people. This shows that the packaging was good such as design and unique for the product.

F9. Orange Strip Peel has a sticky texture on the packaging					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Strongly not agree	21	14.5	25.6	25.6
	Not agree	13	9.0	15.9	41.5
	MODERATE	16	11.0	19.5	61.0
	agree	24	16.6	29.3	90.2
	strongly agree	8	5.5	9.8	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the student agree about the sticky texture on the packaging product which is 29.3% of 24 people more than strongly not agree 25.6% of 21 people, not agree 15.9% of 13 people, moderate 19.5% of 16 people, and strongly agree 9.8% of 8 people. This shows the product on the packaging was sticky and its hard to take out because of the stickiness.

F10. Do you agree with Orange Strip Peel packaging that is easy to carry / eat					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	MODERATE	9	6.2	11.0	11.0
	agree	31	21.4	37.8	48.8
	strongly agree	42	29.0	51.2	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the students strongly agree about the packaging of the product that is easy to carry / eat which is 29% of 42 people more than moderate 11% of 9 people and agree 37.8% of 31 people. This shows the packaging are easily carry on everywhere and ready to eat every time. Most of the students agree about long lasting product which is 46.3% of 38 people more than moderate 11% of 9 people, and strongly agree 42.7% of 35 people. This shows that the product can long lasting for a month.

G12. Do you think this product can reduce waste / save the world					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MODERATE	15	10.3	18.3	18.3
	agree	25	17.2	30.5	48.8
	strongly agree	42	29.0	51.2	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the student strongly agree about the product from waste orange peel which is 51.2% of 42 people, moderate 18.3% of 15 people and agree 30.5% of 25 people. This shows that the product can save the world or reduce non- edible waste.

G13. Do you think the packaging is eco-friendly					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not agree	1	.7	1.2	1.2
	MODERATE	21	14.5	25.6	26.8
	agree	29	20.0	35.4	62.2
	strongly agree	31	21.4	37.8	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the students strongly agree that the packaging is eco-friendly which is 37.8% of 31 people more than not agree 1.2% of 1 people, moderate 25.6% of 21 people, and agree 35.4% of 31 people. This shows that the packaging is eco-friendly because the material of the packaging was from the waste/non-edible. Most of the students strongly agree about the production process is good of the environment which is 46.3% of 38 people, moderate 13.4% of 11 people, and agree 40.2% of 33 people. This shows that the production process free from bad environment because it is not being a pollution for the people.

G15. Do you think the production process take a long time					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Strongly not agree	6	4.1	7.3	7.3
	Not agree	1	.7	1.2	8.5
	MODERATE	27	18.6	32.9	41.5
	agree	24	16.6	29.3	70.7
	strongly agree	24	16.6	29.3	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the students moderate about the production process take a long time which is 32.9% of 27 people more than strongly not agree 7.3% of 6 people, not agree 1.2% of 1 people, agree 29.3% of 24 people, and strongly agree 29.3% of 24 people. This shows the production process is take a long time because of the hard step and process to make a perfect texture.

G16. Do you think this waste is suitable to be used as a product					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MODERATE	16	11.0	19.5	19.5
	agree	37	25.5	45.1	64.6
	strongly agree	29	20.0	35.4	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the student agree about the waste is suitable to be used as a product which is 45.1% of 37 people, moderate 19.5% of 16 people, and strongly agree 35.4% of 29 people. This shows that the orange peel waste is suitable to be used as a product which is Orange Skin Strip.

C17. Does the price of this product reasonable					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MODERATE	14	9.7	17.1	17.1
	agree	35	24.1	42.7	59.8
	strongly agree	33	22.8	40.2	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the student agree about the price of the product reasonable which is 42.7% of 35 people, moderate, 17.1% of 14 people, and strongly agree 40.2% of 33 people. This shows that the price is reasonable because of the cost making the product, total of the packaging and size product are cheaper.

C18. Does this product worth to buy again					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly not agree	1	.7	1.2	1.2
	Not agree	1	.7	1.2	2.4
	MODERATE	13	9.0	15.9	18.3
	agree	37	25.5	45.1	63.4
	strongly agree	30	20.7	36.6	100.0
	Total	82	56.6	100.0	
Missing	System	63	43.4		
Total		**145**	**100.0**		

Most of the student agree about the worth to buy again product which is 45.1% of 37 people more than strongly not agree 1.2% of 1 people, not agree 1.2% of 1 people, moderate 15.9% of 13 people, and strongly agree 36.6% of 30 people. This shows that the product worth to buy again because delicious, cheaper and unique snacks,

Most of the students moderate about the portion of the product suitable with the price which is 29.3% of 24 people more than strongly not agree 20.7% of 17 people, not agree 15.9% of 13 people, agree 18.3% of 15 people and strongly agree 15.9% of 13 people.This shows that the portionof the product is not suitable with the price because of size or portion in each packaging is not enough. Most of the students strongly agree which is 42.7% of 35 people more than strongly not agree 3.7% of 3 people, not agree 1.2% of 1 people, moderate 14.6% of 12 people and agree 37.8% of 31 people. This shows that the product is not overpriced because of the cost making reasonable and cheap. about the waste and how to reduce it with making a product that give the function to the human and environment on earth.

5. CONCLUSION

The panel of reviewers at the exhibition commented that orange peel can not only be used for food or our products,
i.e. Skin Strip, but there are also several products that can be produced from orange peel such as cosmetics and so on. He said, our orange peel snack food product is based on the concept of using waste as a product innovation. The panel suggested that our Orange Skin Strip is not only sour belt-shaped but he suggested that we make various shapes or patterns that can give uniqueness to our product. In addition, the panel suggested further innovating the orange peel not just to be used as a snack, but he suggested making orange peel powder or orange peel innovation to give a variety of decoration to cake making and so on. Not only that, he also suggested that we improve our product packaging so that it looks more cheerful and can attract the attention of customers. Future proposals regarding our Orange Skin Strip products, should be sent to the laboratory to check the content contained in this product to provide customers with evidence of the factual content found in this Orange Skin Strip and we will further improve our product packaging. Finally, we will also try to find a suitable tool or machine to facilitate the Orange Skin Strip process.

5.2 PROJECT LIMITATION

In the process of producing this Orange Skin Strip, it takes quite a long time because it is necessary to scrape off the white on the orange skin first. For us, our three oranges only made 7 slices and it took half a day to make them. With this limited time, Orange Skin Strip products can be produced so well.

5.3 RECOMMENDATION

As revealed in the section above, the results indicate the extent to which perceived genuine quality influences the acceptance (or rejection) of the Orange Peel innovation. Overall, this study confirms that the majority of consumers are positive about the innovation in this orange peel snack food product, especially the sensory quality and ingredient content. The results of the study also show that the perception of genuine quality has a relatively strong influence on consumer acceptance of the taste of this Orange Skin Strip snack that was innovated from orange peel waste. Based on the quality characteristics of the innovation, it is important to improve and maintain the long-lasting character and level of chewiness as much as possible in the innovation in terms of the sensory properties of the product, especially taste, smell and texture. In addition, this project aims to use sensory evaluation to identify and improve product weaknesses through the comments of Kuantan Metro Polytechnic students and lecturers. Next, this study managed to find ways and information about manufacturing from orange peel waste to successfully produce a delicious innovative food, the Orange Skin Strip. Finally, Orange Skin Strip adheres to the theme of "Green Sustainable" where this product uses waste material such as waste material that is orange peel that is not used by the public.

REFERENCES

Abou Baker, D. H., Ibrahim, E. A., & Salama, Z. A. E. R. (2021). Citrus peels as a source of bioactive compounds with industrial and therapeutic applications. Phenolic Compounds—Chemistry, Synthesis, Diversity, Non-Conventional Industrial, Pharmaceutical and Therapeutic Applications, 1- 13

Das, L., Bhaumik, E., Raychaudhuri, U., & Chakraborty, R. (2012). Role of nutraceuticals in human health.
Journal of food scienceand technology, 49, 173-183.

ADEOGUN, O. O., ADEKUNLE, A. A., & ADONGBEDE, E. M. (2017).Effects of Leaf Extracts of
Selected Plants on Qualityof Stored Citrussinensis (Sweet Orange)Juice. Notulae Scientia Biologicae, 9(2), 256– 262. https://doi.org/10.15835/nsb9210067

Arizal Arshad,& Normaz Wana Ismail. (2020).The Issues and Challenges in Complying with Sanitary and Phytosanitary (SPS) Measures in Exporting Malaysian Fruits. Journal of Tropical Plant Physiology, 12(1), 11. https://doi.org/10.56999/jtpp.2020.12.1.4

El-ghfar, M. H. A. A., Ibrahim,H. M., Hassan, I. M., Abdel Fattah,A. A., & Mahmoud, M. H. (2016).Peels of Lemon and Orange as Value-Added Ingredients: Chemical and Antioxidant Properties. International Journal of Current Microbiology and Applied Sciences, 5(12), 777–794. https://doi.org/10.20546/ijcmas.2016.512.089

Etebu, E., & Nwauzoma,A. B. (2014). A REVIEW ON SWEET ORANGE(CITRUS SINENSIS L Osbeck):
HEALTH, DISEASESAND MANAGEMENT (Vol. 2, Issue 2). www.usa-journals.com

Hegazy, A. E., & Ibrahium, M. I. (2012).Antioxidant activities of orange peel extracts. World Applied Sciences Journal, 18(5), 684–688. https://doi.org/10.5829/idosi.wasj.2012.18.05.64179

Jorge de Jesús, C. G., Margarita, C. T., Beatriz, C. T., Francisco, L. Z., Gerardo Alberto, M. P., & Carlos Jesahel, V. G. (2021). Improvements and evaluation on bitter orange leaves (Citrusaurantium l.) solar drying in humid climates. Sustainability (Switzerland), 13(16). https://doi.org/10.3390/su13169393

Kaparaju, P. L. N., & Rintala,J. A. (2006). Thermophilic anaerobic digestion of industrial orange waste.
Environmental technology, 27(6), 623-633.

Mandalari, G., Bennett, R. N., Bisignano, G., Saija, A., Dugo, G., Lo Curto, R. B., ...& Waldron, K. W. (2006). Characterization of flavonoids and pectins from bergamot (Citrusbergamia Risso) peel,a major byproduct of essential oil extraction. Journal of agricultural and food chemistry, 54(1), 197-203.

M. Babiker, W. A. (2013). Physicochemical Properties of Wheat Bread Supplemented with Orange Peel By- Products. International Journal of Nutrition and Food Sciences, 2(1), 1. https://doi.org/10.11648/j.ijnfs.20130201.11

Nazir,A. et al. (2022). Orange Peel as Source of Nutraceuticals. In: Egbuna, C., Sawicka, B., Khan, J. (eds) Food and Agricultural Byproducts as Important Source of Valuable Nutraceuticals. Springer, Cham.https://doi.org/10.1007/978-3-030-98760-2_7

Nimse, S. B., & Pal, D. (2015). Free radicals, naturalantioxidants, and their reaction mechanisms. RSC Advances, 5(35), 27986–28006. https://doi.org/10.1039/c4ra13315c

Pereira-Netto, A. B. (2018).Tropical Fruits as Natural, Exceptionally Rich, Sources of Bioactive Compounds.
In International Journal of FruitScience (Vol. 18, Issue 3, pp. 231–242). Taylor and FrancisInc. https://doi.org/10.1080/15538362.2018.1444532

Rani, V., Sangwan, V., Rani, V., & Malik,P. (2020). OrangePeel Powder: A Potent Source of Fiberand Antioxidants for Functional Biscuits. International Journal of Current Microbiology and Applied Sciences, 9(9), 1319–1325. https://doi.org/10.20546/ijcmas.2020.909.167

Rawdkuen, S., Faseha, A., Benjakul, S., & Kaewprachu, P. (2020). Application of anthocyanin as a color indicator in gelatin films. Food Bioscience, 36, 100603.

Talon, M., Caruso, M., & Gmitter jr, F. G. (Eds.). (2020). The Genus Citrus. Woodhead Publishing.

Teixeira-Lemos, E., Almeida, A. R., Vouga,B., Morais, C., Correia, I., Pereira, P., & Guiné,R. P. F. (2021). Development and characterization of healthy gummyjellies containing naturalfruits. Open Agriculture,6(1),466–
478. https://doi.org/10.1515/opag-2021-0029

Figure 1 Logo of Product

Figure 2 Business Card

Figure 2 Sticker on packaging of product

PEPELETTE BITES

Haslina binti Ahmad Muzakir, Khadijah Humaira Binti Mohd Nor Heizel, Nurin Qistina Binti Mohd Faisol, Nur Farah Ashiqin Binti Salim, Dan Nur Izyan Izzani Binti Suhaimi

Tourism and Hospitality Department
Polytechnic METrO Kuantan

ABSTRACT

The name of the study that has been discussed to make something innovative is Pepelette bites, that is using the main ingredient is the head of anchovies. The purpose of this project is to make it easier & reduce the cost of fish farmers out there so that they can afford to buy these fish pellets. In addition, we also want to prevent waste from the waste of raw materials that are still good but cannot be used in cooking, and fish bran is produced from anchovy heads. In addition, anchovy heads also contain good protein and calcium, many people do not know that anchovy heads contain nutrients.

1.0 INTRODUCTION

Society, especially the younger generation, does not want to know and try to change or develop new ideas. The younger generation now prefers to buy or use existing products. Therefore, we have created this fish pellet product to prove that the younger generation can also develop ideas well. These pellets are produced from anchovies. The scientific name of the anchovy is Stolephorus Commersonii. This anchovy is a commercially important fish and is sold in markets as food. Its catch requires a license to ensure it is not threatened by overfishing by commercial fishermen. Various foods are made from anchovies, such as anchovy sauce, cencaluk, and many more dishes that will use anchovies. The anchovy head will usually be discarded without being used. This will result in waste when there are many other things that can be used from the anchovy head whereas the anchovy head generally contains protein at a rate of 50-70%. Apart from protein, calcium is the second highest ingredient in this anchovy head (20-30%). Therefore, the objective of this study is to avoid wasting anchovy heads which have a lot of protein and calcium, and the price of fish pellets is getting more expensive. Therefore, we created fish food pellets that are easier and safer for pet fish to eat. For the production of findings and results of this project, we hope that these fish pellets can be well received by pet fish. Not only well received by pets but also well received and often used by the user. Therefore, there is a lot of doubt experienced by some fish defenders when it comes to pellets given by their fish. For example, most of the pellets that are sold contain many chemicals, which will cause a risk to the fish and the people who eat the fish. So, with those things we have created our product without having any chemicals found in the fish pellets.

1.1 PROBLEM STATEMENT

i) Waste from anchovy head waste is often thrown away and not used.
ii) The price of pellets is increasing and causing the defender to bear high costs to buy pellets.
iii) Outdoor pellets that are marketed contain unreliable sources.

1.2 OBJECTIVE

i) Using anchovy heads as an innovation product as fish pellets.
ii) Producing products that are affordable to consumers and needs to be emphasized about the cost of fish farmer
iii) Can produce fish pellets that have many nutrients and high protein.

2.0 LITERATURE REVIEW

The issue of anchovy nutrition, for example, fish has many benefits for the health of the body because it is rich in nutrients such as omega 3 fatty acids. Fish rich in omega-3 acids are swordfish, mackerel, anchovies, and tuna. There are 3 main types of omega-3 fatty acids, namely alphalinolenic acid (ALA), eicosapentanoic acid (EPA) and docosahexanoic acid (DHA). Fish also contains antioxidants, minerals such as iron, selenium, magnesium, and calcium, protein, and iodine. Fish protein absorption is higher than chicken and beef because fish meat has shorter protein fibers. In general, these nutrients are beneficial to human health, such as reducing the level of cholesterol in the blood. At the same time, it can increase the level of HDL cholesterol (good cholesterol) and lower high blood pressure, thereby reducing the risk of heart disease. Omega-3 contained in fish can prevent several types of cancer such as colon cancer, breast cancer and prostate cancer (Galuh Nita Prameswari, 2018; Bimal P.M et.al., 2019; Tevi Karuniawati et. al., 2017; S.K Tilami et. al., 2017; Jag Pal et al., 2018). Based on research, Omega-3 from the DHA and EPA class affects children's brain development and helps brain cells to connect (Galuh Nita Prameswari, 2018). While iodine plays a role in helping thyroid and nerve function (FAO, 2020).

Products based on fish products are known as the production and processing of fish products by humans. Sea catch will be processed either using technology or traditional methods to produce secondary products based on fish such as anchovies, salted fish, dried shrimp and belacan. Seafood such as shrimp, squid and fish will be processed to produce products that last longer. In addition, the products produced usually have improvements and changes in quality either from the aspect of taste, texture and product packaging. In general, studies on entrepreneurship issues are diverse and can be researched in several main themes. For studies at the international level, business success factors were studied by Chuthamas et al. [4] as well as Muhammad Asad and Qamar Iftikhar [5]. Next, studies related to growth strategies were studied by Yogo [6]. In addition, the challenges of Small and Medium Industries are studied by Ackah and Vuvor [7]. While studies in Malaysia can be researched in several main themes, which are studies related to the profile of entrepreneurs by Faradillah et al. [8]. Next, a study related to entrepreneurial success factors by Abu Sufian et al. [9], Chin Yee Wah [10], Shahrin and Hasma [11]. Table 1 displays some selected literature highlights related to aspects of business and entrepreneurship especially in small and medium industries.

According to the journal, recycling food waste into high-quality fish feed for safe and quality fish production, Wong, M. H., Mo, W. Y., Choi, W. M., Cheng, Z., & Man, Y. B. (2016). The amount of food waste that generated from modern society is increasing, which has put enormous pressure on its treatment and disposal. Food waste should be considered a valuable resource rather than waste and turning it into fish food would be a viable alternative. This paper attempts to study the possibility of using food waste to formulate feed pellets to culture several freshwater fish species, such as grass carp, gray mullet, and tilapia, under polyculture mode (cultivating different species in the same pond). These species occupy different ecological niches, with different feeding modes (ie, herbivory, filter feeding, etc.), and therefore all nutrients obtained from food waste can be efficiently recycled in the ecosystem.

According to the journal, Effects of formula variations on the properties of fish food pellets, Saalah, S., Shapawi, R., Othman, N. A., & Bono, A. (2010). Most fish food pellets on the market are low in water stability and swell easily when they are soaked in water. Therefore, soluble vitamins and minerals will easily dissolve out of the pellet. This will lead to nutrient deficiencies and environmental problems in the fish tank or pond. Therefore, a study was conducted to minimize the degree of swelling and leaching of minerals while maximizing floating time. For this purpose, several fish food formulations have been made and tested. This formulation is based on common sources such as corn flour, soy flour and tapioca flour.

To obtain water stability i.e. better floating time and lower leaching ability, palm oil stearin was added as the main subject compound for this study. Statistical methods, D-optimum crossover design response surface methodology were used for the analysis and optimization of the properties of the produced fish food pellets. In statistical analysis, physical properties such as degree of swelling, leaching and floating ability were selected as responses while pellet composition and processing temperature as independent factors. The results of the study show that there is a relationship between the fish food formulation and the properties of the fish food pellets produced. Optimum floating time, leaching ability and stability of fish food pellets can also be obtained.

3.0 METHODOLOGY

3.1 REASEARCH DESIGN

This PEPELLET BITES study was carried out using an experimental design. This is because the research design used is an experimental method. This is because this product is produced to get the user's opinion and acceptance about this pellet. Therefore, in terms of texture, color and smell there may be differences from other pellets.

3.2 PRODUCT DEVELOPMENT

1. Finding and preparing equipment.
2. Grind anchovy heads and hard corn until smooth and filter.
3. Place the sifted fish head powder and corn powder together in a mixing bowl.
4. Put some water and cooking oil into the mixture in the mixing bowl.
5. Shape it into a small circle.
6. Dry the product under the sun for three days.

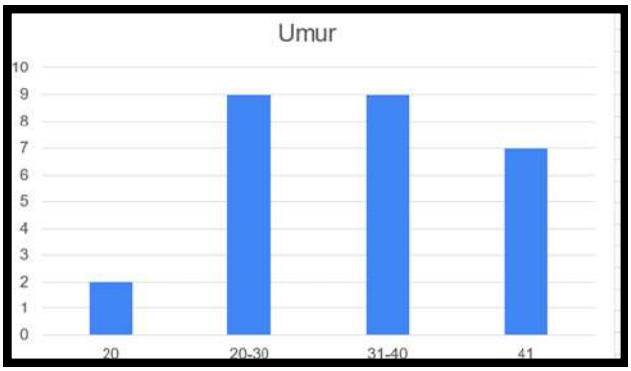
3.3 INSTRUMENT DEVELOPMENT

To ask questions to fish farmers, we have created a question through a google form so that it is easy for fish farmers to fill in and answer the questions asked.

4.0 FINDING (ANALYSIS DATA)

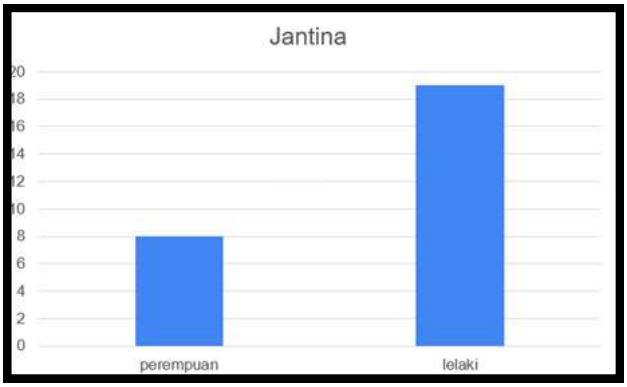
SECTION A

AGE



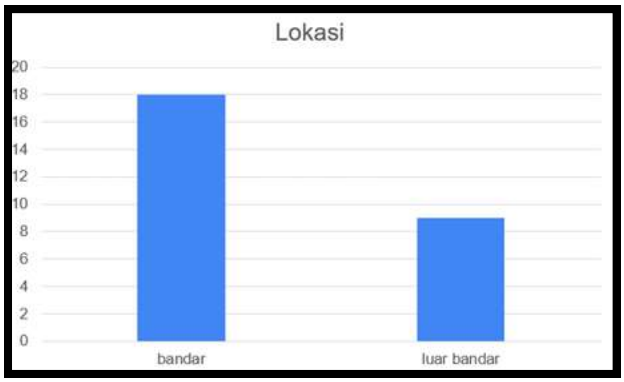
Based on the graph above, it shows the number of respondents according to their age. There are 2 people under 20 years old, representing 7.4 percent, while 20 to 30 years old are 9 people, representing 7.4 percent. At the age of 31 to 40 years there are also 9 respondents which is 33.3 percent and the age of 41 and above is 7 people which is 25.9 percent. This study is done according to age phases because there are a few modern breeders and a few veteran breeders.

GENDER



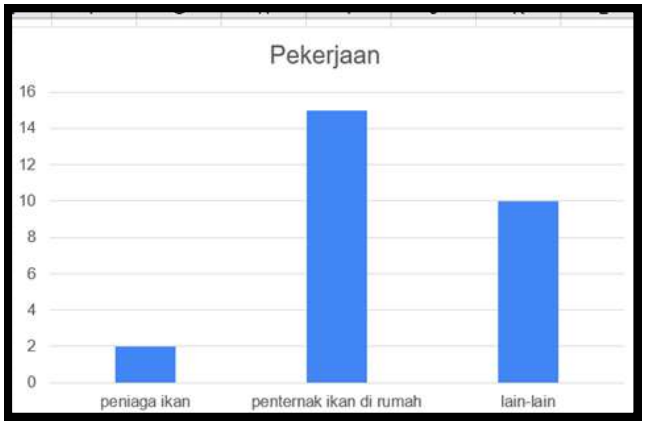
Next, the number of respondents by gender. For women we got a total of 8 people which is 29.6 percent. There are 19 men, which is 70.4 percent. We conducted the study by gender because there are few breeders who raise or do business through pellet manufacturing or through pond fish farming.

LOCATION



This study was conducted according to location to find differences between fish farmers in the city and in the countryside. We found a total of 18 people that is 66.7 percent from the city while a total of 9 people that is 33.3 percent from the countryside.

JOB SCOPE



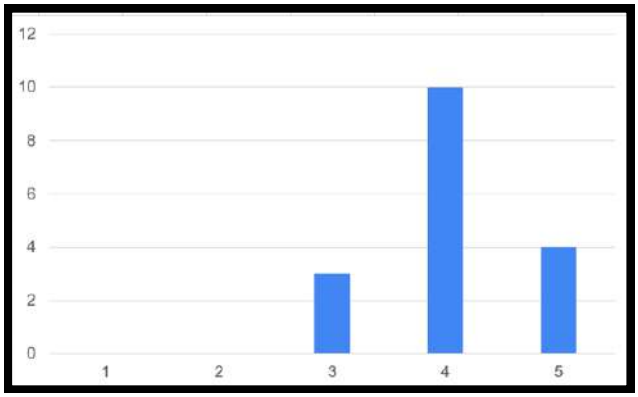
Based on the graph above, we also conducted a study to find out the job for each respondent. This study was conducted to collect the number of commercial breeders and breeders at home. Through the graph we found a total of 2 respondents 7.4 percent who run livestock commercially. Livestock at home as many as 15 people which is 55.6 percent. Through the study of home breeders that we have obtained, there are also those who produce their own fish pellets to feed to their fish. For other workers, a total of 10 people were found, which is 37 percent.

FISH FARMING EXPERIENCE

Research through the experience of raising fish was also done to collect data based on their knowledge of fish and fish pellets. Through 1 to 10 months, we got a total of 15 people which is 60 percent. Next, a total of 7 people from 1 to 5 years which is 28 percent and 3 people which is 12 percent for farmers who farm for a year or more.

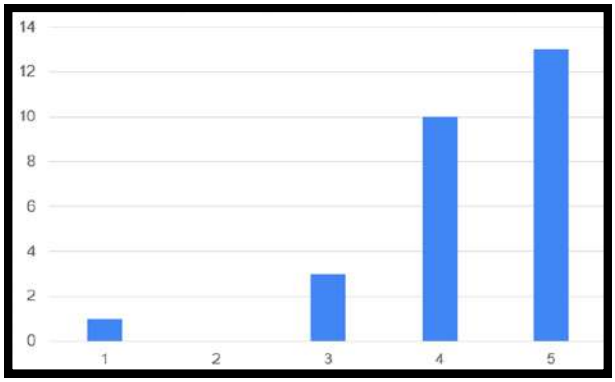
SECTION B

1. IN YOUR OPINION, ARE THESE PEPELLET BITES SUITABLE FOR GIVING TO FISH?



Based on the graph, we found that the majority agree if these Pepellet Bites are given to fish. A total of 10 people agreed and 4 people gave the view that they strongly agreed and 3 people chose moderately.

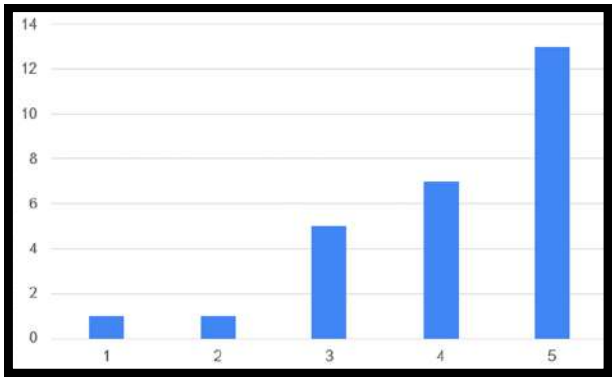
2. ARE PEPELLET BITES ABLE TO COMPETE WITH FISH PELLET PRODUCTS IN THE FOREIGN MARKET?



Through the graph, we found that the majority choose to strongly agree if our Pepellet Bites are marketed in foreign markets. A total of 10 people chose to agree, and a total of 3 people chose moderate.

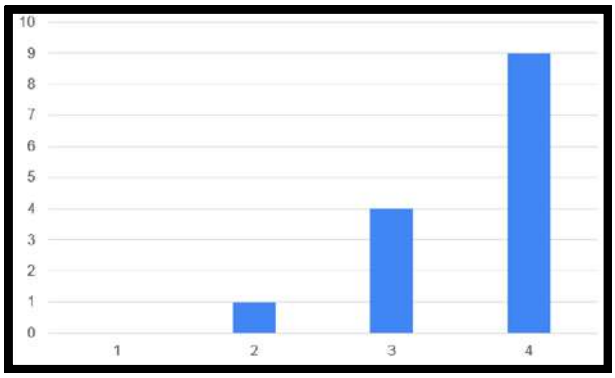
3. CAN THESE PEPELLET BITES SAVE THE COST TO THE BUYER?

1. 110G = RM2.00
2. 250G = RM4.00



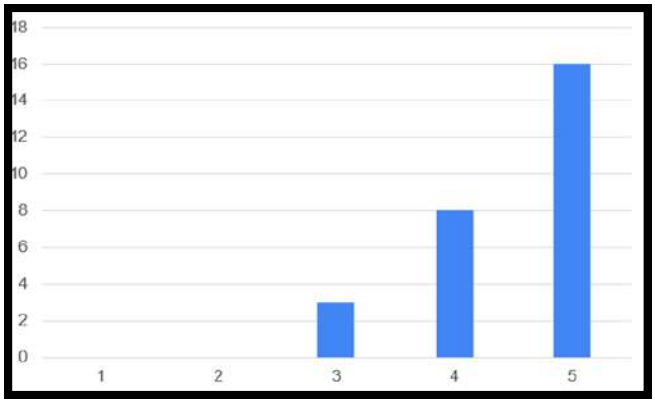
Through the graph, the majority gave a very agreeable response to the price by weight of our Pepellet Bites. They agree that Pepellet Bites can save costs for buyers. While a total of 7 people chose to agree and 5 people chose to be moderate.

4. DO YOU AGREE IF THE HEAD OF ANCILL FISH IS MADE AS THE MAIN INGREDIENT IN PEPELLET BITES?



The majority gave a very agreeable response if Pepellet Bites used anchovy heads as the main ingredient in the pellets. This is because they believe that it can reduce capital in the manufacture of pellets and it can produce new innovations in the industry.

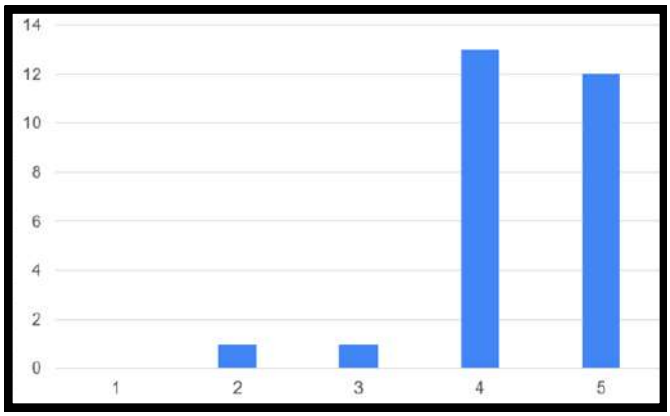
5. ARE THE MATERIALS USED IN THE PEPELLET BITES SAFE FOR FISH TO EAT?



The majority choose strongly to agree if the use of Pepellet Bites on fish does not cause any harm to fish and other farm animals. A total of 8 people chose to agree and 3 people chose moderate for this part.

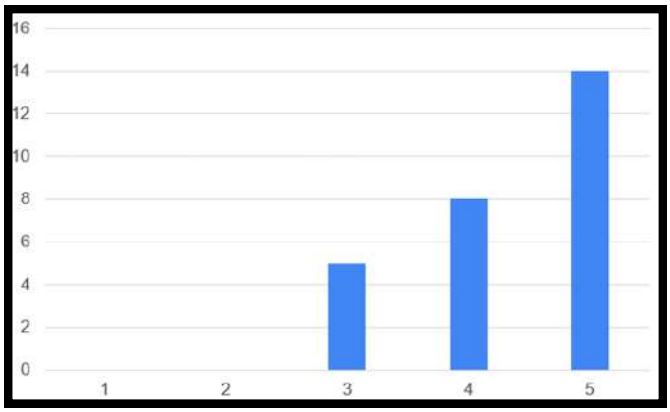
SECTION C

1.IS THE COLOR OF PEPELLET BITES THE SAME AS OTHER COLORS OF FISH BRAN?



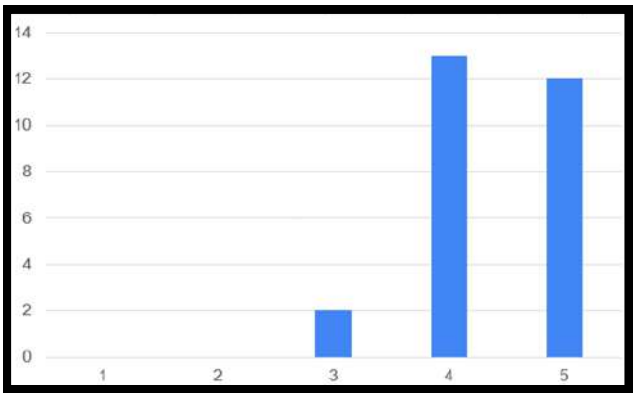
The majority support that the colour of Pepellet Bites is as good as bran on the market. The colour of this bran is also important because it must be a colour that can attract animals to approach it. In Pepellet Bites we do not have additional colours because we do not want to risk in case of infection in animals.

2. IS THE TEXTURE OF PEPELLET BITES SUITABLE TO BE GIVEN TO FISH?



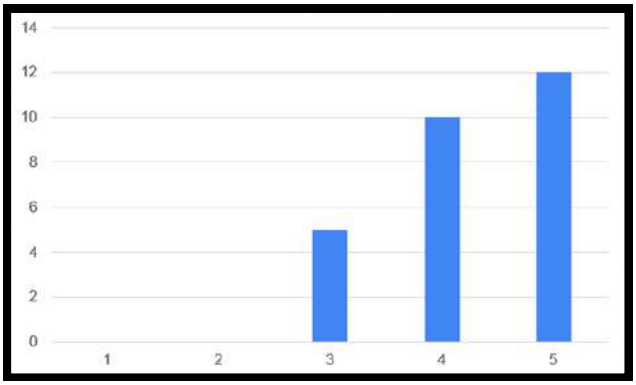
The majority of voters agree very much with the texture of the Pepellet Bites we produce. The texture of our Pepellet Bites is soft and fine which makes it suitable for feeding small to medium fish and other animals. The Pepellet texture we produce is fine and soft because we want to make it easier for animals to eat and don't have to wait for it to expand.

3. CAN THE SMELL OF THESE PEPELLET BITES ATTRACT FISH TO EAT?



The majority agree with the smell of our Pepellet Bites because it can attract fish and other animals to eat. This smell is also important to attract animals. The smell produced from the anchovy head makes our Pepellet Bites popular with fish and animals.

4. DOES THE QUALITY OF THE PEPELLET BITES LAST LONG?



The majority give a very favourable opinion on the quality of our Pepellet Bites because they last a long time. It can last a long time because the drying process we do prevents the growth of microorganisms. Therefore, Pepellet Bites can last a long time and are of good quality.

5.0 DISCUSSION

After receiving all the data that has been provided by the respondents, this Pepellet Bites product should be improved on the quality and texture of this product. This is because, the information that has been obtained from the questionnaire that has been done, it states that the texture of this product should be improved to be a little hard because the texture of Pepellet Bites is a little soft. In addition, there are also suggestions that Pepellet Bites should be slightly less smelly because the smell of Pepellet is quite strong. As a result of the rather strong smell of the anchovy head, it causes the smell of fish pellets. It is most likely that this product will be improved in terms of smell and texture from time to time in order to slightly reduce the smell of the anchovy head.

However, many fish advocates say that they agree to make Pepellet Bites one of the safe fish foods. This is because the material made does not have chemicals and has ingredients that are believed to be safe. In addition, some say that the price of Pepellet Bites is quite reasonable. This is because what we found fish food in the market can reach RM5-RM6 for a weight of 250. However, for this product only RM4 for a weight of 250g. This makes most fish defenders agree that the price of this product is more reasonable.

Finally, the majority of respondents strongly agree if these Pepellet Bites are marketed in foreign markets. This is because this product is very reliable in its ingredients and also has an affordable price for fish defenders. Therefore, these Pepellet Bites should also be improved from time to time so that the quality of this product can be well maintained.

6.0 CONCLUSION

The conclusion that can be studied during the production of Pepellet Bites is that we have been able to achieve our objective for the production of Pepellet Bites fish pellets. We also plan to commercialize our fish pellets in the market in the future if there are no constraints or obstacles. In addition, although our fish pellet products achieve the objective, our fish pellets also have their advantages and disadvantages, among the weaknesses that we can see during the production process of our fish pellets is that there are some constraints faced such as it is difficult to produce fish pellets in large quantities due to the absence of a machine to produce pellets, the difficulty in finding fish farmers and defenders to answer questionnaires regarding our fish pellets and also the time required for the drying process of our fish pellets also took quite a long time. Therefore, any weaknesses and shortcomings will be improved for the future.

7.0 REFERENCES

Yahya, P. L. (2022, November 30). Kenaikan Makanan Ikan Hingga 50 Peratus Jejas Industri Akuakultur. Berita Harian. Retrieved November 13, 2023, from https://www.bharian.com.my/berita/nasional/2022/11/103

A. (2023, November 6). Cara Buat Umpan Tepung Terapung. Umpan. Retrieved December 1, 2023, from https://www.umpan.com.my/cara-buat-umpan-tepung-terapung

Pengurusan Makanan Ikan. (n.d.). Retrieved December 1, 2023, from https://www.arc.com.my/info/pmi.html

Wong, M. H., Mo, W. Y., Choi, W. M., Cheng, Z., & Man, Y. B. (2016, December 1). Recycle food wastes into high quality fish feeds for safe and quality fish production. Environmental Pollution. https://doi.org/10.1016/j.envpol.2016.06.035

Effects of Fish Feed Carbohydrate Sources on the Floatation and Water Stability of Fish Feed Pellets. (2019, September 1). Journal of Biology, Agriculture and Healthcare. https://doi.org/10.7176/jbah/9-18-06

Kaddour, O. (2018, July 1). FACTORS AFFECTING THE FLOATING AQUATIC FEED PELLETS QUALITY. Misr Journal of Agricultural Engineering.https://doi.org/10.21608/mjae.2018.95579

Neumeier, U., Friend, P. L., Gangelhof, U., Lunding, J., Lundkvist, M., Bergamasco, A., Amos, C. L., & Flindt, M. (2007, November 1). The influence of fish feed pellets on the stability of seabed sediment: A laboratory flume investigation. Estuarine Coastal and Shelf Science. https://doi.org/10.1016/j.ecss.2007.04.036

Mill, V. P. (2023, November 28). How To Make Floating Fish Feed. Victor Pellet Mill. https://www.pelletizermill.com/blog/how-to-make-floating-fish-feed-pellet/

Kepala Ikan Bilis Sebagai Bahan Mentah. (n.d.). http://naim-keliomega3.blogspot.com/2009/03/kepala-ikan-bilis-sebagai-bahan-mentah.html

Pengurusan Makanan Ikan. (n.d.). Retrieved December 1, 2023, from https://www.arc.com.my/info/pmi.html

SCHMALTZ GARLIC

Ahmad Tajudin Bin Mustaffa, Nur Aina Nasuha Binti Che Aziz, Syazwana Alia Binti Sadli, Tuan Ainul Basirah Binti Tuan Pa, Muhamad Ali Imran Bin MuhamadNor

Tourism and Hospitality Department
Polytechnic METrO Kuantan

Tajudin@pmku.edu.my

ABSTRACT

The primary focus of this research was to explore the potential use of chicken fat in order to reduce environmental pollution. The findings of this study demonstrate that our products, which are derived from waste chicken fat, can serve as the main ingredients in the production of lactose intolerance free butter. Additionally, the study confirms that the purified waste chicken fat is adequate for human consumption. A study examining the sensory evaluation processwas conducted, involving 63 respondents of various gendersand student backgrounds. The results of the survey indicate that the product received a favourable reaction, many customers expressing interest in purchasing it with a very reasonable price. The market potential for a lactose intolerance free butter spread product, replacing schmaltz garlic, is promising and can be further enhanced with improvements in the production process.

1.0 INTRODUCTION

·Problem Statements

Problem Statement for Schmaltz Garlic is to reduce waste disposal of chicken fat. This is because, there is a lot of chicken fat that will be thrown away and many people do not know the benefits and ways to reuse the chicken fat and there is a waste of chicken fat. The purchaseof cooking oil is limitedin stores. So, with our product made with chickenfat, it can help userswho want to find a way to get oil. In our method of producing SchmaltzGarlic, we also produce oil from waste materials. This is becausethe fried chickenfat will releaseits own oil and studieshave proven that the oil from chicken fat can be used in daily life. Giving lactose intolerance people chance to try Smaltz Garlicproducts made from chicken fat. This is because our product does not contain dairy ingredients, in fact we use chicken fat oil to make this butter and it is suitablefor people with lactose intolerance. We help people with lactoseintolerance to be able to taste the food they want like eating baguettebread with our garlic butterbecause garlic butterin other stores all contain dairy and it prevents people who are allergic to dairy products to try it.

·Objective

Our project goals are:

- Obtain waste materials as a product
- Save the cost of raw materials

2.0 LITERATURE REVIEW

Chicken fat is fat obtained from chicken rendering and processing. Of the many animal-sourced substances, chicken fat is noted for being high in linoleic acid, an omega-6 fatty acid. It is a common flavoring, additive or main component of chicken soup. It is often used in pet foods, and has been used in the production of biodiesel. One method of converting chicken fat into biodiesel is through a process called supercritical methanol treatment. Most uses for chicken fat come after its rendering process. The rendering process can be done several ways but the most common is by putting it in a pan to melt. Rendered chicken fat is also referred to as schmaltz. Once rendered, it can be used similarly to oil or butter in a pan or it can be whipped for spreading. Most people always remove chicken skin and chicken fat. Chicken fat oil has many good benefits. Therefore, with our productinnovation, we mixedit with other ingredients to attract people especially people who has lack of knowledge about chicken fat oil usage. In addition, our product can be consumed by all ages as we use only natural ingredients that can provide healthy nutrients for our bodies. Chicken fat oil is generally safe when eaten as partof healthy diet. The main ingredients used in chicken fat butter are usually plant base milk, chicken fat oil and salt. Commoningredients in the flavoring powderare salt, lemon juice and. The chickenfat oil was originally created by Indonesia.

The growth in the production and consumption of chicken meat and related products is responsible for the formation a large number of by-products. Among these, abdominal and gizzard fat is usually considered as waste and thus is discarded, creating an environmental problem. This work aims to characterize chicken fat by-products, evaluating their lipid profile and colour properties for their potential use as fat sources in meat products in substitution of traditionally used fats. In addition, the role of farm location, keeping the feeding and other farmer routines fixed,in the lipid profile was also evaluated. “Parrilleros” Colombian chickensfrom three farms located in various geographical zones of the Antioquia region were selected. After slaughtering, abdominal and gizzardfat was obtained. Lipid profile was evaluated by gas chromatography and the CIELAB colour properties were assessed. The production resultsand the lipid profile of chicken fat by-products (abdominal and gizzard fat) was similarin the three farms studied,which is important for their potential application as fat source in the formulation of meat products.The predominant fattyacids were oleic,palmitic and linoleicacids, showing a higher amount of unsaturated fatty acids than the fat sources traditionally used for this purpose. Valorization of chicken by-products by the use of abdominal and gizzard fat as fat source in chicken meat products formulation could be a feasible alternative contributing to the poultry sector sustainability. Other than that, chicken fat by-products; unsaturated fatty acids; colour properties; lipid profile.

3.0 METHODOLOGY

For chapter 3 in this methodology section, we will find out what ingredients are used to make Schmaltz Garlic products from chicken skin fat oil. The main ingredients used in the manufacturing process of this project are fat from the chicken skin, fat from the chicken parts and garlic. We also use other ingredients such as cashew milk, salt, nutritional yeast and coconut oil. With this side ingredient, make a support the main ingredient to produce a Smaltz Garlic product that is perfect in terms of taste, color, appearance and good texture. When we make this Smaltz Garlic, among the equipment we use is an oil strainer to filter the oil that has been produced from the fat of the chicken skin after it has been marinated, a paring knife that is used to separate the chicken fat from the chicken and the chicken skin, chopping board, spatula, a container to store the resulting chicken fat oil and also a pan used for chicken skin and chicken fat.

3.1 QUESTIONNAIRE SURVEY

The research method we use to collect data and then analyze the data is by using the quantitative method which is google form. Our survey was completed with a total of 63 respondents. Where the respondents we chose were from Polytechnic Metro Kuantan and chose semester 1, semester 2 and semester 3 who were students of Diploma in Foodservice Halal Practice (DHF). The population was selected from the age of 20 to 30 years. We also use sensory tests to collect data to be given to respondents to ensure respondents' acceptance of Schmaltz Garlic products. We provide 1 sample of Schmaltz Garlic to given to respondents to give feedback on our product in terms of color, smell, texture and packaging. We also asked respondents for their opinions regarding the innovation of our product which is Schmaltz Garlic and would like to introduce that our product has its own unique, interesting and different from the existing products in the store. We use Microsoft Word Office to create the questionnaire. The scale used in the google form is very agree, agree, moderate, disagree and very disagree.

3.2 INSTRUMENT DEVELOPMENT (QUESTIONNAIRE)

Based on figure 4.2, for the sensory test, there are 19 questions for the Schmaltz Garlic product. The scoring scale is used from very agree, agree, moderate, do not agree and very do not agree. This sensory test was answered by 63 respondents from Kuantan Metro Polytechnic students. For the analysis of the results, the study analyzed that garlic needs to be reduced so as not to emit too strong a garlic smell.

3.3 SAMPLING

For sampling, we use random sampling to make our project Schmaltz Garlic a success. In this random sampling, we gave testers to PMKu students who are students majoring in Diploma in Food Service Halal Practice (DHF) from semester1 to semester 3. With this sampling method, we can determine other people's acceptance of our products. Furthermore, in the same method which is random sampling, we also prepared a questionnaire to further strengthen the information provided by the students and collect and analyze data regarding Schmaltz Garlic products.

4.0 FINDING (Data analysis)

Descriptive statistical analysis was used to establish the relationship between Schmaltz Garlic and product users. There are 63 respondents who have been selected from Kuantan Metro Polytechnic students to evaluate and comment on this product. We took DHF students from semester 1, semester 2 and semester3. For DHF1A a total of 7 people(11.1%), DHF1B a total of 12 people (19%), DHF2A a total of 9 people (14.35), DHF2B a total of 14 people (22.2%), DHF3A as many as 5 people (7.9%)and DHF3B as many as 16 people (25.4%). Of that number, 19 people (30.6%) were men and the rest about 43 people (69.4%) were women. The questions that have been presented in the survey include the consumer's perception of color, smell, taste, appearance and texture. The purpose is to obtain improvements to the Schmaltz Garlic product. More detailed sensory evaluation results have been shown in the attached tables and charts. According to the survey, it was found that 38.7% of respondents who underwent this survey were 20-25 years old and 61.3% of respondents were under 20 years old. This may be due to the range of randomly selected respondents among Kuantan Metro Polytechnic students. Analysis from the point of view of product packaging suitability is (47.5%)saying that the packaging we produce is suitable. This product is widely accepted because it is something that is needed by all groups nowadays. Agree (31.7%) this product is innovative. A good performance ratio of (42.9%). As many as 38.1% want to buy our products. (27%) agree that this product will be marketed. Agreed (33.3%) who changed the old product to this product. (38.1%) this product is beneficial. Agree (39.7%) recommend this product to friends and family. (36.5&%) agree that this product meets expectations. The packaging of this product is suitable (28.6%). This product (44.4%) can be used anywhere.

5.0 DISCUSSION

Through the suggestions and other improvements obtained from the suggestions contained in the sensory evaluation provided, it was found that most respondents suggested that in the future Schmaltz Garlic should reduce the use of garlic a little so as not to emit too strong a garlic smell. In addition, respondents recommended that Schmaltz Garlic add a variety of flavors so that they can choose a variety of flavors to

buy and in terms of packaging, respondents suggested using glass containers instead of plastic so that the product lasts longer and does not spoil easily.

6.0 CONCLUSION

As revealed in the section above, the results show the extent to which the perceived genuine quality influences the acceptance (or rejection) of Schmaltz Garlic (butter) innovation. Overall, this study confirms that the majority of consumers are positive towards the innovation in Schmaltz Garlic (butter) products, especially sensory quality properties and ingredient content. The results of the study also show that the perception of pure quality has a relatively strong influence on consumer acceptance of Schmaltz Garlic (butter) innovated from discarded chicken skin fat. Based on the quality characteristics of the innovation, it is important to improve and maintain the texture of Schmaltz Garlic (butter) as much as possible in the innovation in terms of the sensory properties of the product especially taste, smell and texture. In addition, this project aims to use sensory evaluation to identify and improve product weaknesses through the comments of Kuantan Metro Polytechnic students and lecturers. Next, this study succeeded in finding a way to make discarded chicken skin fat and successfully produce homemade Schmaltz Garlic (butter) with a fragrant texture and smell. Finally, Schmaltz Garlic(butter) adheres to the "Green Sustainable" theme where this product uses waste materials such as chicken skin fat.

7.0 REFERENCES

- Abdominal and gizzard fat is usually considered as waste and thus is discarded, creating an environmental problem. (The Journal of PubMed Central, 2020 Aug 3)
- Quality of Chicken Fat By-Products. (The Journal of MDTI, Lina María Peña- Saldarriaga 1, Juana Fernández-López and José Angel Pérez-Alvarez, 2020 Aug 3)
- Chicken skin has had a bad rap for being high in fat. But most of the fat in chicken skin is healthy, unsaturated fat. (The Journal of Nutrition Source, Myrdal Miller, June 21, 2012)
- Liquid Chicken Oil Could Be a Healthy Dietary Oil (The journal of PubMed, Kai-Neng Hwang et al. J Oleo Sci. 2021.)

SORBET SANTAN

Muhamad Surairi bin Sharipuzan, Jeslyn A/P Muniandy, Nur Amalina Adriana binti Osmera, Siti Aminah binti Jusoh, Sarinah

Tourism and Hospitality Department
Polytechnic METrO Kuantan
No, A-5 Jalan Tun Ismail 2, Sri Dagangan II
25000 Kuantan Pahang

ABSTRAK

Sorbet adalah alternatif bagi mengganti ais krim. Ianya juga merupakan pencuci mulut sejuk beku yang sesuai bagi orang yang mengamalkan pemakanan vegetarian. Kajian ini memberi tumpuan kepada penghasilan sorbet santan yang menggunakan jenis gula yang berbeza. Iaitu gula pasir, gula merah dan sirap jagung. Ujian kecairan menunjukkan bahawa penggunaan sirap jagung dapat melambatkan pencairan sorbet santan iaitu 30 minit, dikuti oleh gula melaka 27 minit dan 26 minit bagi gula pasir. Penilaian deria mendedahkan, panel lebih menyukai sorbet santan yang menggunakan gula melaka. Penggunaan gula melaka memberikan tekstur yang lebih licin, rasa yang enak, warna yang menarik dan aroma yang disukai oleh panelis. Diikuti oleh sorbet santan menggunakan gula pasir dan akhir sekali adalah sirap jagung.

1.0 PENGENALAN

Sorbet adalah produk beku yang diperbuat daripada buah-buahan, gula, dan air. Jangka hayat sorbet bergantung pada beberapa faktor seperti suhu penyimpanan, kelembapan, dan bahan pengawet yang digunakan. Seterusnya, sorbet yang disimpan pada suhu -18°C atau lebih rendah dapat bertahan dari 8 hingga 12 bulan. Selain itu, kebaikan sorbet adalah ia mengandungi vitamin C, zat besi, kalium, magnesium, serta kalsium yang dapat mencegah penyakit dan dapat mengimbangkan elektrolit dalam badan. Disebabkan sorbet tidak mengandungi susu atau produk tenusu serta bahan pengawet, ianya sesuai disediakan kepada kanak-kanak berumur dua tahun ke atas yang mengalami alahan terhadap laktosa. Begitu juga dengan orang dewasa dan warga emas. Sorbet juga sesuai dimakan kerana ianya tidak manis.Akhir sekali, kaedah pembuatan sorbet bergantung kepada kombinasi antara campuran gula, jus buah-buahan, puri buah-buahan yang dipukul. Gula merupakan salah satu bahan utama untuk membuat sorbet bagi memberikan rasa manis.

Pernyataan Masalah

Secara amnya proses pembuatan ais krim ini menggunakan alatan yang khusus iaitu "icecream maker". Disebabkan harga "icecream maker" yang mahal, kebanyakan orang membeli ais krim di pusat membeli belah atau di pasaraya. Pembuatan sorbet merupakan salah satu cara yang paling mudah untuk menggantikan ais krim kerana ia boleh dihasilkan di rumah dengan menggunakan alar pengisar dan peti sejuk. Penghasilan sorbet ini juga dari segi kos adalah murah berbanding membeli ais krim.

Objektif

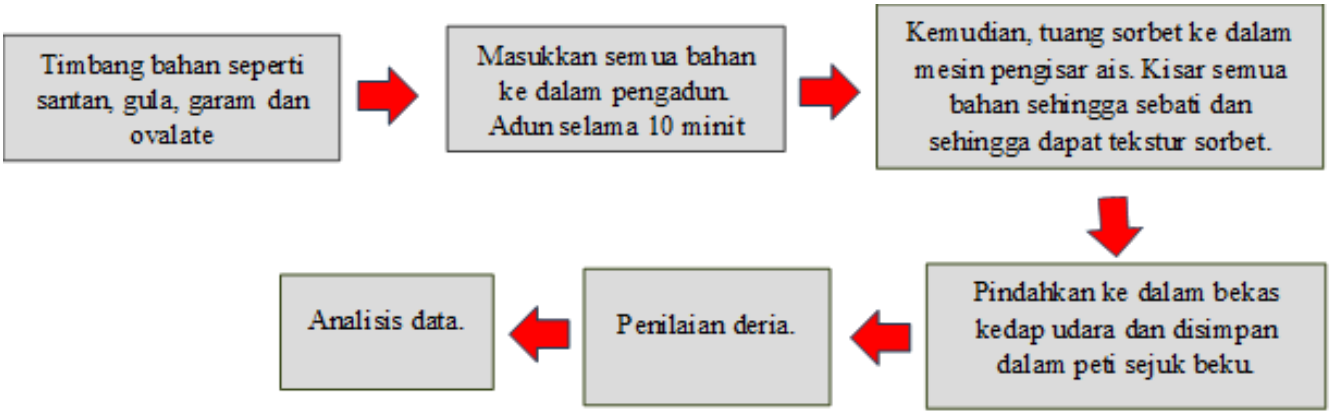
1. Menghasilkan sorbet santan
2. Menentukan penerimaan panelis terhadap produk sorbet santan.

2.0 SOROTAN KAJIAN

Sorbet adalah produk sejuk beku yang diperbuat daripada buah-buahan, gula, dan air. Jangka hayat sorbet bergantung pada beberapa faktor seperti suhu penyimpanan, kelembapan, dan bahan pengawet yang digunakan. Sorbet yang disimpan pada suhu -18°C atau lebih rendah dapat bertahan dari 8 hingga 12 bulan. Namun jika sorbet disimpan pada suhu yang lebih tinggi dari -18°C, maka jangka hayatnya akan lebih pendek. Untuk membuat sorbet agak mudah, dan jangka hayat sorbet adalah 30 hari pada suhu musim panas, dan pada musim sejuk, ia boleh disimpan berkali-kali lebih lama. Untuk menyimpan sorbet, ada beberapa faktor yang perlu diperhatikan. Sorbet harus disimpan dalam peti sejuk beku pada suhu -18°C atau lebih rendah. Pastikan sorbet disimpan dalam bekas kedap udara dan rapat untuk mencegah kristalisasi dan pembentukan kristal ais. Selain itu, sorbet juga harus disimpan terpisah dari makanan lain yang memiliki aroma yang kuat, seperti bawang putih atau ikan, untuk mencegah penyerapan aroma. Seterusnya, menurut Jamie Eske pada tahun 2023, santan kelapa yang segar mempunyai banyak khasiat terhadap badan kita. Antaranya adalah untuk perlindungan antioksidan daripada penyakit kerana kelapa mengandung fenol, yang merupakan antioksidan. Semasa metabolisme dan proses lain, badan menghasilkan bahan buangan yang dipanggil spesies oksigen reaktif, atau radikal bebas. Radikal bebas yang kekal di dalam badan boleh menyebabkan tekanan oksidatif, mengakibatkan kerosakan yang boleh membawa kepada pelbagai keadaan kesihatan, termasuk kanser dan penyakit jantung. Antioksidan boleh membantu badan melawan atau membuang radikal bebas, melindunginya daripada penyakit.

3.0 METHODOLOGI

Santan kelapa dibeli dari pembekal yang beralamat No 2367, Lorong Bukit Gelugor 13, Beserah, Kuantan, Pahang. Manakala untuk bahan yang lain seperti gula pasir, gula merah, ovalate, garam dan sirap jagung (corn syrup) dibeli di kedai Bakewell Trading Sdn Bhd, Jalan Teluk Sisek. Santan kelapa disimpan dalam peti sejuk sebelum diproses.



3.1 Carta Alir Pemprosesan Sorbet Santan

Bahan	Formulasi 1	Formulasi 2	Formulasi 3
Santan	200ml	200ml	200ml
Gula Pasir	25gm	-	-
Gula merah	-	30gm	-
Sirap jagung (corn syrup)	-	-	50gm
Ovalate	10gm	10gm	10gm
Garam	1gm	1gm	1gm

Jadual 3.2 Formulasi Sorbet Santan

Penyedian sampel Sorbet Santan berdasarkan Jadual 3.2. Selepas semua bahan ditimbang, masukkan semua bahan ke dalam mesin pengadun dan adun sehingga sebati kemudian selepas proses pengadunan selesai masukkan sorbet santan ke dalam mesin pengisar ais dan kisar sehingga mendapat tekstur sorbet. Seterusnya, masukkan hasil bahan yang dikisar ke dalam bekas dan simpan sorbet santan di dalam peti sejuk beku untuk analisis seterusnya iaitu ujian penilaian deria.

Penilaian deria dijalankan menggunakan kaedah kuantitatif, data dan maklumat diperolehi daripada ujian ujian skala hedonik dan skoring. Penilaian perlu dibuat berdasarkan atribut seperti penampilan, tekstur, bau, rasa, warna, dan penerimaan keseluruhan terhadap produk sorbet santan. Sorbet santan yang dihasilkan dengan tiga jenis gula yang berbeza sebagai penstabil sorbet santan akan disajikan kepada ahli panel dalam bekas plastik, setiap bekas akan ada label untuk setiap jenis gula yang digunakan seperti F1 untuk gula pasir, F2 untuk gula merah manakala F3 untuk sirap jagung. Selain itu, 40 ahli panel diminta untuk menilai sampel yang telah disediakan. Seterusnya, setelah selesai ujian penilaian deria, data yang dapat daripada panel akan dikumpul untuk langkah seterusnya iaitu menganalisis data.

Analisis data dijalankan menggunakan Statistical Package for the Social Sciences (SPSS) versi 22 (IBM Corporation, New York, Amerika Syarikat) untuk analisis statistik data yang telah diperolehi melalui ujian skala hedonik terhadap 40 ahli panel yangdipilih. Selain itu, menggunakan Oneway Analysis of variance (ANOVA) untuk membuat analisis ujian skala hedonik dan skala scoring.Analysis of variance (ANOVA)ialah ujian statistik yang digunakan untuk menentukan sama ada terdapat perbezaan yang signifikan secara statistik antara dua atau lebih kumpulan kategori dengan menguji perbezaan menggunakan varians.

4.0 PENEMUAN (Analisis data)

ATRIBUT	F1	F2	F3
TEKSTUR	4.23a	4.35 a	4.00 a
RASA	4.00 a	3.88b	3.45c
WARNA	3.93 b	4.13 a	4.08 a
LEMAK	4.38 a	4.10 a	3.90 b
AROMA	3.58 a	3.70 a	3.55 a
PENERIMAAN KESELURUHAN	3.90 b	4.08 a	3.68 b

Jadual 4.1 Ujian skala hedonik

ATRIBUT	F1	F2	F3
TEKSTUR	4.10 a	4.45 a	3.98 b
RASA	3.98 a	3.90 b	3.35 b
WARNA	3.60 b	3.95 a	3.83 b
LEMAK	4.50 a	4.38 a	4.13 a
AROMA	3.30 c	3.75 a	3.48 c

Jadual 4.2 Skala skoring

Ujian kecairan sorbet santan

Jenis gula	Masa(minit)
Gula pasir	26
Gula Melaka	27
Sirap Jagung	30

Jadual 4.3 Ujian Kecairan

5.0 PERBINCANGAN

Ujian kecairan sorbet santan dijalankan pada suhu bilik. Ujian kecairan ini dijalankan untuk melihat perbezaan tahap kecairan sorbet santan menggunakan gula pasir, gula melaka dan juga sirap jagung. Berdasarkan jadual 4.3 ujian kecairan sorbet santan yang telah dijalankan gula pasir cair pada minit ke 26, gula melaka cair pada minit ke 27 manakala sirap jagung cair pada minit ke 30. Ujian ini menunjukkan bahawa gula melaka memerlukan masa selama 1 minit lebih lambat berbanding gula pasir. Manakala sirap jagung pula mengambil masa 3 minit lebih lambat berbanding gula melaka. Kesimpulan daripada ujian ini adalah gula pasir merupakan yang pertama cair, gula melaka yang kedua cair dan sirap jagung pula yang terakhir cair.

Berdasarkan rajah 4.1, penilaian bagi tekstur tiada perbezaan ketara di antara formulasi 1, formulasi 2 dan formulasi 3. Walau bagaimanapun, antara formulasi 1, formulasi 2 dan formulasi 3, skor min formulasi 2 lebih tinggi iaitu dengan nilai min 4.35 diikuti dengan formulasi 1 dengan nilai min 4.23 dan formulasi 3 dengan nilai min 4.00. Ini disokong oleh ujian skoring yang menunjukkan formulasi 2 mempunyai skor min yang tertinggi iaitu 4.35 berbanding formulasi 1 dengan nilai min 4.23 dan formulasi 3 dengan nilai min 4.00. Namun begitu, bagi atribut rasa terdapat perbezaan ketara bagi setiap formulasi. Antara formulasi 1, formulasi 2 dan formulasi 3, formulasi 1 mendapat nilai min yang tertinggi iaitu 4.00 kerana penilai lebih gemar terhadap rasa yang lebih manis. Bagi formulasi 2 dan 3 pula mendapat skor yang rendah kerana kemungkinan penilai tidak suka dengan rasa yang kurang manis dan ini disokong oleh ujian skoring yang menunjukkan skor min formulasi 1 lebih tinggi berbanding formulasi 2 dan formulasi 3.

Bagi penilaian warna terdapat perbezaan ketara antara formulasi 1, formulasi 2 dan formulasi 3. Berdasarkan jadual 4.1 menunjukkan skor min bagi warna yang tertinggi ialah formulasi 2 dengan nilai min 4.13. Ini menunjukkan bahawa gula melaka memberikan warna yang berlainan berbanding gula putih dan sirap jagung. Oleh itu, penilai lebih suka kepada formulasi yang berwarna. Ini disokong oleh ujian skoring yang menunjukkan formulasi 2 mempunyai skor min yang tertinggi berbanding formulasi 1 dan formulasi 3.Bagi atribut lemak terdapat perbezaan ketara di antara formulasi 1, formulasi 2 dan formulasi 3. Formulasi 2 mendapat skor min yang tertinggi berbanding dengan formulasi 1 dan formulasi 3. Ini bermakna majoriti penilai lebih suka formulasi 2 kerana gula melaka menutup rasa yang berlemak dan ini disokong oleh ujian skoring.

Bagi atribut aroma menunjukkan tiada perbezaan yang ketara di antara formulasi 1, formulasi 2 dan formulasi 3. Skor min yang tertinggi di antara ketiga- tiga formulasi ini ialah formulasi 2 iaitu dengan nilai min 3.70. Ini menunjukkan dengan penambahan gula melaka, ianya memberi aroma yang menarik kepada sorbet santan berbanding dengan gula putih dan sirap jagung yang tidak mempunyai bau. Keputusan ini turut disokong oleh ujian skoring yang menunjukkan formulasi 2 merupakan skor min yang tertinggi seperti dalam ujian hedonik. Bagi penerimaan keseluruhan, panel lebih mengemari formulasi 2 berbanding formulasi 1 dan formulasi 3. Daripada analisis data menunjukkan penggunaan gula melaka memberi tesktur yang lebih licin, memberi rasa yang lebih enak, warna yang lebih menarik dan aroma yang disukai oleh panel.

6.0 KESIMPULAN

Berdasarkan pemerhatian sepanjang kajian ini berjalan, sorbet santan dapat dihasilkan menggunakan gula melaka dan sirap jagung dengan penambahan sedikit pengilmusi dan garam sebagai penambah rasa. Tambahan pula, sorbet santan dapat dihasilkan dengan kos yang lebih rendah serta bahan sorbet santan mudah didapati dipasaran. Selain itu, menghasilkan sorbet santan dengan masa yang lebih singkat kerana semua peralatan yang digunakan telah sedia ada. Selanjutnya, panel dapat menerima produk sorbet santan yang dihasilkan namun perlu membuat penambahbaikan terhadap produk sorbet santan.

7.0 RUJUKAN

A.Palka, M. Skotnicka (2022). The Health-Promoting and Sensory Properties of Tropical Fruit Sorbets with Inulin. Dimuat turun pada https://www.researchgate.net/publication/361644815_The_Health-Promoting_and_Sensory_Properties_of_Tropical_Fruit_Sorbets_with_Inulin

Cousineau, Phil (2012). The Painted Word: A Treasure Chest of Remarkable Words and Their Origins. Simon and Schuster. ISBN 9781936740253.

N Fuangpaiboon, K Kijroongrojana (2014). Qualities and sensory characteristics of coconut milk ice cream containing different low glycemic index (GI) sweetener blends. Dalam International Food Research Journal 22(3): 1138-1147 (2015)

M Baker's (2012). Pembuatan sorbet. Dimuat turun daripada http://dessertuu.blogspot.com/2012/10/sorbet.html

Powell, Marilyn (2005). Cool: The Story of Ice Cream. Toronto: Penguin Canada. ISBN 978-0-14-305258-6.

Powell, Marilyn (2005). Cool: The Story of Ice Cream. Toronto: Penguin Canada. ISBN 978-0-14-305258-6.

Weir, Robin; Quinzio, Jeri (2015). "Sherbet". The Oxford Companion to Sugar and Sweets. Oxford University Press. ISBN 978-0-19-931339-6.

O. D. H. Parra, A. P. Fattori, G. Alvarez, F. T. Ndoye, H. Benkhelifa (2018). Modeling flow and heat transfer in a scraped surface heat exchanger during the pro-duction of sorbet. Journal of Food Engineering, 2018, 221, pp.54-69.ff10.1016/j.jfoodeng.2017.09.027ff.ffhal-02079248ff

Saif, A. Aminah, M. Samudi,A. Norrakiah, R. A. Addai1, H. M. Khalid (2015). Study of antioxidant activity and physicochemical properties of coconut milk (Pati santan) in Malaysia. Journal of Chemical and Pharmaceutical Research, 2015, 7(4):967-973

T. Petkova, P Doykina, I Alexieva, D. Mihaylova, A. Popova (2022). Characterization of Fruit Sorbet Matrices with Added Value from Zizyphus jujuba and Stevia rebaudiana. Foods 2022, 11, 2748. Dimuat turun daripada https://doi.org/10.3390/foods11182748

H.Seftiono, Y. P. Gracecilia, I. H. Sumiasih (2020). Effect of Sugar and Lime Juice Proportion on the Quality of Star Fruit Sorbet. International Journal of Applied Biology, 4(1), 2020

BMYEARS
TOUR GUIDE APPS FOR DEAF AND MUTE TOURIST

Mohd Rezal bin Miskam, Rabiatul Adawiyah Binti Khairul Nizam, Nor Nanida Aina Binti Adinan,Noorallysha Amiera Binti Zainal Abidin,Muhammad Sany Fazlie Bin Saidun

Tourism and Hospitality Department
Polytechnic METrO Kuantan
rezal@pmku.edu.my

ABSTRACT

Nowadays, tourism is unlimited for all groups regardless of race, religion, skin color, and so on. However, several individuals have deficiencies such as visual impairment, hearing impairment, and so on. Among the problems they always face is the problem of communicating with the local community, to understand the history or attraction of a destination and it is difficult to establish social relationships when traveling because they feel isolated from the local community. In addition, the issue of discrimination against disabled people is increasing day by day. In addition, there are not as many tour guides for disabled people as one might think because exposure to disabled tourists is not given sufficient emphasis. This can result in tourists who have these deficiencies being less interested in travelling regardless of whether it is domestic or foreign. Therefore, we took steps to overcome this problem by producing a mobile application that can be used for travelers with disabilities, especially individuals with hearing problems. Creating this application can help make it easier for those with hearing impairments to explore more experiences and not feel left out when traveling to the outside world despite their physical disabilities. In addition, they will be freer and more comfortable visiting the destination without facing problems in communicating with the community. We hope that the application can benefit tourists who have hearing problems, and they are more likely to travel without feeling inferior and not feel isolated from the local community or other tourists.

1.0 INTRODUCTION

1.1 PROBLEM STATEMENTS

Tourism has been open to everyone including the tourist who has disabilities. This type of tourist also wants to enjoy their exploration of new cities, adapting to new cultures and history at each destination, or even trying new thrilling adventures on the trip. At the same time, there are a statistic shows that there are many disabled tourists who love to spend their holidays in recreational destinations such as public park and more. In addition, they also often visit their friends and families during their free time.

Sweden, for example, is the first country who recognize the importance of deaf people as bilinguals making it the best destination for deaf tourists. They also introduce the rights that are essential for deaf tourists such as the right to be treated with dignity and respect, the right to receive information about services and aircraft capabilities and limitations, the right to receive information in an accessible format, and more. With this right that has been introduced, the deaf tourists were more attracted to visit this kind of destination.

Even though there are many opportunities for the deaf and tourists to visit the destination, they also face some challenges along the way. Firstly, the deaf and mute tourist has a constraint to get access to information of the destination. This might be proven by the auditory information in the public. For instance, most public announcements especially in airports, train stations, or any services mostly use audio-based. This may result in missing important information such as emergency instructions and more.

Furthermore, there is also a lack of tour guides who have communication skills for deaf and mute tourists. For example, many deaf and mute tourists understand sign languages such as lip reading and body language, however, there are a few tour guides who have a piece of knowledge about sign language skills and sometimes they find it difficult to communicate effectively in front of the deaf and mute tourists. Also, there are limited access to accessible entertainment especially guided tours, films, or theatre performance that may not have sign language interpreters or caption available for deaf tourist to enjoy these experiences.

Moreover, deaf and mute tourists also lack motivation during traveling. The reason behind this is because some of them have some difficulties such as booking and reservation on certain facilities. For example, during accommodation or traveling package booking sessions, it may be difficult for them to meet specific needs especially if the booking process needs to be done using a phone call.

In conclusion, deaf and mute tourists still have the opportunity to travel but these challenges might make them give up to travel around the world. Hopefully, these innovations might help them to feel more comfortable to travel around without constraints on every destination.

1.2 OBJECTIVE

1. To give access information to a deaf and mute tourist of a destination.
2. To provide a virtual tour guide for the destination.
3. To encourage deaf and mute tourists to use this app for traveling.

2.0 LITERATURE REVIEW

Many countries have accepted the inclusion of people with disabilities, such as hearing loss, in all aspects of social life. We also know sign language is used by the population, but they still have problems communicating with others. Many sign language applications are being created to help bridge the communication gap as a result of advances enabled by the widespread use of smartphones. This application is widely used because it is accessible and cheap. The services and capabilities they offer and the quality of their content, however, are very different. An assessment of the quality of content provided by these applications is necessary if they are to have any kind of real impact. A thorough evaluation like this will inspire development to work hard on new apps, which will lead to better software development and a better overall experience. This research uses a systematic literature review (SLR) method, which is recognized for obtaining information for a broad understanding of the study while offering additions for future investigations. Also related, SLR has been used in this research for smartphone-based sign language applications to understand key areas of discussion and aspects used in evaluation. These studies have been reviewed based on work analysis, key issues, related discussions, and methodological aspects. The results show that the evaluation of sign language mobile applications is limited. Therefore, we suggest future directions for the quality assessment of these apps. For example, many applications have been innovated such as the MyBIM application. This MyBIM application is complete with 500 Malaysian sign language vocabulary in 36 different basic categories including place names, numbers, speech, and colors to facilitate communication between deaf people and family, friends, or the surrounding community. (Nursyahirah Marzuki , 2017). In addition, the ARSOM application which is used to display hand movement sign language in the form of a 3D model through the Hijaiyah Alphabet card. It is also quite interesting because the letters look alive and allow users to imitate the resulting hand movements indirectly facilitating the understanding of learning to recognize the Hijaiyah Alphabet.(Mohd Aqil Irwan , 2018) . Next, the BuzzCards application is an application designed to help deaf people communicate easily with people who do not know sign language. This application works like a set of flashcards, typing messages and showing people with whom to communicate. (Buzzcards, 2016) These findings will benefit hearing-impaired and normal-hearing users and open new areas where researchers and developers can collaborate on sign-language mobile applications. The results will help hearing and non-hearing users and will pave the way for future collaboration between academics and application developers in the field of sign language technology.

3.0 METHODOLOGY

3.1 Data Collection Methods

·Quantitative data
·Primary data (questionnaire)

3.2 INSTRUMENT DEVELOPMENT (QUESTIONNAIRE)

The research instruments for this project are to analyze data related to our research interests and these research instruments are to access the PADA community. Among the research instruments that we made is to focus groups of the PADA community, the tourists that want to travel. The project uses the tools which are to interview the PADA community to see if these BMYEars apps suitable for visitors like them or not. With these tools that we using, we know that the BMYEars application can be used and they can understand the sign language in the application which means they can travel to Kuantan calmly and can keep memories without any communication problems with other tourists. We also do some surveys of these disabled tourists' answers so that we can improve our apps to be better in the future so that more tourists can use this BMYEars application.

3.4 SAMPLING

Sampling design is an important part of statistics. For the project, the scope of the survey that has been distributed to the public is around 43 respondents. In the meantime, the survey of this project is through the method of social media which is Facebook. This is also through the online method of survey forms, which means that the survey will be distributed via email to one of the members of PADA (Pahang Deaf Association) to be shared with their community to give a response to this project. In the meantime, this is also through face-to-face, that is, team members will meet face-to-face to hold a discussion session for the project to make this project a success.

4.0 FINDING (Data Analysis)

The findings for data analysis are based on project objectives. The interview session questions are based on product objectives. There are three main objectives of the product. Firstly, to give access to information to a deaf and mute tourist of a destination. Next, to provide a virtual tour guide at the destination and to encourage deaf and mute tourists to use this app for traveling. The survey has been divided into 4 sections. Section A is based on the demographic section that contains personal information about their gender, age, and occupation. Meanwhile, the other sections contain questions based on objectives 1, objectives 2, and objectives 3. The pie chart below shows the data received after the survey.

The survey is based on research on the mobile application of tourist attractions in Kuantan for deaf tourists. This survey used the Likert scale to measure people's opinions on the research that has been done. This Likert scale acknowledges a range of opinions and ranks according to the opinion that has been given. The Likert scale that has been provided has four types of opinions which are strongly agree, agree, neutral, disagree, and strongly disagree. The Likert scale will be measured based on the percentage that has been voted out by the respondent.

The information that has been received will be kept confidential and for academic purposes only. The participants for the questionnaire are around 43 respondents and all of them have given feedback by the time that has been given.

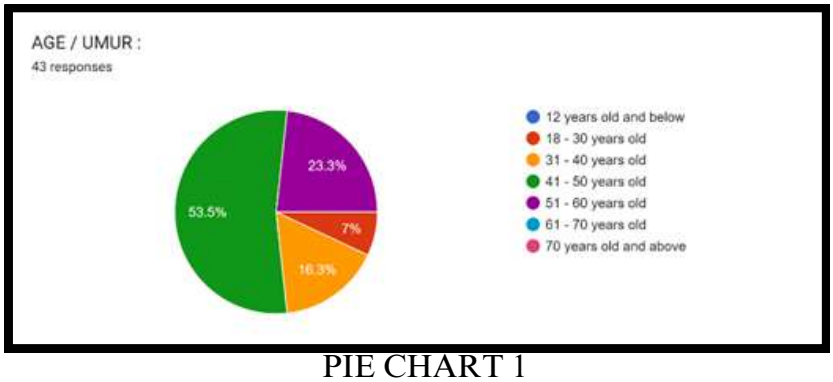
Google Forms

SAMPLE 1.0 QR SURVEY FORM FOR THE RESEARCH

1.0 DATA ANALYSIS

1.1 SECTION A: DEMOGRAPHIC SECTION

AGE

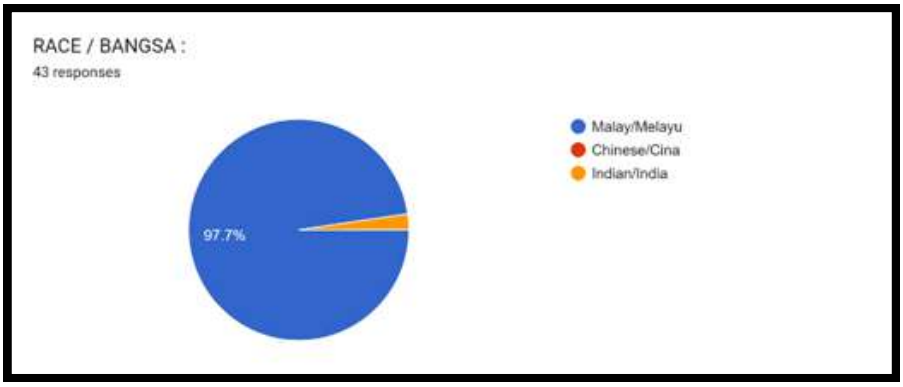


PIE CHART 1

The pie chart above shows the results of the survey that contains 43 respondents from the local community and also the Pahang Deaf Association (PADA). For the demographic section, age is the first question that has been given an option such as 12 years old and below, 18-30 years old, 31-40 years old, 41-50 years old,51-60 years old,61-70 years old and 70 years old and above. The survey has reconsidered the age of the respondents because there are around 34,308,525 of the population and the majority of it is 69.4% from 15-64 years old.

The pie chart shows that the majority of the respondents come from the age of 41-50 years old which is 53.5%. The second highest of the respondents goes to the age of 51-30 years old 23.3%. Other than that, the third highest goes from the age of 31-40 years old by 16.3%. However, the lowest of the respondents goes to the age of 18-30 years old which is by 7%.In conclusion, most of the respondents for the survey are middle-aged respondents from the age of 41-50 years old. As in the observation, most of the middle-aged until senior citizens are the highest respondents which is 23.25% rather than the teenagers that have answered the survey on the research of the BMyEars mobile application of tourism attraction in Kuantan to the deaf tourists.

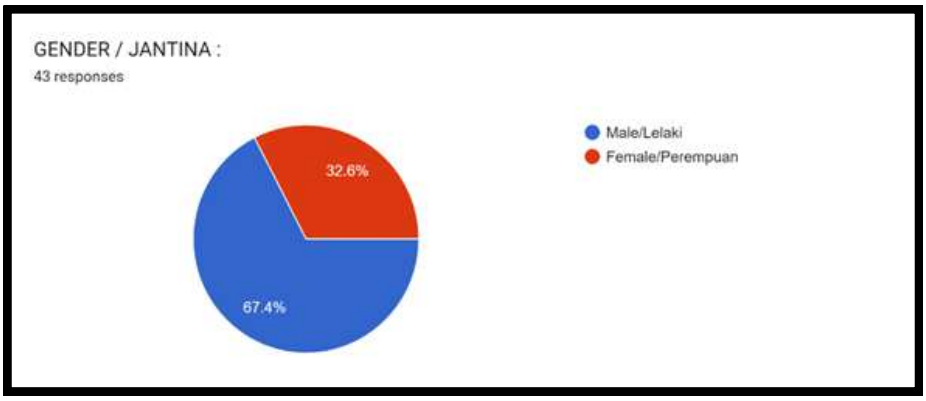
RACE



PIE CHART 2

The pie chart above shows the results of the survey that contains 43 respondents from the local community and also the Pahang Deaf Association (PADA). The next question for the demographic section is the race of the respondent. The reason behind this is that Malaysia has multicultural people such as Malays, Indians, Chinese, and more. For this survey, the research has been focused more on the three main races in Malaysia which are Malays, Indians, and Chinese. Based on the pie chart, it illustrates the majority of the respondents which is Malays which goes by 97.7%. However, the lowest of the respondents is Indian respondents which goes by 2.3%. Meanwhile, the Chinese respondents are not giving any answers in the survey. The difference in the total between Malays and Indian respondents goes by 47.7% for both respondents. In conclusion, most of the respondents in the research on mobile application of tourism attractions for deaf tourists in Kuantan are Malays respondents rather than the Indians respondents who have answered the surveys. This is because the majority of Malays in general is around 62.5% rather than the total of the Indians which goes by 6.2% in the year 2023.

GENDER



PIE CHART 3

The pie chart shows the results of the survey that contains 43 respondents from the local community and also the Pahang Deaf Association (PADA). The next question for the demographic section is the gender of the respondent. The gender that has been stated in the question is male and female. The population of males and females in Malaysia is 51.1% for males and 48.9% for females. Based on the pie chart, shows that the majority of respondents who responded to the survey were males 67.4%, whereas the lowest respondents goes to the female respondent have 32.6%. The difference between the male and female respondents is gone by 17.4% for both respondents. In conclusion, most of the respondents are male rather than female in the research on the mobile application of tourism attractions in Kuantan to deaf tourists. Moreover, the gender pie chart has contributed to decision-making considerations in the context of the survey.

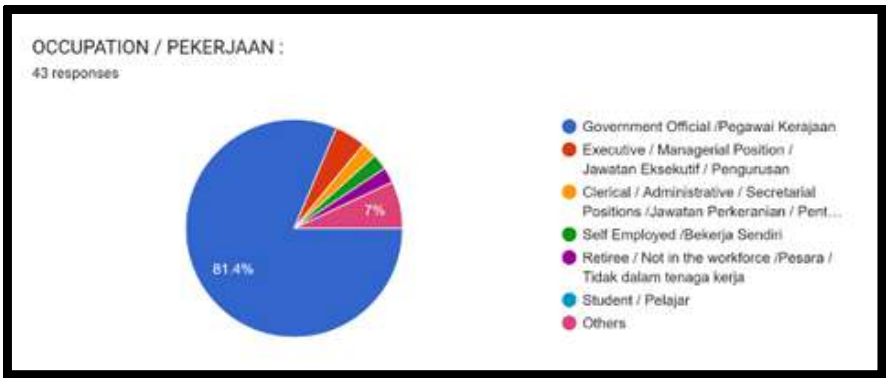
LEVEL OF EDUCATION

PIE CHART 4

The pie chart shows the results of the survey that contains 43 respondents from the local community and also the Pahang Deaf Association (PADA). The next question is the level of education for the demographic section. The option that has been given is Sijil Pelajaran Malaysia (SPM), diploma, degree, master's, Ph.D., and others which are not stated above. Based on the pie chart, illustrates that the main option that has been chosen by every respondent is they are mostly degree holders that go by 76.7%.

Furthermore, the second highest number of respondents who have a diploma by 11.6%. In addition, two levels of education share the same percentage which is SPM and master holder which goes by 4.7%. However, the lowest respondent that has a level of education goes to others which is 2.3%. The difference between the highest and the lowest was 37.2% for both answers. In conclusion, most of the respondents are degree holders more than the percentage that goes to others. This means that most of the respondents receive their higher education in every institution and acknowledge the intention of the research that has been created. They also can understand the question that has been provided clearly in the survey. Moreover, the respondent successfully responds to the question that has been provided.

OCCUPATION

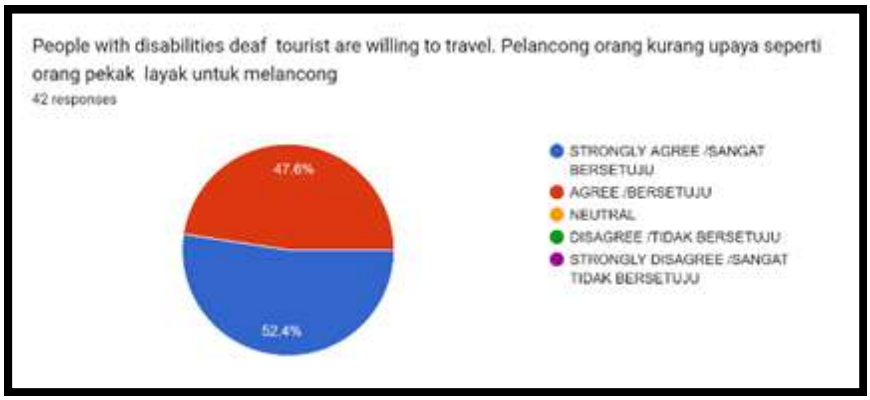


PIE CHART 5

The pie chart above shows the results of 43 respondents from the local community and the Pahang Deaf Association (PADA). The next question that has been provided in the survey for the demographic section is occupation. In the survey, 7 options have been provided in the question such as government official, executive or managerial position, clerical, administrative or secretarial positions, self-employed, retiree, student, and others which is none of the above. Based on the pie chart, it shows that most of the respondents are working as government officials which goes by 81.4%. Next, the second highest workforce that has been chosen by the respondents is others which goes by 7%. Furthermore, the third highest goes to the respondents who have a background in executive or managerial positions which is 4.7%. Meanwhile, the lowest share the same amount of percentage for the respondents who have a background in clerical/administrative/secretarial positions, self-employed, and retiree which is 2.3%. The difference between the highest and lowest can be compared by 39.55% for both answers from the survey. In conclusion, most of the respondents have the background of government officials rather than the other option that has been stated above.

SECTION B: OBJECTIVE 1 (TO GIVE ACCESS INFORMATION TO THE DEAF AND MUTE TOURIST ABOUT THE DESTINATION)

1. People With Disabilities, Especially Deaf Tourists Are Willing To Travel



PIE CHART 6

The pie chart above shows the results of 43 respondents from the local community and the Pahang Deaf Association (PADA). In section B, the graph explains the question that has been given based on the objective that has been provided. The first question related to the main objective that has been focused on which is to give access information to the deaf and mute tourists about the destination. The first question that has been stated above is whether people with disabilities, especially deaf tourists, are willing to travel. Based on the pie chart, illustrates shows that the majority of the respondents strongly agreed with the statement above which is around 52.4%. Meanwhile, the lowest goes to only agree with the statement by the percentage of 47.6%. The difference between both options is 4.8% in the question that has been given above. In conclusion, the respondent mostly agrees with the statement that people with disabilities especially deaf tourists are willing to travel. Many deaf tourists like to travel outside of their comfort zone this survey has been proven to the statement given above.

2. Deaf Tourist Are Face Challenges In Getting Information About The Destination

PIE CHART 7

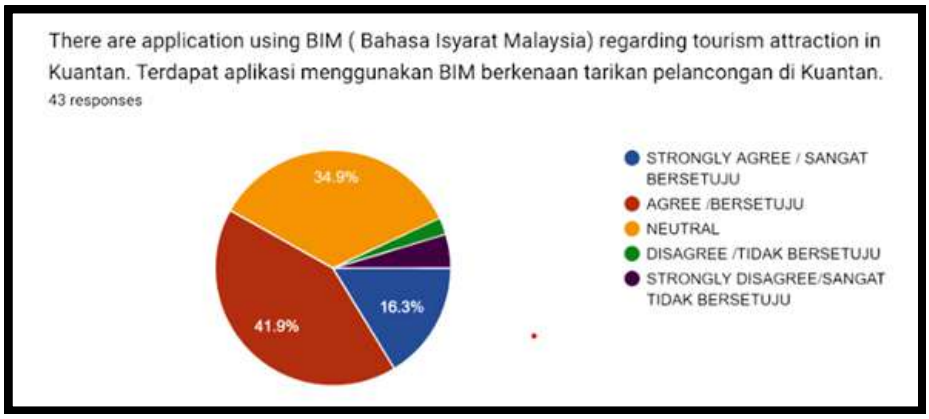
The pie chart above shows the results of 43 respondents from the local community and Pahang Deaf Associations (PADA). The next question that has been highlighted in the survey is whether deaf tourists face challenges in getting information about the destination. This survey shows the percentage of deaf tourists who face challenges in getting information about the destination that they want to go to. Based on this pie chart, illustrates that the main option that has been chosen by every respondent is 51.2% agree that deaf tourists face challenges in getting information about the destination. Also, as much as 20.9% of respondents choose strongly agree with this survey. Furthermore, 16.3% of respondents disagreed with facing the challenges in getting information about the destinations. Meanwhile, the lowest percentage 7% chose neutral for this questionnaire. In conclusion, most respondents agree that deaf tourists are hard to get information about the destination they want to visit.

3. There Are Many Tourism Market Targeting Deaf Tourist In Tourism Industry

PIE CHART 8

The pie chart above shows the results of 43 respondents from the local community and Pahang Deaf Associations (PADA). The next question that has been highlighted in the survey are in the tourism industry, there are many tourism market that charter on deaf tourist. In this survey, it shows the percentage of the opinion that has been chosen based on the Likert scale given above. Firstly, the majority voted to agree with the statement given above 51.2% meanwhile the other highest percentage disagreed 18.6%. Moreover, some options share the same percentages which are strongly agree and neutral by 14%. However, the lowest option that has been voted by the respondent is strongly disagree with 2.3%. The difference gap between the highest and the lowest option goes by 24.45%.In conclusion, most respondents acknowledge that there is a tourism market that targets deaf tourists however some of them believe that the tourism market is still not widely known especially in Malaysia.

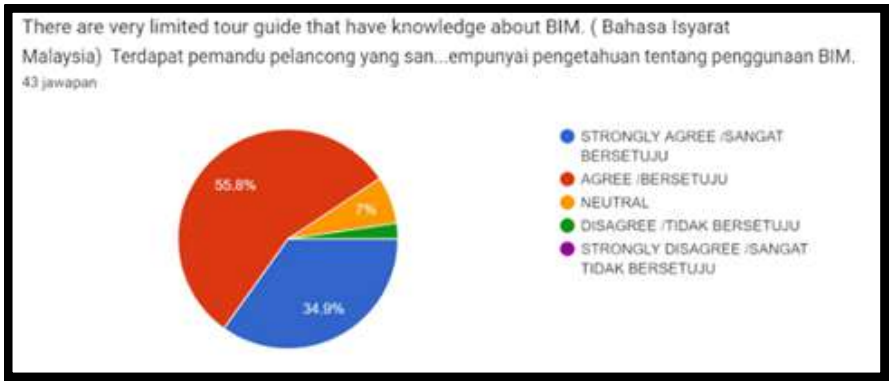
4. There Are Application Using BIM (Bahasa Isyarat Malaysia) Regarding Tourism Attraction In Kuantan



PIE CHART 9

The pie chart above shows the results of 43 respondents from the local community and Pahang Deaf Associations (PADA). The next question that has been highlighted in the survey is regarding tourist attraction, which is the application using BIM. This survey shows the percentage of the opinion that has been chosen based on the Likert scale given above. Based on the chart above, the majority of respondents voted agree with the statement above by 41.9% meanwhile the other highest voted goes to neutral by 34.9% and strongly agree by 16.3%. Also, some votes go to strongly disagree by 7% while the lowest goes to disagree by 2.3%. The difference gap between the highest and the lowest is 19.8%.In conclusion, most of the respondent agree with the statement given above however a few of the respondent disagree with the statement because they believe that there are not many tourism attraction application that has been using BIM (Bahasa Isyarat Malaysia).

5. There Are Very Limited Tour Guides That Have Knowledge About BIM (BAHASA ISYARAT MALAYSIA)

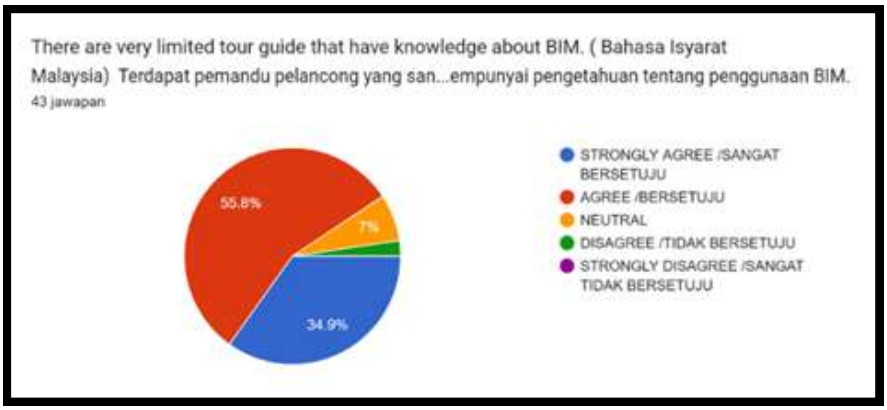


PIE CHART 10

The pie chart above shows the results of 43 respondents from the local community and Pahang Deaf Associations (PADA). The next question that has been highlighted in the survey is whether there are very limited tour guide that knows BIM (Bahasa Isyarat Malaysia). In this survey, it shows the percentage of the opinion that has been chosen based on the Likert scale given above. Based on the chart above, the majority of respondents voted to agree with the statement above 55.8% meanwhile the other highest voted strongly agree 34.9% and neutral 7%. The lowest that has been voted by the respondents goes to strongly disagree by 2.3%. The difference gap between the highest and the lowest is 26.75%.In conclusion, most of them agree that there are very limited tour guides who know BIM (Bahasa Isyarat Malaysia) because it takes time to learn the language itself.

SECTION B: OBJECTIVE 2 (TO PROVIDE VIRTUAL TOUR GUIDE FOR A DESTINATION)

1. There Are Very Limited Tour Guides That Know BIM.



PIE CHART 11

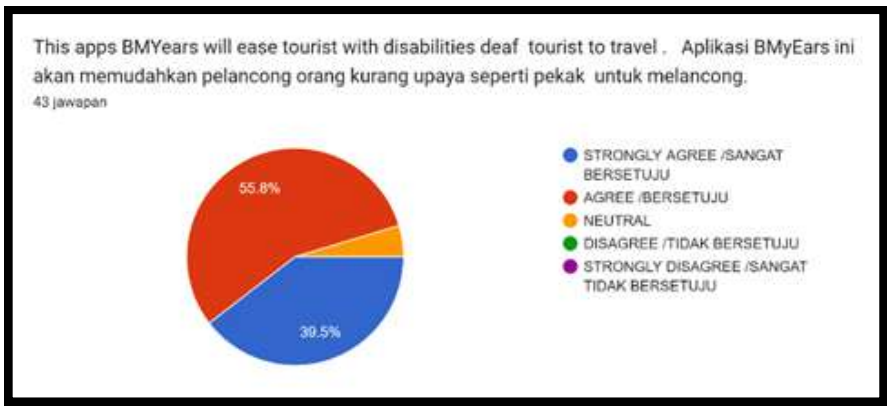
The pie chart above shows the results of 43 respondents from the local community and the Pahang Deaf Association (PADA). In section B objective 2, the graph explains the question that has been given based on the objective that has been provided. The first question related to the main objective that has been focused on providing a virtual tour guide for a destination. The first question that has been stated above is the are very limited tour guides that know BIM. Based on the pie chart, it shows that the majority of the respondents agree with the statement above which is around 55.8 %. Meanwhile, the lowest goes to only disagree with the statement by the percentage of 2.3 %. The difference between both options is 53.5 % in the question that has been given above. In conclusion, the respondent mostly agrees with the statement that people with disabilities especially provide virtual tour guides for a destination. In conclusion, we can conclude that there are very limited tour guides who know BIM in Malaysia to support this survey has been proven by the statement given above.

2. Tourists have To Pay An Expensive Price To Hire A Physical Tour Guide who has skills in BIM(Bahasa Isyarat Malaysia).

PIE CHART 12

Based on the survey above, shows the quantity of the respondent which 43 respondents from the local community and also Pahang Deaf Association (PADA). The question above states that tourists have to pay an expensive price to hire a physical tour guide who has skills in BIM. Using a Likert scale, the response will be identified by 5 different option which is strongly agree, agree, neutral, disagree, and strongly disagree. The highest number of answers the respondents chose to agree with the statement which totals around 41.9%. Other than that, the second highest is strongly agree 25.6% while the third highest goes to disagree at 20.9%. However, the lowest option that has been chosen by the respondents is to stay neutral by 11.6%. The difference between the highest and the lowest option is 15% for both answers. The conclusion is that most respondents agree with the statement that tourists have to pay an expensive price to hire a physical tour guide who have skills in BIM (Bahasa Isyarat Malaysia) especially in Malaysia because there are not many tour guide who have skills to communicate with the deaf and mute tourist.

3. The BMyEars App Will Ease Tourist With Disabilities Especially Deaf Tourist To Travel.



PIE CHART 13

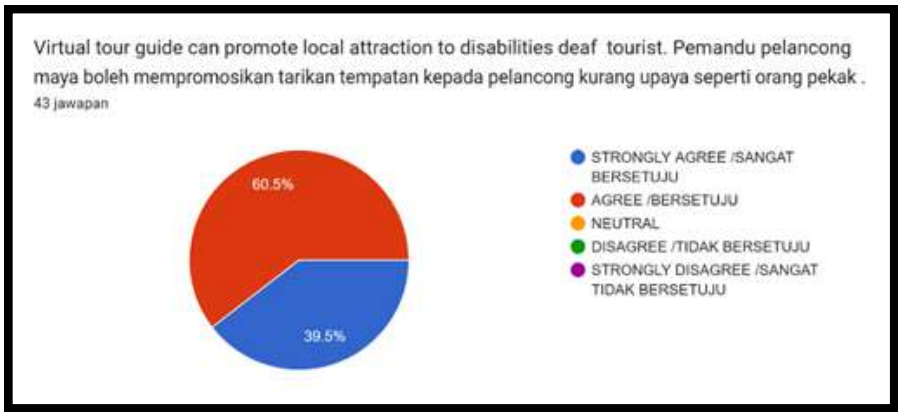
Based on the survey above, shows the quantity of the respondent which 43 respondents from the local community and also Pahang Deaf Association (PADA). The next question that has been stated above is whether the BMyEars app will ease tourists with disabilities especially the deaf to travel. Most of the respondents agree with the statement that has been given by 55.8%. Furthermore, some of them strongly agree with the question given above by 39.5%. Meanwhile, the lowest goes to the respondent who stays neutral by 7%. The difference between the highest and the lowest is 24.4%. In conclusion, the respondents agreed that the BMyEars app will ease tourists with disabilities, especially the deaf during their traveling because it may help them to guide to the place they want to go each time they are traveling.

4. Tourist Can Travel Without Any Worries With Help Of Virtual Tour Guide.

PIE CHART 14

Based on the survey above, shows the quantity of the respondent which 43 respondents from the local community and also the Pahang Deaf Association (PADA). The question stated above is whether tourists can travel without any worries with the help of a virtual tour guide. The majority of respondents agree with the statement given above which is 62.8%. Other than that, the second highest goes to strongly agree with 30.2%. Meanwhile, there are a few respondents who chose to stay neutral by 7% which shows they are the lowest response that has been given by the respondent. The difference between the highest and lowest is 27.9%.In conclusion, most of the respondents agree that tourists with disabilities found the virtual tour guide helpful in traveling especially during solo travel to ensure that they will get the information wherever they go.

5. Virtual Tour guides can Promote Local attractions to Tourist With Disabilities Especially Deaf Tourist.

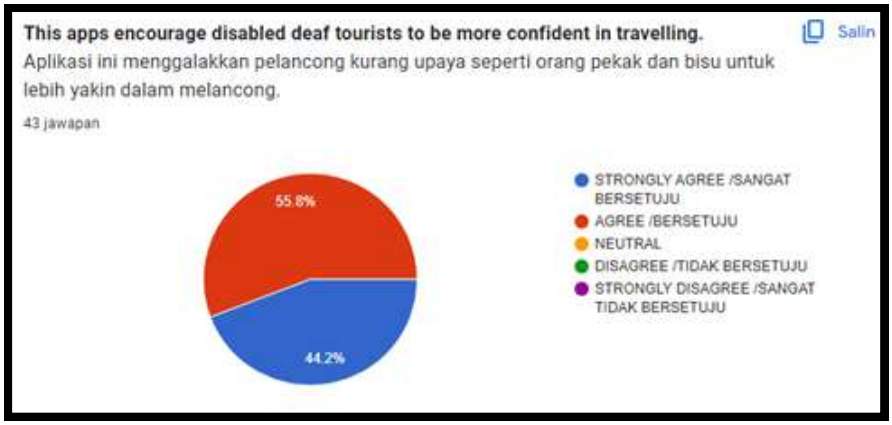


PIE CHART 15

This survey shows the quantity of the respondents which is 43 respondents from the local community and also the Pahang Deaf Association (PADA). The question illustrates the graph about how virtual tour guides can promote local attractions to disabled deaf tourists. The majority of respondents agree with the statement given above of 60.5 %. Meanwhile, the lowest goes to the strongly agree by 39.5%. There are differences between the highest and the lowest which is by 21% for both respondents. In conclusion, most of the respondents acknowledge that virtual tour guides may help to promote local attraction to tourists with disabilities, especially deaf tourists because the world has been expanding to more technologies in the future so it may work things out with the help of virtual tour guide to ensure everyone can get information even on their fingertips.

SECTION B: OBJECTIVE 3 (TO ENCOURAGE DEAF TOURISTS TO USE THIS APPS FOR TRAVELLING)

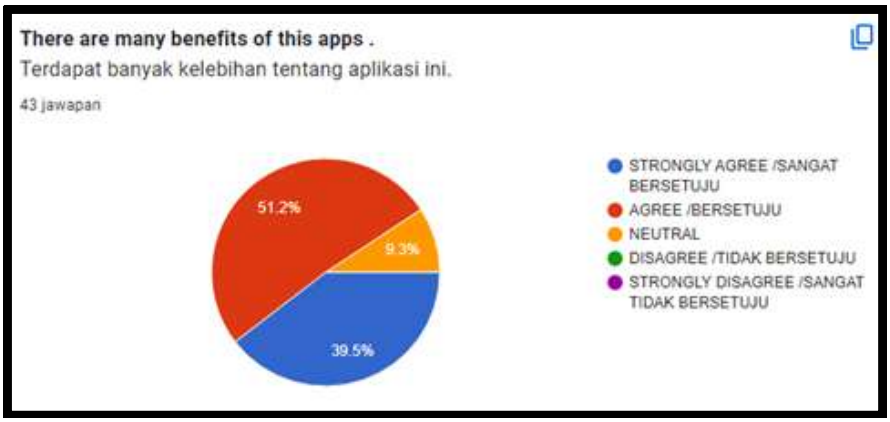
1.This App Encourage Disabled Deaf Tourist To Be More Confident In Travelling.



PIE CHART 16

This survey shows the quantity of the respondents which is 43 respondents from the local community and also the Pahang Deaf Association (PADA). The question illustrates the graph about how the apps will encourage deaf tourists to be more confident in traveling. Based on the pie chart above, the majority of respondents agree that 55.8% of these apps encourage disabled deaf tourists to be more confident in traveling. Meanwhile, the amount of respondents choose strongly disagree is 44.2% about how these apps can encourage deaf tourists to be more confident. The difference between the two options is 5.8%.In conclusion, most of the respondents go along with the statements that this app may encourage deaf tourists to travel more confidently because it may enhance their skills in finding certain locations and meeting new people around the world.

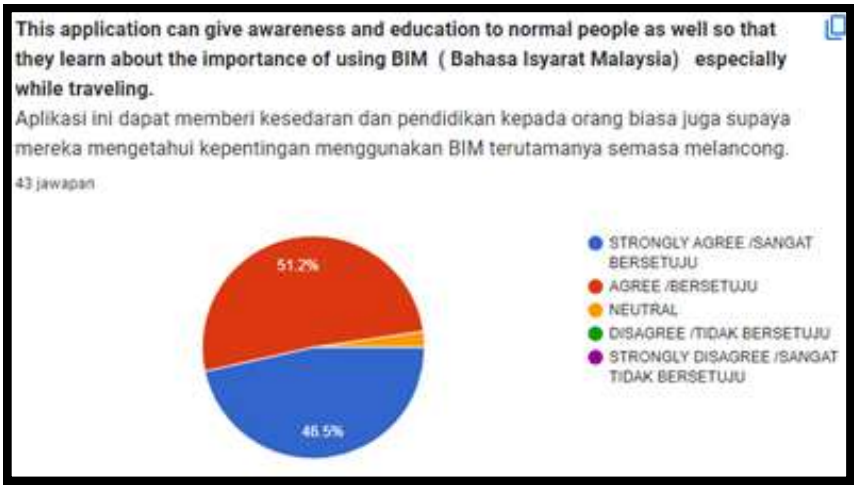
2: There Are Many Benefits Of This App



PIE CHART 17

This survey shows the quantity of the respondents which is 43 respondents from the local community and the Pahang Deaf Association (PADA). The question illustrates the graph about there are many benefits of this app. According to the pie chart given, the majority of the respondents agree that the BMyEars app will give many benefits to deaf consumers, 51.2 %. Moreover, certain respondents strongly agree with the statement by 39.5%. However, some of the respondents chose to stay neutral by 9.3%. The difference gap between the highest and the lowest is 5.85%.In conclusion, they admit that this app may give a lot of benefits not only to deaf people but also to the community who are aware of the importance of tourism to tourists with disabilities especially deaf and mute tourists.

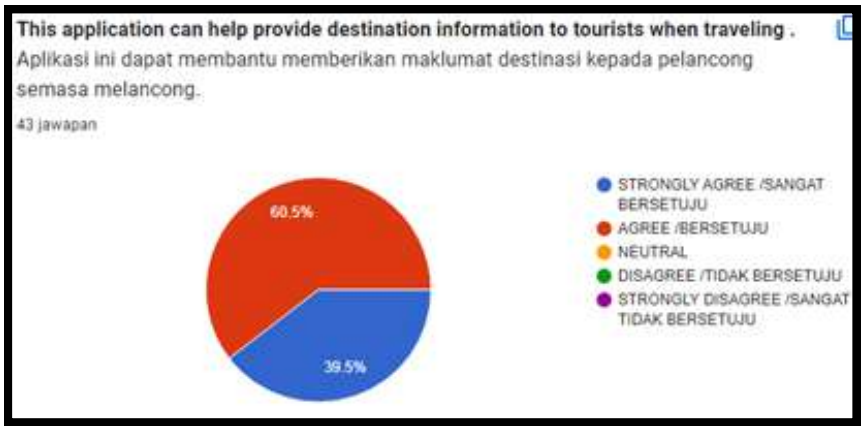
3: This Application Can Give Awareness And Education To Normal People As Well So That They Learn About The Importance Of Using BIM (Bahasa Isyarat Malaysia) Especially While Travelling.



PIE CHART 18

This survey shows the quantity of the respondents which is 43 respondents from the local community and the Pahang Deaf Association (PADA). The question illustrates the graph about how this application can give awareness about the importance and education to normal people as well so that they learn about the importance of using BIM (Bahasa Isyarat Malaysia) especially while travelling. Based on this chart, as many as 51.2% of the respondents who answered agree that this application can give awareness and education to normal people as well so that they can learn about the importance of using BIM (Bahasa Isyarat Malaysia). Also, as much as 46.5% of respondents that choose strongly disagree that this application can give awareness and education to normal people about BIM. The lowest percentage is for neutral which is only 2.3%. The difference gap between the highest and the lowest is around 24.5%.In conclusion, the majority of the respondent acknowledges that awareness about BIM (Bahasa Isyarat Malaysia) especially in deaf and mute community is important because it may be difficult for the community to create a stronger bond as a large community in general when they do not have the skills to communicate with them.

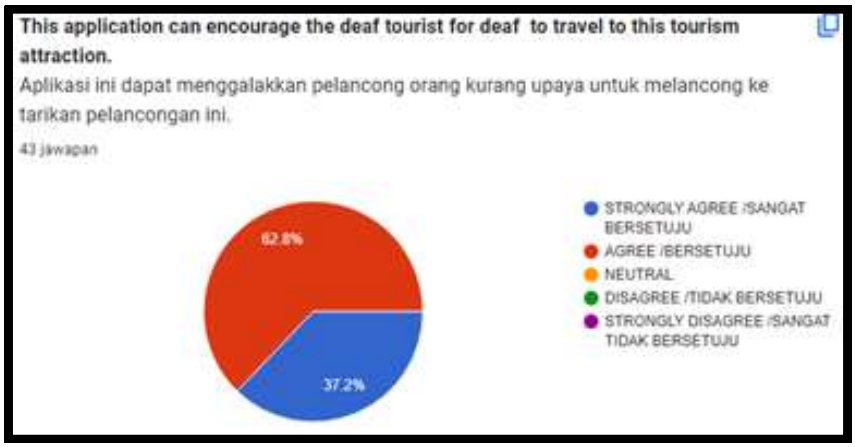
4: This Application Can Help Provide Destination Information To Deaf Tourist When Travelling.



PIE CHART 19

This survey shows the quantity of the respondents which is 43 respondents from the local community and the Pahang Deaf Association (PADA). The question illustrates the graph about how this application can help provide destination information to deaf tourists when traveling. Based on this pie chart, as much as 60.5% of respondents who answered agree this application can help provide destination information to tourists when traveling. Meanwhile, as much as 39.5% of respondents strongly agree that this application can help to provide destination information to deaf tourists when they are traveling. The difference gap between both options is 21%.In conclusion, most of the respondents agree with the statement above. After all, the BMyEars application will be able to provide information about destinations to deaf tourists because this application contains a few destination selections for deaf tourists such as Kuantan Art Street, Kuantan River Cruise, Teluk Cempedak, East Coast Mall, Teruntum Zoo.

5. This Application Can Encourage Deaf Tourists To Travel To Every Tourist Attraction



PIE CHART 20

This survey shows the quantity of the respondents which is 43 respondents from the local community and the Pahang Deaf Association (PADA). The question illustrates the graph about how this application can encourage deaf tourists to travel to every tourist attraction. Based on the chart above, as much as 62.8% of respondents agree that this application can encourage deaf tourists to travel to this tourist attraction. Besides that, as much as 37.2% of respondents strongly agree that this application can encourage the deaf tourist to travel. In conclusion, the majority of the respondents to this question agree that the BMyEars application will encourage deaf tourists to travel because it may help them to receive information about the destination faster and gain new knowledge during the trip.

5.0 DISCUSSION

Humans communicate using language to achieve a better standard of living. Conventionally, verbal language or oral language is used very widely but unfortunately is not used by deaf people. Therefore, deaf people communicate using non-verbal language, which is sign language.

BMyEars is an application designed for deaf people to get information about places they want to go. The advantages found in the developed BMyEars include comprehensive information about places to visit, services, facilities, and so on. Starting with the information found in this application, suggested places to visit, and facilities in the area. The information that will be conveyed to the deaf is sign language. In addition, this BMyEars application can increase knowledge for users, especially those who are deaf, about what is available in Kuantan. Not only that, people who are not deaf can also use this application to learn sign language delivered by an interpreter. This application can also be accessed regardless of age and can be used optimally.

This is also to guarantee that deaf tourists have a good time when traveling. There will be no more awkward situations or feeling out of place. It ultimately comes down to knocking down barriers and making travel available to everyone.

This discussion focuses on how the new alternative supplied for the deaf can assist them in learning about Kuantan attractions such as Zoo Teruntum. This therefore raises awareness among the general public, the government, and the commercial sector to care for and be aware of deaf persons. Furthermore, one of the key elements in this discussion is the preservation of the BMyEars application so that tourists from other states are aware of it. Furthermore, it has the potential to strengthen the tourism industry. An online interview session with respondents regarding their thoughts on this product was employed as the study instrument. Quantitative information is employed. This project has gotten input from multiple respondents who were interviewed using a Google form. The opinions of the respondents provided analytical data. They are enthusiastic about the project's completion.

6.0 CONCLUSION

In conclusion, this chapter describes the improvement of this project. Recommendations were received from respondents, the jury panel, and PADA interpreters. In addition, this chapter also explains project limitations and costs. Some things cannot be done due to time and budget constraints. Overall the project went smoothly despite some obstacles.
our findings underscore the importance of sign language in society, shedding light on nuances that have the potential to reshape paradigms and inform decision-making. As reflect on the depth and breadth of the study, it becomes evident that the tourism market for deaf tourists and guiding them should have been expanded to achieve the next level.

The recommendations laid out herein provide a compass for future endeavors, offering pragmatic pathways to harness the identified opportunities and navigate challenges. By aligning strategies with the insights gleaned from this research, stakeholders can position themselves advantageously in an ever-evolving landscape.

Ultimately, the Summary and Recommendation chapter not only synthesizes the wealth of knowledge garnered but also implores stakeholders to translate this knowledge into action. As draw the curtains on this research, the research anticipates that the seeds planted here will germinate into transformative initiatives, contributing to the broader discourse and progression within the field.

7.0 REFERENCES

Amaral, C. (2018, October 23). Guided Tours Using the Sign Language – EuroClio – Inspiring History and Citizenship Educators. EuroClio. Retrieved October 13, 2023, from https://euroclio.eu/resource/guided-tours-using-the-sign-language/

Carisinyal. (n.d.). 10 Aplikasi untuk Tunanetra Terbaik di HP Android 2023. Carisinyal. Retrieved October 13, 2023, from https://carisinyal.com/aplikasi-untuk-tunanetra/

Duggal, N., & Duggal, N. (2023, September 1). What Is Data Collection: Methods, Types, Tools. Simplilearn.com. Retrieved October 13, 2023, from https://www.simplilearn.com/what-is-data-collection-article

Duralable. (n.d.). Product Identification | Duralabel. DuraLabel. Retrieved October 13, 2023, from https://resources.duralabel.com/articles/product-identification

Gala, A. S. (2023, March 9). Deaf culture: what is it, history, aspects, examples & facts. Hand Talk. Retrieved October 13, 2023, from https://www.handtalk.me/en/blog/deaf-culture/

Google Play. (n.d.). BuzzCards - Apl di Google Play. Google Play. Retrieved October 13, 2023, from https://play.google.com/store/apps/details?id=com.sorenson.buzzcards&hl=ms&gl=US

Harian Metro. (2017, September 27). Guna app belajar bahasa isyarat. Harian Metro. https://www.hmetro.com.my/mutakhir/2017/09/267420/guna-app-belajar-bahasa-isyarat

Islambekova, Z. (2021, June 30). The opportunities of accessible tourism for disabled people. Munich Personal RePEc Archive. Retrieved October 13, 2023, from https://mpra.ub.uni-muenchen.de/108520/1/MPRA_paper_108520.pdf

Jensen, M. T., Chambers, D., & Wilson, S. (2022, May 9). Deafness and tourism studies. The future of deaf tourism studies: An interdisciplinary research agenda, 1-39(1-39), 4. https://www.sciencedirect.com/journal/annals-of-tourism-research

Khadijah, S., & Kassim, R. (2019, March 9). Access to facilities for deaf people. Research Gate. Retrieved October 13, 2023, from https://www.researchgate.net/publication/330184683_KEMUDAHCAPAIAN_FASILITI_ORANG_KELAINAN_UPAYA_DI_SEKOLAH_MENENGAH_KEBANGSAAN_TUN_ISMAIL_PARIT_RAJA/link/5c32cf1da6fdccd6b5985986/download

Lier, L. (2020, July 29). Accessibility in Tourism: challenges and opportunities - NTG. The Next Tourism Generation. Retrieved October 13, 2023, from https://nexttourismgeneration.eu/accessibility-in-tourism-challenges-and-opportunities/

Maria, L. (2010, December). (PDF) ACCESSIBLE TOURISM - THE IGNORED OPPORTUNITY. ResearchGate. Retrieved October 13, 2023, from https://www.researchgate.net/publication/49615484_ACCESSIBLE_TOURISM_-_THE_IGNORED_OPPORTUNITY

Popiel, M. (2019, March 9). Tourism Market, Disability, Inequality,Problems and Solutions. Acta academica karviniensia. Retrieved October 13, 2023, from http://aak.slu.cz/pdfs/aak/2016/03/03.pdf

StudySmarter. (n.d.). Research Instrument: Meaning & Examples. StudySmarter. Retrieved October 13, 2023, from https://www.studysmarter.co.uk/explanations/marketing/marketing-information-management/research-instrument/

Universiti Sains Islam Malaysia. (2018, March 28). Aplikasi ARSOM mudahkan golongan pekak dan bisu belajar Huruf Hijaiyah. Universiti Sains Islam Malaysia. Retrieved October 13, 2023, from https://www.usim.edu.my/ms/berita/aplikasi-arsom-mudahkan-golongan-pekak-dan-bisu-belajar-huruf-hijaiyah/

Malaysia Demographics Profile - Population. (n.d.). IndexMundi. Retrieved December 2, 2023, from https://www.indexmundi.com/malaysia/demographics_profile.html

MULTIPURPOSE UMBRELLA

Rina Fakhizan binti Mohd Sukri, Piraweenaa Shrey Chandran, Sanjay Gobu, Sharmila Gunasegaran

Tourism and Hospitality Department
Polytechnic METrO Kuantan

rinaf@pmku.edu.my1

ABSTRACT

Multipurpose Umbrella is a product designed to make it easier for users and tourists to travel around the world. This Multipurpose Umbrella very suitable for those who are go to camping, hiking, jungle trekking, picnic and many more. This is mainly created for tourists, hikers, and backpackers. This Multipurpose Umbrella is versatile and adaptable protective canopy designed to serve various functions beyond its conventional use of shielding individuals from the elements. This Multipurpose Umbrella is offers convenience and utility across from various situations. This product from used or recycle materials such as our products by preserving used fabric or clothes. The main objectives, of this Multipurpose Umbrella is to ensure tourists are comfortable carrying to carrying this product. Secondly is to serve as a multipurpose tool, such as walking aid or a self- defense tool in emergency situation. The last objective is to conserve storage space through travelling. The main goal of this product is to promote sustainable tourism. This product will be attach portable mini fan a facility free to use peacefully. The significance of Multipurpose Umbrella lies in their ability to align with modern lifestyles, integrating seamlessly with fast- paced, tech savvy world we live in. In conclusion, the advent of Multipurpose Umbrella represents a remarkable fusion of innovation, functionality, and adaptability. In addition, the emphasis on sustainability and eco- friendliness in some design reflects a responsible approach toward the environment. Thus, this product can have a beneficial and beneficial effect on the whole life.

1.0 INTRODUCTION

PROBLEM STATEMENT

A portable multipurpose umbrella aims to provide a convenient and private space for individuals to change clothing while on the go. However, there are potential challenges and areas for improvement that can be addressed. Here's a problem statement. In the realm of portable multipurpose umbrella there exists a notable deficiency in terms of ease of setup, durability, and overall user experience. Current offerings often struggle to strike a balance between portability and stability, leading to frustration and discomfort for users. In summary, utilizing a multi-purpose umbrella for dress changing combines privacy, weather protection, portability, and convenience, making it a practical choice for outdoor activities that may require a quick change of attire.

OBJECTIVE

In general, this study was conducted to identify the factors that influence the satisfaction of tourists about the Multipurpose Umbrella:

I. To ensure tourists are comfortable carrying and the product.

II. To serve as a multipurpose tool, such as walking aid or a self- defense tool in emergency situation.

III. To conserve storage space through travelling

2.0 LITERTURE REVIEW

In this topic, it content about proof, related issues and conclusion. This chapter will be our purpose for making this project. We did research about the related topic or issue through found from several different countries including international. This article is quoted from many high-profile professional opinions.

In this era of globalization, we have seen the effects that will happen. The utility model relates to an appliance for daily life, in particular to a multipurpose umbrella. The multipurpose umbrella comprises an umbrella handle, wherein a handle is arranged at the bottom of the umbrella handle; a light-emitted diode (LED) lamp and a switch are arranged at the bottom of the handle; a battery bin is arranged in the handle; and the power supply input end of the LED lamp is electrically connected with the power supply output end of the battery bin by the switch. The multipurpose umbrella integrates an illumination function on the umbrella, and is convenient to use and simple and compact in structure. Existing common umbrella function singleness only has the function of sun-shading rain-proof. And when movable out of doors, movable as in the night, need illumination, if a hand-held umbrella, another handheld illuminating device can't be vacated hand and do other things, and is very inconvenient. In view of this, the utility model provides a kind of multipurpose umbrella, and the integrated lighting function, easy to use on an umbrella.

A portable multipurpose umbrella aims to provide a convenient and private space for individuals to c The utility model solves the problems of the technologies described above by following technological means a kind of Multipurpose umbrella of the present utility model comprises umbrella handle, and described umbrella handle bottom is provided with handle, described handle bottom is provided with the LED lamp, and switch, being provided with battery compartment in described handle, the power input of described LED lamp is electrically connected to the power output end of battery compartment by switch.

Further, be provided with reflection shield after described LED lamp. Further, also comprise compass, a side of described compass is connected with an end of connecting rod by screw rod, and the other end of connecting rod is connected with umbrella handle by screw rod. The beneficial effects of the utility model: Multipurpose umbrella of the present utility model, the integrated lighting function, easy to use on umbrella, and is simple in structure, compact. Based on this article ,in our production delivered multipurpose umbrella aims give a dressing changing room to the tourist and attach portable mini fan for comfortably changing dresses and can use a camping tent for everywhere doesn't means particular place can take this multipurpose umbrella everywhere for our using private space.

Secondly another article will show as solar powered umbrella as a clean tech solution to mitigate the adverse effects of UV radiation on outdoor workers. According to the National Institute of Disaster Management (NDIM), 2422 people died due to heat wave in India, in the year 2015. Skin cancer, sun burns, heat stress and eye diseases are some of the other deleterious outcomes of overexposure to UV radiation. Additionally, outdoor workers are most afflicted due to prolonged daytime working hours. Although they are provided with various sun protection gears like umbrellas, hats and so on, most of these accessories fail to satisfy their needs. This paper studies the detrimental effects of UV radiation on outdoor workers and existing protective measures taken in their work sites. All the information about the above elements were collected from secondary sources. After analyzing all the aspects, the paper proposes an innovative product concept to mitigate the hardships of outdoor workers. The concept is expected to provide better sun protection than existing equipment. It is titled as "Dual-purpose solar powered umbrella integrated with cooling fan and power bank". Furthermore, the handle along with the shaft can be removed to convert the umbrella into a hat umbrella. Hence, the term dual-purpose is used in the title. This paper provides a competent concept which has the potential to assuage the hardships of outdoor workers. Detailed review of a few existing solar powered umbrellas and similar sun protective equipment are provided.

The data, about existing concepts, were collected for the purpose of this research from secondary sources. However, it was observed that most of the existing technologies were not user friendly. Hence, a new product concept is introduced to assuage the conundrums of occupational heat stress, skin cancer and sunburn among outdoor workers.

Numerous companies introduced similar products with adequate upgrades in the design and this is one of the Chinese versions of solar powered umbrellas. This version, unlike the Kafya umbrella, has neither a flashlight nor GPS system. Nevertheless, the solar panels are detachable, thereby, allowing the users to remove the panel during monsoon season. In other words, customers can use the same umbrella all year round, making it more economical. Based on this article ,in our production delivered multipurpose umbrella aims to give a dressing changing room to the tourist and attach a portable mini fan for comfortably changing dresses and can use a camping tent for everywhere doesn't means particular place can take this multipurpose umbrella everywhere for our using private space.

The third article is based on the Sustainable Tourism Umbrella. The article discusses the issues of individual low- cost and sustainable tourism and its main goal is to confirm that individual low- cost travel is in fact a form of tourism within which the principles of sustainable tourism are implemented. It is a theoretical article based on desk research involving literature analysis. (Bodgan Wlodarczyk, Waldemar Cudny, Aug 2022). Sustainable Tourism is a kind of an umbrella brand the features of sustainable development from all these activities. It is important to stress that there are some forms opposed to sustainable tourism functioning in the mainstream literature and travel places. (Bodgan Wlodarczyk, Waldemar Cudny, Aug 2022). Low- cost tourism is connected with sustainable development. (Wlodarczyk & Cudny, 2022). It is showed that improving the demand for local products, promoting cultural exchange, experience opportunities, and improving the image of the region are vital for the success of agro tourism. In general, agro tourism requires the involvement of tourists in various activities closely related to work of farmers in rural tourism and agriculture. Sustainable tourism development contributes to the preservation of the agricultural cultural heritage. (Bodgan Wlodarczyk, Waldemar Cudny, Aug 2022). Sustainable Tourism Development consists of three aspects: economic, environmental, and social aspects. Economically sustainable tourism maximizes economic benefits by minimizing operating costs. When tourists choose the tour routes with the lowest cost for sightseeing, it effectively reduced energy consumption and vehicle exhaust emissions, thus realizing low- carbon and environmentally friendly travelling (Bodgan Wlodarczyk, Waldemar Cudny, Aug 2022).

This article based on A multipurpose problem- based learning platform for education and research under smart grid umbrella. All those devices are arranged to simulate different stages of a power distribution system. This proposed a test facility for plug- in electric vehicles, renewable energy, and energy storage management system for educational purposes. (Int J Des Manuf, Sep 2022). The promising feature of the development smart grid is thre dynamic load side management through electric vehicles (EV). In this respect, a modular approach with a developed experimental setup platform and simulation tool has been proposed by (Haidar, Smith, and Elphic, 2021). This approach aims to simplify the concept of energy storage management by means of plug- in electric vehicles (PEVs) under the smart grid umbrella (Harikrishnan Ramachandran, Jun 2022).

The last article from this is based on, Fabrication of Multi- Purpose Solar Umbrella. Umbrellas are typically used to block the sun to protect people who work outside from overheat waves, which can result in heatstroke. A comfortable umbrella has been designed in the paper, which contains an electronic control system, a fan motor, a battery and six solar cells. The umbrella can collect solar energy in sunny days and charge electricity into the battery which provides power power to the fan motor in order to generate airflow for people outside in tropical regions (Hakim Khaula Nurul b et.al., 2021). A smart umbrella is essentially a solar- powered umbrella that may be used to charge phone batteries and power LED lights at night. Solar energy, which is created by the sun, is a non-depleting renewable energy source that is pollution- free. The amount of a solar energy that enters the earth every hour is sufficient to supply all of the energy needed for a year. (Manpreet et.al, 2021). The performance of solar systems to convert solar radiation depends on its inclination angle to the horizontal plane, independently from me topological conditions. (Mohamed Nfaoui et.al, 2021). The presence of solar energy systems has increased significantly in recent years both in rural areas- in the form of solar farms- and in urban areas as part of building installations. This Trans formation of the landscape, in spite of the good social acceptance of solar energy, causes an aesthetic impact whose interest has been growing in literature in recent years. This study aimed to review prior literature in order to establish the objective factors, aesthetic perception of hectic impact. Nuria Sanchez-Pantojaa et.al, 202).

In conclusion there are many of the article are based on the Multipurpose Umbrella. There are many opportunities to implement product concepts that can maintain the characteristics of recycling in tourism and there are many other types of products that still use recycled materials designed in the market. In fact, this product was innovated by us to become a better and more interesting project. The literature review defines as a study related to the multipurpose umbrella product that is suitable for tourists. In addition, this product can be the focus of consumers to maintain used materials with availability of products from used or recycled materials.

3.0 METHODOLOGY

PRODUCT DEVELOPMENT

Product identification is a method of showing the combination of materials that will form an innovation product to maintain the sustainability of tourism. A multipurpose umbrella is a versatile umbrella that typically offers features beyond basic rain protection. It may include additional functionalities such as UV protection, wind resistance, a built- in flashlight, or a reversible design. These umbrellas are designed to be useful in various weather conditions and situations. This can protect the inside. Next, that can make it easiest for the user, which can be used for changing dress. After folding it can be made into a form that is easy to carry anywhere.

QUANTITAIVE

The quantitative techniques used in this investigation A research instrument is a device used over the course of a study to gather information in order to meet the study's goals. Utilizable tools include questionnaires. Respondents were given questionnaires online. A sample of people chosen from the population to be studied are asked a series of information-gathering and data-analysis questions in survey research. Survey research can track a person's preferences, lifestyle, and other characteristics.

INSTRUMENT DEVLOPMENT

A research instrument is a tool used when conducting a study to obtain data for the purpose of achieving the objectives of the study. Instruments that can be used such as questionnaires that use google form.

SAMPLING DESIGN

The sampling technique used in the study should be clearly stated. Sampling shows to make inferences made on the population unnecessarily sampling can provide analysis from a study made about the intended population. Some of the commonly used sampling techniques include simple random sampling. The PMKU students population of dup students is 150 and the outsider population is tourists and the public's is 50. The sampling target for this project is PMKU students Semester 1 to Semester 5 and the outsider is tourists or public.

4.0 DATA ANALYSIS

This chapter discusses the results of the analysis and research findings obtained from the questionnaire distributed to students who are all students of METrO Kuantan Polytechnic and the outsider.The questionnaire that was conducted revolved around the study of the product we produce, which is product be features the ‘’Multipurpose Umbrella’’. The respondents of this study also consisted of the students of METrO Kuantan Polytechnic and the outsider. This data analysis is done through the GOOGLE FORM platform and the results are shown in the form of frequency, percentage, and mean and the analysis reflect the results of the research done on the product. The results of the study are also classified into two parts, namely the analysis of the respondent’s background and the analysis of the questionnaire that aims to answer the research questions and further meet the objectives of study.

The effectiveness of using this questionnaire method is easier and more accurate to evaluate our products. With that, we can identify problems or deficiencies that occur in our product by having respondents share feedback. Therefore, respondents can also understand the advantages or disadvantages of the products provided.

The discussion in this chapter includes the findings of a study that will answer the three main objectives to be achieved. This study was conducted to obtain information on the level of knowledge on sustainability issues of the environment and the importance of using the ‘’ Multipurpose Umbrella’’ when travelling. Studies used online questionnaires as a medium to collect data. This instrument consists of four parts of it which is the background of the respondent, and the Section B, Section C, and Section D is based on the objectives it is the ‘’Multipurpose Umbrella ‘’ questions. The study obtained 100 respondents from Polytechnic Metro Kuantan students and the 50 respondents is from outsider. Data obtained through online questionnaires is analyzed using google form. The method of analysis used in study in the discussion.

6.0 CONCLUSION

The conclusion is that this analysis data can research the percentage that supports our multipurpose umbrella. The research should be done through communicating with people whether online face to face . These surveys can also develop ideas.

7.0 REFERNCES

Haidar, A. M., Smith, V., & Elphick, S. (2021). A multipurpose problem-based learning platform for education and research under smart grid umbrella. The International Journal of Electrical Engineering & Education, 58(1), 3-32

Peters, S. (2014). Material revolution 2: New sustainable and multi-purpose materials for design and architecture. Walter de Gruyter.

Freilich, R. H., & Popowitz, N. M. (2010). The umbrella of sustainability: Smart growth, new urbanism, renewable energy and green development in the 21st century. The Urban Lawyer, 1-39.

BATIK KIT ON THE GO
BATIK KIT WITH IR 4.0 INNOVATION

Nor Akashah Binti Kassim, Muhammad Afif Danial Bin Ahmad Fadzil , Massayu Aisyah Binti Ab Aziz , Nur Aliaa Binti Rosman , Sofea Ilham Binti Shamsuddin

Tourism and Hospitality Department
Polytechnic METrO Kuantan
akashah@pmku.edu.my

ABSTRACT

"BATIK KIT ON THE GO" is an innovative batik product for students studying tourism management. This is because nowadays one of the problems faced by students and most local people who know Malaysian batik. This is because of the heritage of Malaysian batik nowadays most people do not know the difference between Malaysian batik and Indonesian batik. Based on our research to the respondents, we found many different results, there is a difference in the level of satisfaction about this batik kit. They are not satisfied with the way our products are packaged and want more innovation from our products, for example in terms of bookkeeping, it needs to be improved if we want to put our kit batik products on the big market. In addition, we also use second-hand items such as banners and ropes and we also apply augmented reality (AR) technology. With this product, it can make it easier for students to learn about the difference between Malaysian batik and Indonesian batik and can have a good impact on the tourism industry and can even protect our country's batik heritage. In addition, the students do not need to bother to know the difference between Malaysian and Indonesian batik because in the batik kit it is already available and all that is needed is even a way to find out how Malaysian batik is also provided in the Batik Kit on The Go product.

Keywords: Tourism, batik, kits, banners, Augmented Reality

1.2 Problem Statement

Problem that was often faced by the entrepreneurs include unstable price of batik, difficulties in the stiff competition in the market. Batik uses a high cost for tourists and children if they want to try make it themselves in the factory because of its large size. It makes tourists and other people choose not to try Batik activities. Besides that, there are also many Batik kits on the market, but they all must be made at the ongoing exhibition or event and cannot be brought back to make at home.

Also, many people still do not know the difference between Malaysian and Indonesian Batik. It is because it has the same nickname, the same way of wearing it and also the relatively similar way of making it. Malaysia looked to Batik to create a national identity and it became the official national attire for formal occasions. Such as working as tour guides and even office workers should wear them. Tourist who come to Malaysia must want to see Malaysian Batik, why is it necessary to promote foreign Batik.

1.3 Project Objectives

•To identify the difference how goods between Malaysian batik and Indonesian Batik
•To provide a batik painting kit with IR 4.0 and green technology
•To create educational tools and interpretational activity in order to attract tourists and local people

2.0 LITERATURE REVIEW

The art of batik has become popular in many nations. For instance, the art of batik has been practiced in Egypt and Persia for almost 2000 years, although it was only utilized for the first time in Japan and China in the seventh century. Additionally, it has a long history in Indonesia and has flourished in Malaysia since it first appeared there more than a century ago. The history of batik in Malaysia is pioneered by Kelantan and Terengganu. When the expertise of the technique was learned in Java and brought over, it started in 1914 in Kota Bharu, Kelantan..
Kelantan heritage handicraft is very important for the state and represent culture because handicraft is an art that left by ancestor from the past. Handicraft in Kelantan consists of takraw, wau, gassing, batik, traditional Malay weapon, traditional shadow play, wood carving and furniture made from rattan also timber. Handicrafts are mostly defined as "Items made by hand, often with the use of simple tools, and are generally artistic and/or traditional in nature (Yojana and Sansad, 2006).
Augmented Reality (AR) is defined as a real-time direct or indirect view of a physical realworld environment that has been enhanced/augmented by adding virtual computer-generated information to it. AR is both interactive and registered in 3D as well as combining real and virtual objects. Milgram's Reality-Virtuality Continuum is defined by (Paul Milgram and Fumio Kishino 1995) as a continuum that spans between the real environment and the virtual environment comprise Augmented Reality and Augmented Virtuality (AV) in between, where AR is closer to the real world and AV is closer to a pure virtual environment.

3.0 METHODOLOGY

3.1 Data Collection Methods

• Quantitative data
• Primary data (questionnaire)

3.2 Research Instrument

This study will be conducted using quantitative methods. visitor, Politeknik METrO Kuantan lecturers, staff and students will be given a questionnaire in Google Form via WhatsApp and QR Code. Respondents will answer questions in a Google Form only after evaluating this product. This allows all respondent responses to be automatically recorded in Google Forms first.

3.3 Sampling Design

The researcher's target are staff, tourism management diploma students, Politeknik METrO Kuantan In addition, among the commonly used sampling techniques include simple random sampling.
To determine the sample size for a given population, this project will give only 100 samples consisting of 20 students of the diploma of tourism management from semester 1 and 10 people from semester 2 and 20 people consisting of students of semester 3 and then 10 from students of semester 4 and finally, a total of 20 students from semester 5 and not to be left behind, which is a total of 20 Politeknik METrO Kuantan the total number of samples given is 100 samples

BIL.	RESPONDENTS	NUMBER OF RESPONDENTS
1.	STAFF & LECTURER	20
2.	SEMESTER 1 (DUP)	10
3.	SEMESTER 2 (DUP)	20
4.	SEMESTER 3 (DUP)	10
5.	SEMESTER 4 (DUP)	20
6.	SEMESTER 5 (DUP)	20

Table 3.2.3

4.0 FINDINGS

4.1 Data Analysis

This project's respondents were divided into two genders between male and female. The graph illustrates that the percentage of female respondents is higher than the percentage of male respondents. The proportion of female respondents is 62% equivalent, whereas the proportion of male respondents is 38% equivalent. These responses include diploma in tourism management students, lecturers, and PMKu personnel

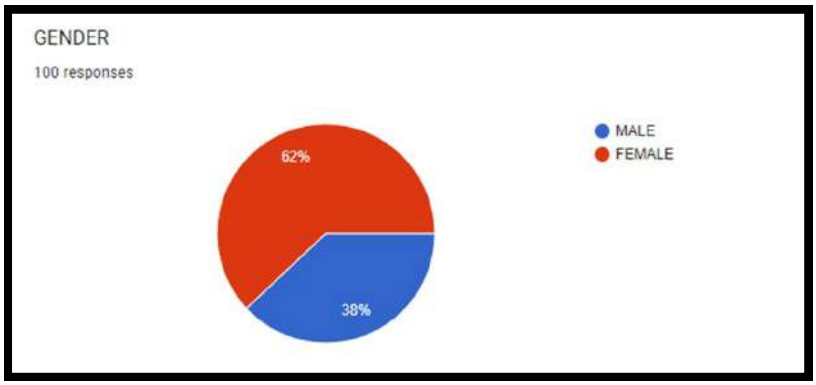


Figure 4.2.1

Our Responders range in age from 18 to 24 years old, 25 to 34 years old, 35 to 44 years old, 45 to 54 years old, 55 to 64 years old, and 65 and older. According to the graph, the majority of respondents in this project's data group are between the ages of 18 and 24. This is because the majority of Politeknik METrO Kuantan students have recently passed their Sijil Pelajaran Malaysia. The overall number of responders aged 18 to 24 years is 79% comparable. While it is comparable to 5% for responders aged 25-34 years. While it is 9% for those aged 35-44 years, it is 7% for those aged 45-54 years and above.

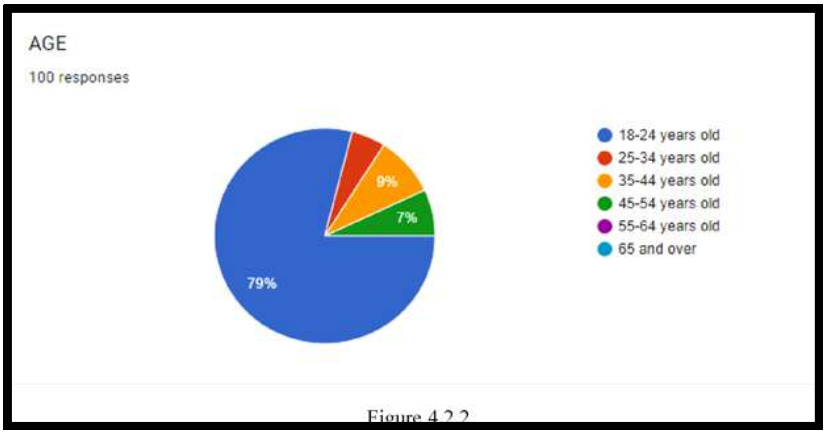
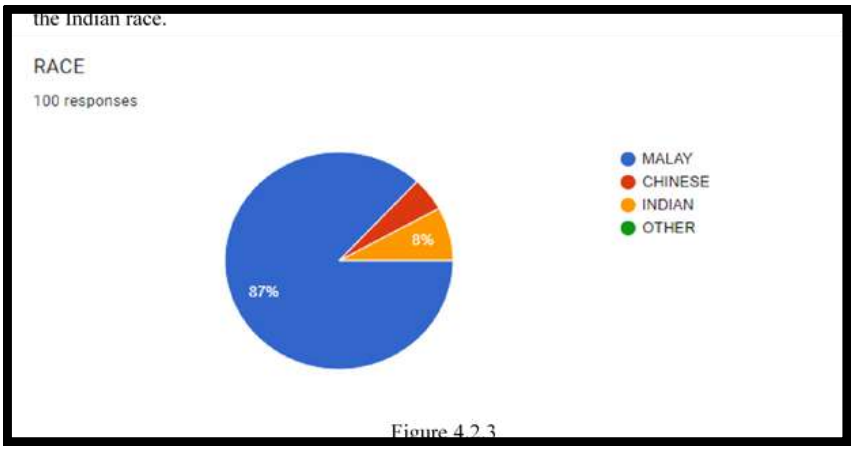


Figure 4.2.2

Malays, Chinese, Indians, and others make up our sample. Because the Malay race is the main population in PMKu, 87% are Malay. Only 5% are from the Chinese race, while 8% are from Indian race.



Following that, in terms of employment, our responses included tourist management diploma students, lecturers, and others. With this, the bulk of responders (79% in terms of employment) are tourist management diploma students. While academics account for 20% of the total, the smallest share is 1%

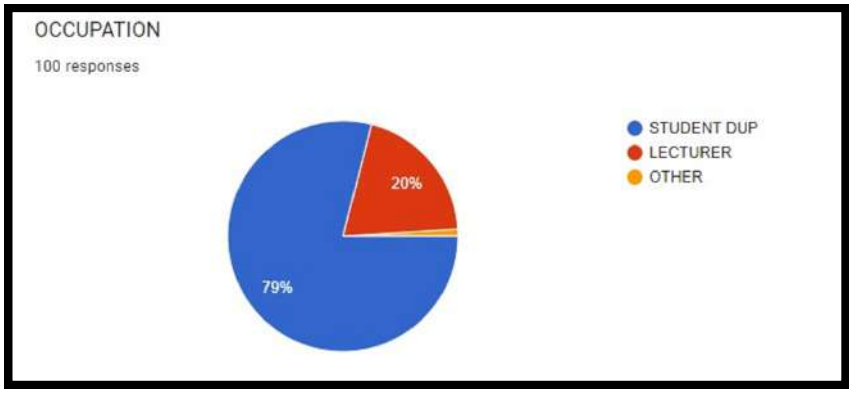


Figure 4.2.4

Our responders in terms of semesters include tourist management diploma students semester 1, semester 2, semester 3, semester 4, semester 5, lecturers, and others, as shown in the next graph. The percentage of semester one students is 10%, or ten persons. Furthermore, the percentage of students in the second semester is 10%, which is equal to 10 persons. Semester 3's proportion is 20%, which equates to 20 persons. The percentage for semester 4 is the same as the percentage for semester 3, which is 20%. Finally, in the fifth semester, the proportion of students was 21%, or 21 persons, and the percentage of lecturers was 18%, or 18 person. and the opposite, which is the lowest percentage is 1%.

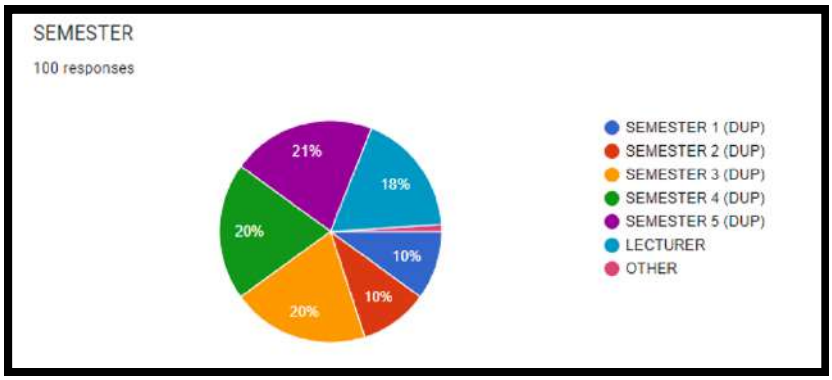


Figure 4.2.5

For the next graph, a group of us calculated the percentage of people who had ever participated in batik canting activities. The graph illustrates that 76% of people have done the activity before, where as 24% have never done it

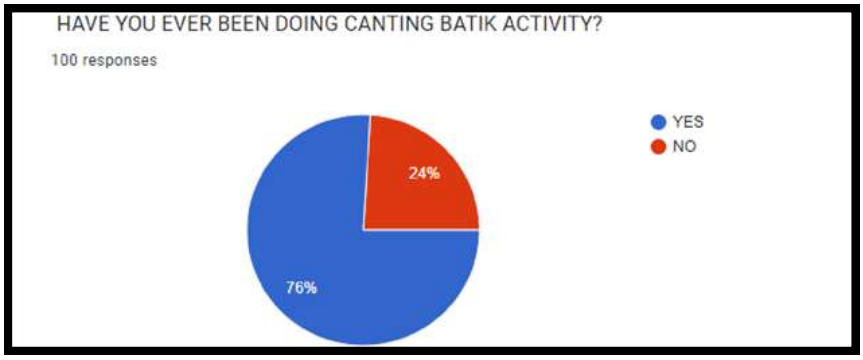


Figure 4.2.6

This Batik Kit on The Go give me good information about the different Malaysian batik and Indonesian batik.

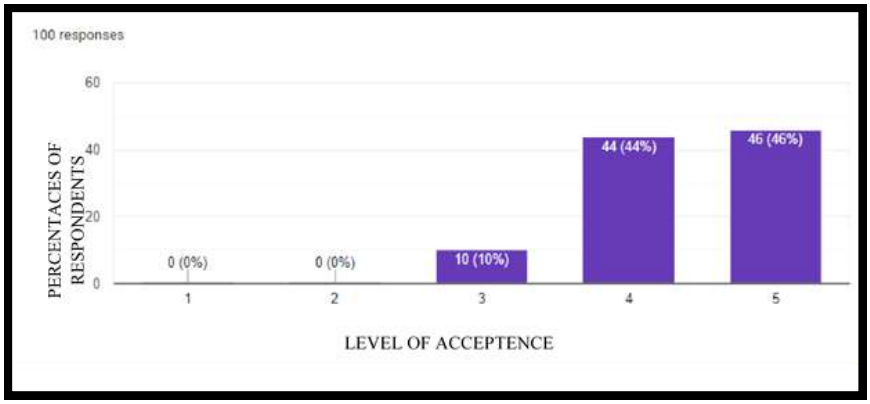


Figure 4.2.7

For the first question, this Batik on The Go Kit provided me with useful information about the differences between Malaysian and Indonesian batik. To date, 100 respondents have indicated whether they strongly agree (5 marks), agree (4 marks), naturally (3 marks), disagree (2 marks), and strongly disagree (1 mark). A total of 46% said they strongly agreed, and 44% said they agreed. The majority of our responders picked strongly agree and agree since they believe our goods give outstanding knowledge in identifying Malaysian and Indonesian batik.

The knowledge about Malaysian Batik and Indonesian Batik shows in Batik on The Go east to understand.

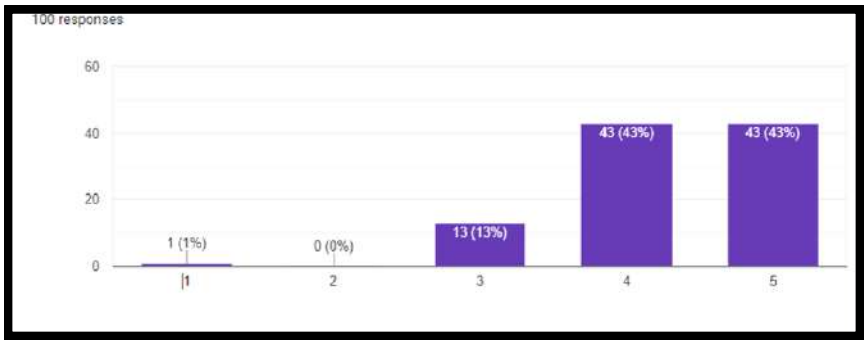


Figure 4.2.8

For the second question, the knowledge of Malaysian and Indonesian batik shown in Batik on The Go east, 100 respondents have already provided replies of strongly agree (5 marks), agree (4 marks), natural (3 marks), disagree (2 marks), and severely disagree (1 mark). Only 1% of respondents strongly disagreed, while 43% strongly agreed. The majority of our responders opted to strongly agree because they realize that the goods, we make provide knowledge about Malaysian Batik Knowledge and Indonesian Batik in a simple Batik on The Go format that is very straightforward to comprehend and use.

This Batik Kit on The Go assists me to identify the difference between Malaysian batik and Indonesian Batik

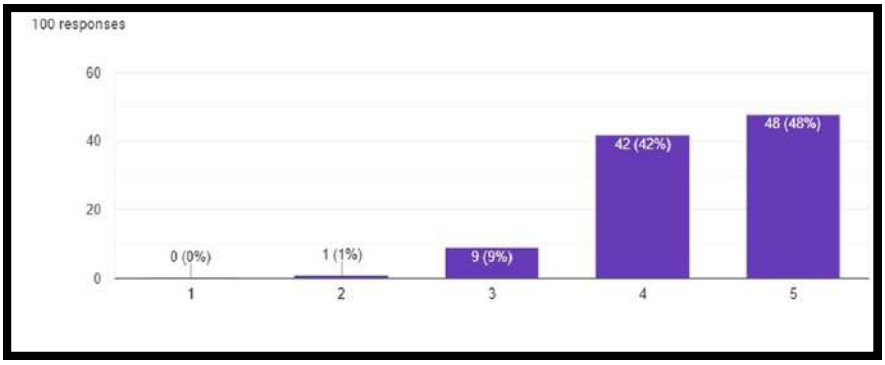


Figure 4.2.9

For the third question, This Batik Kit on The Go helps me difference between Malaysian and Indonesian batik, 100 respondents have already indicated whether they greatly agree (5 points), agree (4 points), or natural (3 points). disagree (2 points), strongly disagree (1 point). Only 1% of respondents strongly disagreed, while 48% strongly agreed. The majority of our respondents chose to highly agree since they discovered that the things, we create may assist them in distinguishing between Malaysian and Indonesian batik.

This innovation of this product, help me in creating awareness about Malaysia batik product.

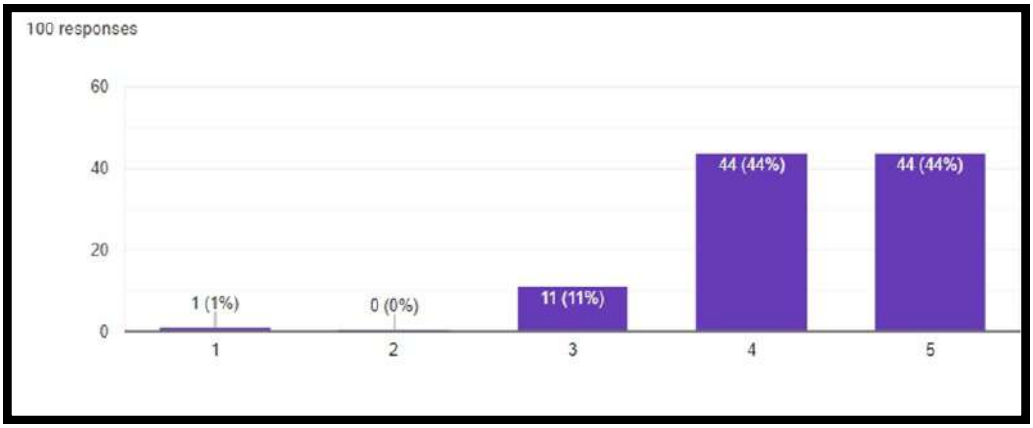


Figure 4.2.10

For the fourth question, "Plan to this product's innovation help me create awareness about Malaysian batik?" 100 respondents have previously provided replies of strongly agree (5 marks), agree (4 points), natural (3 marks), disagree (2 marks), and strongly disagree (1 mark). A total of 44% said they strongly agreed or agreed, with only 1% saying they strongly disagreed. Finally, our average respondents chose strongly agree and agree because they understand how essential knowledge of Malaysian products is and that it is one of the historical arts that has declined.

The application of the IR 4.0 and green technology in Batik on The Go

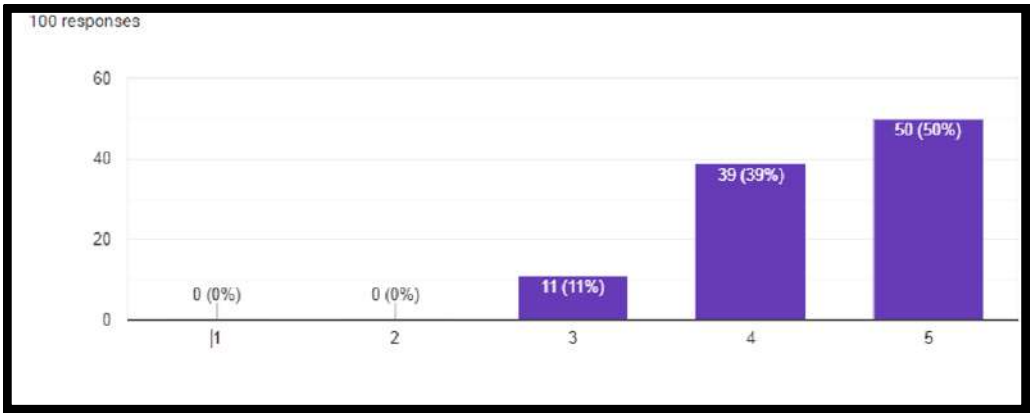


Figure 4.2.11

For the fifth question, this is the application of IR 4.0 and green technology in Batik on The Go, and 100 respondents have already provided replies of strongly agree (5 points), agree (4 points), natural (3 marks), disagree (2 marks), and severely disagree (1 mark). predominant outcomes A total of 50% said they strongly agreed, 39% said they agreed, and only 11% said they were indifferent. Finally, our average respondents opted to strongly agree and agree because the usage of IR 4.0 and green technology in batik is extremely useful to users' environments and the tourism business.

I'm aware of the batik pattern after using this product.

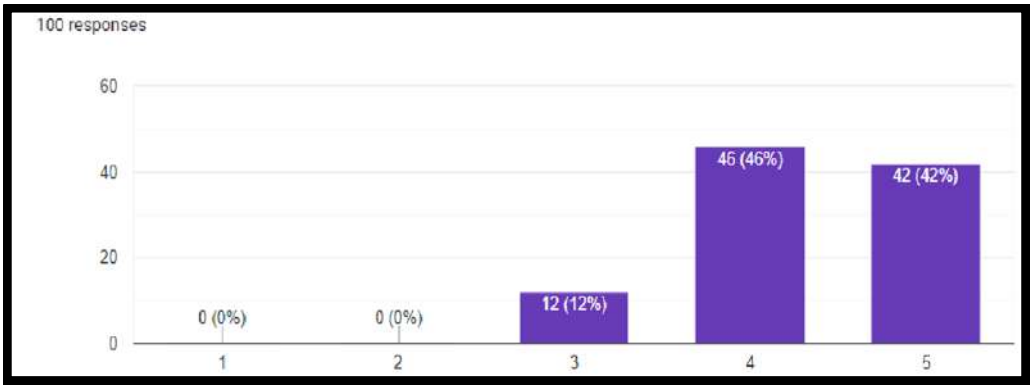


Figure 4.2.12

For the sixth question, I'm aware about the batik pattern after using this product, and 100 respondents have already been given answers whether they strongly agree (5 marks), agree (4 marks), natural (3 marks). disagree (2 marks) and strongly disagree (1 mark). majority results A total of 46% answered agree while the percentage to strongly agree was 42%, and only 12% answered neutral. In conclusion, our average respondents chose to strongly agree and agree because they realized the importance of batik to the tourism industry after using this product.

The usage of augmented reality this will make people easy to understand the different between of batik Malaysia & Indonesia

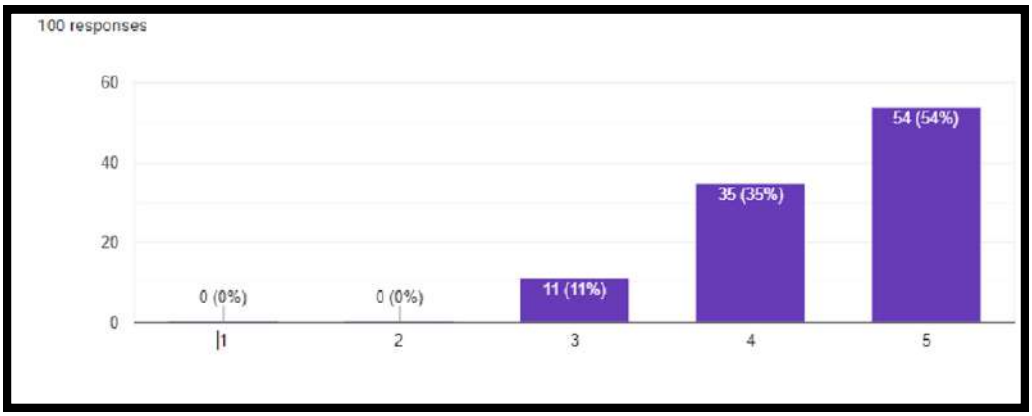


Figure 4.2.13

In response to the seventh question, the use of augmented reality This would help people grasp the difference between batik Malaysia and batik Indonesia, and 100 respondents have already indicated whether they strongly agree (5 points), agree (4 points), or are natural (3 points). disagree (2 points), strongly disagree (1 point). predominant outcomes A total of 54% said they strongly agreed, 35% said they agreed, and 11% said they were impartial. Finally, our average respondents decided to strongly agree and agree because the usage of augmented reality technology allows people to learn more about the distinctions between batik in Malaysia and Indonesia.

The technology application this Batik Kit on The Go encouraged me to use this product.

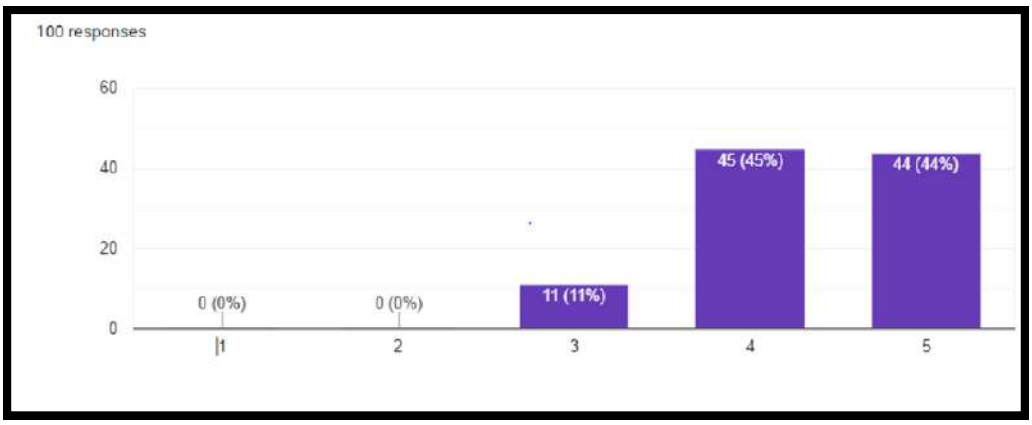


Figure 4.2.14

For the eighth question, the technological application of this Batik Kit on The Go encourages me to utilize this product, 100 respondents have already provided answers of strongly agree (5 points), agree (4 points), and natural (3 points). disagree (2 points), strongly disagree (1 point). The majority of respondents (45%) agreed, 44% strongly agreed, and 11% responded neutrally. Finally, our average respondent decided to strongly agree and agree because they may experiment with dyeing batik using their own creativity and learn about Malaysian and Indonesian batik.

The use of recycled item in packaging can be more preserve our environment.

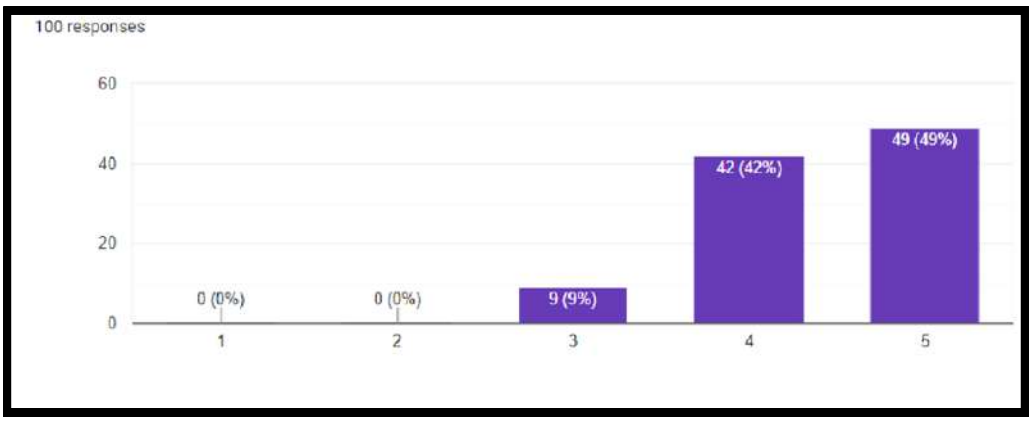


Figure 4.2.15

For the tenth question, the usage of recyclable objects in packaging can help to maintain our environment, 100 people have already responded with either strongly agree (5 points), agree (4 points), or natural (3 points). disagree (2 points), strongly disagree (1 point). predominant outcomes A total of 49% said they strongly agreed, while 42% said they agreed and only 9% said they were neutral. Finally, our average responders picked highly agree and agree since our products also employ second-hand goods and it also helps customers to be aware of the usage of items that are no longer in use.

This Batik Kit on The Go can attract tourist and local people to be more interested in Malaysian culture.

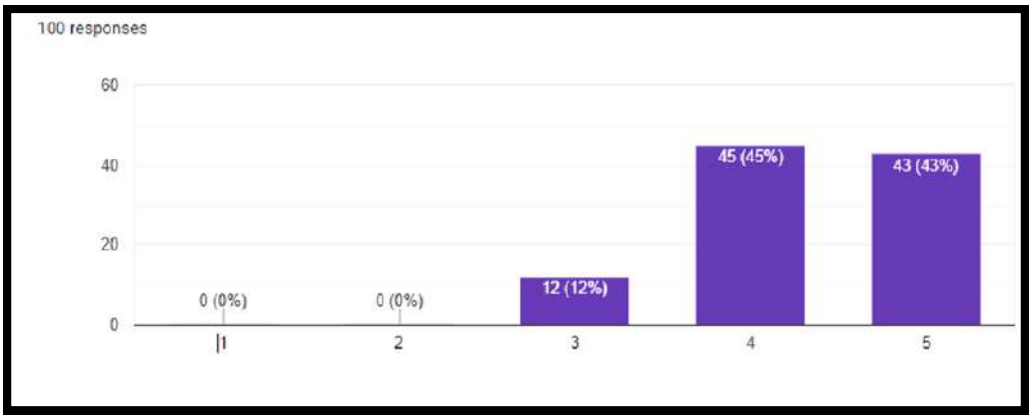


Figure 4.2.16

For the eleventh question, the use of technology and recycling allows young generations to learn more about culture, 100 respondents have already indicated whether they strongly agree (5 marks), agree (4 marks), or are natural (3 marks). disagree (2 points), strongly disagree (1 point). predominant outcomes A total of 45% said they agreed, 43% said they strongly agreed, and only 12% said they were neutral. Finally, our average respondents opted to highly agree and think that offering more exploration to the younger generation to learn more about the culture is important.

This Batik Kit on The Go can attract tourist and local people to be more interested in Malaysian culture.

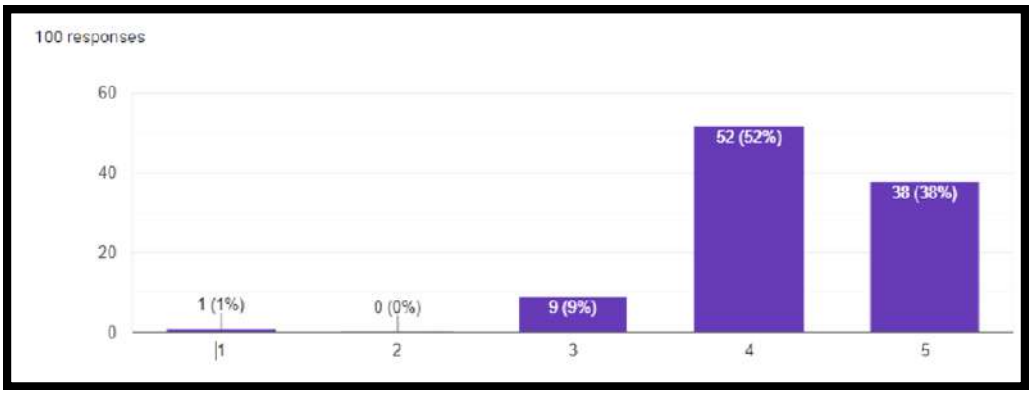


Figure 4.2.17

For the 12th question, This Batik Kit on The Go may pique the attention of visitors and locals alike in Malaysian culture, and 100 respondents have already indicated whether they strongly agree (5 points), agree (4 points), or are natural (3 points). disagree (2 points), strongly disagree (1 point). predominant outcomes A total of 52% said they agreed, 38% said they strongly agreed, 9% said they were indifferent, and 1% said they strongly disagreed. Finally, our average responses opted to strongly agree and agree because, for example, as we know Malaysian batik very well with its patterns that can attract visitors. With the availability of our goods, Malaysian batik can be reintroduced into the market. With the existence of this product of ours, Malaysian batik may be reintroduced to the globe through its unique attractiveness.

This Batik Kit on The Go can improve the interest of the younger generation in the field of Malaysian arts and culture program.

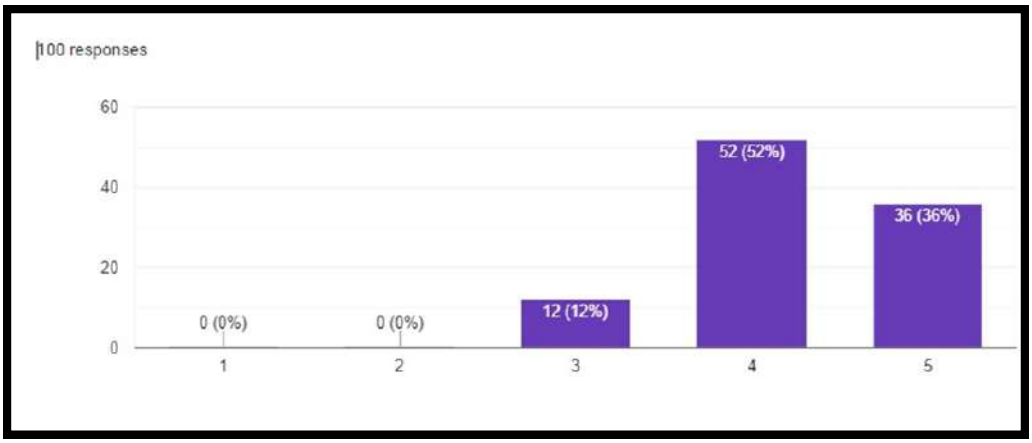


Figure 4.2.18

For the 13th question, This Batik Kit on The Go can improve the next generation's interest in Malaysian arts and culture, 100 respondents have already given an answer of either strongly agree (5 marks), agree (4 marks), or natural (3 marks). disagree (2 points), strongly disagree (1 point). the majority of outcomes A total of 52% said they agreed, 36% said they strongly agreed, and only 12% said they were indifferent or disagreed. Finally, our average responses opted to strongly agree and agree since our product may boost the interest of the younger generation in art programs and Malaysian culture, as well as perpetuate this unique history so that it does not end in the future.

Students can use this Batik Kit on The Go as an educational tool.

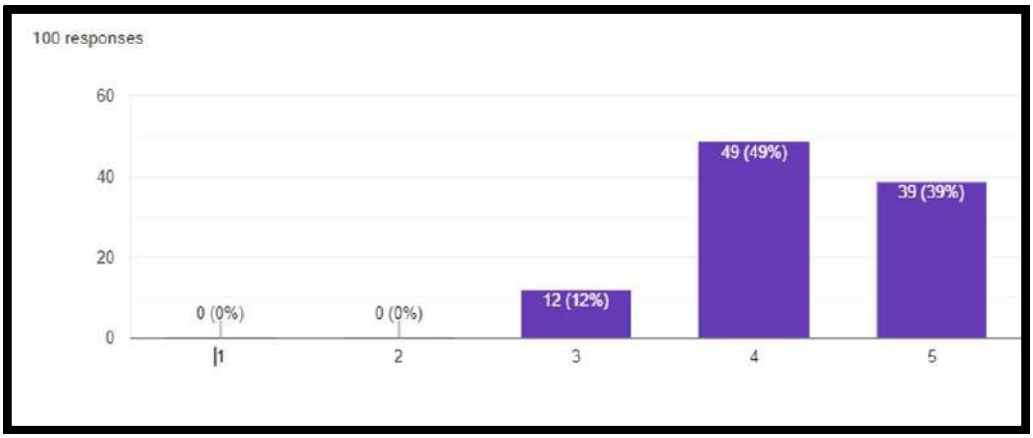


Figure 4.2.19

For the 14th question, students can use this Batik Kit on the Go as an instructional tool, and 100 respondents have already indicated whether they strongly agree (5 points), agree (4 points), or natural (3 points). disagree (2 points), strongly disagree (1 point). the majority of outcomes A total of 49% said they agreed, while 39% said they strongly agreed, and only 12% said they were neutral. Finally, our average respondents decided to strongly agree and agree because our product is also appropriate for use as an educational tool because it can educate more about Malaysian batik tradition.

Tourists considered handicrafts that can be displayed at home or office, that makes a good gift, and are handmade as the most appealing attributes for handicrafts.

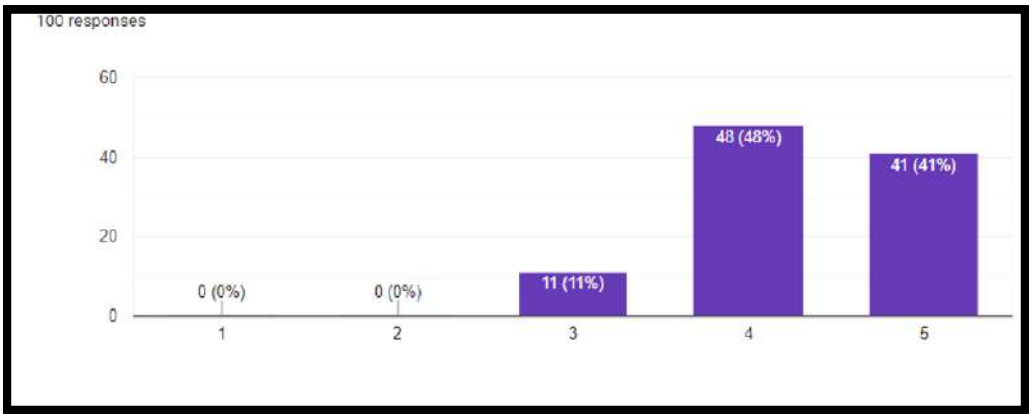


Figure 4.2.20

Tourists considered handicrafts that may be displayed at home or workplace, make an excellent present, and are handcrafted to be the most enticing features for handicrafts in response to question 15. and 100 people have already indicated whether they strongly agree (5 points), agree (4 points), or are natural (3 points). disagree (2 points), strongly disagree (1 point). predominant outcomes Only 48% said they agreed, 41% said they strongly agreed, and 11% said they were indifferent or disagreed. Finally, our average respondents selected to strongly agree and agree this since it may be exhibited at home or workplace, and it is also a fantastic present, with handcrafted being the most appealing feature for handicrafts.

I like to purchase this type of product as gift, local craft or individual collection

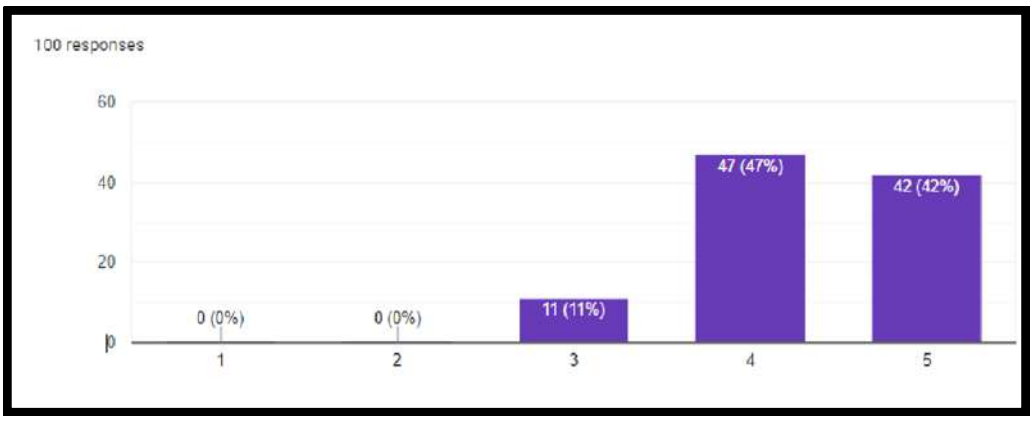


Figure 4.2.21

For the 16th question, I'd want to buy this sort of goods as a present, local artisan, or individual collection, and 100 people have already responded with either highly agree (5 points), agree (4 points), or natural (3 points). disagree (2 points), strongly disagree (1 point). the majority of outcomes A total of 47% said they agreed, while 42% said they strongly agreed, and only 11% said they were neutral. Finally, our average respondent opted to strongly agree and agree with this since the product may be transformed into a present, personalized collection, instructional tool, or local craft.

5.0 DISSCUSION

Based on the overall view of the graph above, the majority of the results we get for our product, "Batik Kit on The Go," are very good, and the average result is positive, indicating that our product is well received by users because the product we produce is based on cultural art and heritage. Furthermore, our items received a passionate response because, as we all know, Malaysian batik art is one of the exceptional attractions that we must protect since it may have a significant influence on the modelling business in our country. With the addition that makes it even more intriguing due to the innovation of ir4.0 technology and 100% who are interested and agree with the innovation product introduced in the batik kit on the move product.

Based on the suggestions we got, our products also received many suggestions to further improve our products, including improving packaging, adding brushes and adding more interesting batik patterns. Finally, the majority of the suggestions we received were to improve the way of packaging so that it is easy to carry and show the creativity of batik kit on the go products.

6.0 CONCLUSIONS

The formula for our innovation project is that we succeeded in creating an innovation product that combines two technologies that are added in one of our projects, that is, apart from the batik product. we add this kit to make it look more interesting and different that tourists see with the addition of innovation products such as IR technology 4.0 which is 'Augmented Reality Video and Green Technology by using used banner materials as packaging for our products. In addition, we also received feedback from an external panel of staff at Politeknik METrO Kuantan and also students that our innovative product "Batik Kit on The Go" is very attractive to the public because they say this product can go a long way with IR 4.0 technology this and make it easier for people to understand and be able to learn new things and never forget that traditional Malaysia is very important for our country. Next, with the presence of this interesting thing, we can further expand this traditional Malaysian Batik clothing to overseas. Finally, we also collaborated with the Batik factory in Kota Bharu, Kelantan to cooperate with us to complete our project. The purpose of our collaboration with this Batik factory is to be able to introduce and expand their business and also simplify their business for every visitor who comes to try to make Batik themselves and identify the real Handmade Batik process.

GEORISM APPLICATION

Anis Shabirah Binti Md Isa, Vallen A/L Richard Rancis, Muhammad Idlan Haikal Bin Azhar, Nurul Jannah Binti Mohd Sufian, Siti Zahirah Binti Anuar

TOURISM AND HOSPITALITY DEPARTMENT
POLYTECHNIC METr0 KUANTAN

aanismdisa@gmail.com

ABSTRACT

The Georism application is a learning application for the subject DTM10103 Tourism Geography. It is also an application that has been innovated to make it easier for students learning subject DTM10103 Tourism Geography and help students who have difficulty in understanding Topic 5 Demography. Georism application is a simple and accurate information and has sophisticated graphics in addition to having games such as puzzles, matching and quizzes. In addition to that, this application is also an offline application that allows students or lecturers to use this app without the internet. This application is also created using Unity Platform to display beautiful and sophisticated graphics or visuals during its use. Finally, hopefully with the existence of this Georism Application, it can bring forth a love of learning in students who use this application and help students in the next generation.

1.0 INTRODUCTION

The Georism application focuses on Topic 5- Demography in the subject DM10103-Tourism Geography. This topic emphasize about the land area, climate, capital, currency, official language, government system, natural resources and tourist attractions of a country. Georism app highlights 10 countries namely United Kingdom (UK), Switzerland, Australia, New Zealand, United States (US), Brazil, China, Thailand, United Arab Emirates (UAE) and Turkey.

1.1 PROBLEM STATEMENT

According to the examination unit in 2021 during session I and session II 2021 there are students who failed the final. Therefore, our team has created a mobile application for this subject. Furthermore, technology in education simplifying human life and facilitating the learning process.

1.2 OBJECTIVES

1. To help students study easily by using simple notes in an application.
2. To initiate student's interest in learning the subject of DTM10103-Tourism Geography.
3. To create unique and easy-to understand apps for students.

1.3 SCOPE OF PROJECT

This project is aimed to develop an education mobile application for android users which provides information of Topic 5- Demographic in subject DTM10103- Tourism Geography. It is created for students of Diploma of Tourism Management (DUP), Semester 1 at PMKU. The information provided also focuses on the learning activities such as quiz, puzzle and matching answers based on the topic.

2.0 LITERATURE REVIEW

This literature review focuses on our product concept and how it relates to our project goals. Literature review for this Research Project are tourism, tourism geography, e-learning, mobile application and technology facilities tourism education.

2.1 Tourism

Tourism is a dynamic and economically significant industry that has garnered substantial attention from researchers and policymakers alike. The sector's growth has been widely recognized, with the World Tourism Organization (UNWTO) reporting a continuous increase in international tourist arrivals.

2.2 Tourism Geography

Tourism geography is a vital subject in diploma courses related to travel and tourism. It explores the spatial aspects of tourism, focusing on the distribution, development, and impact of tourist destinations. This literature review provides insights into key topics and research areas within tourism geography.

2.3 Mobile Application

Mobile applications in education, often referred to as "educational apps," have gained significant attention in recent years as powerful tools for enhancing learning experiences. This literature review provides an overview of key themes and research areas in the realm of mobile application education.

2.4 Technology Facilitates Tourism Education

In December 2019, the first instance of COVID-19 was discovered, and it quickly spread throughout the world. The 2019 coronavirus disease (COVID-19) attracted significant attention on a global scale (Zhai & Du, 2020). Students were initially expected to return to class following the break to begin the new semester. However, because the pandemic is so contagious, the government has established stringent prevention and control laws and regulations to put public safety first.

3.0 RESEARCH METHODOLOGY

This project research methodology involves primary data, secondary data and quantitative methods. Regarding to the primary data, it refers to data collected from students through questionnaires that will be distributed to students in semester 1 of DUP session 2023/2024. The secondary data refers to the report of semester 1 students who have taken the DTM10103 Tourism Geography final exam. This project research is a quantitative method. The data was collected by conducting a survey by distributing questionnaires to 37 students in the 1st semester of the Diploma in Tourism Management (DUP).

3.1 RESEARCH INTSRUMENT (QUESTIONNAIRE)

The platform used to collect data about opinions from students regarding Georism Application is Google Forms. There are four parts in the questionnaire: Part A, Part B, Part C and D. Part A collects background information. Part B and C focuses on Tourism Geography and includes questions such as ""Topic-5 Demographics country is a challenging chapter in DTM10103 Tourism Geography". Lastly, Part D is about the Application of Tourism Geography and includes questions like "An impressive visual attracts students to get more interest in learning DTM10103 Tourism Geography". In total, there are 24 questions in the questionnaire.

3.2 SAMPLING DESIGN

Sampling design refers to the collection of data from a specific group for the purpose of conducting research. Sampling techniques are employed to determine the appropriate number of samples that align with the desired sample size, serving as a source of data. Cluster sampling is being utilized to collect information on DTM10103 Tourism Geography learning apps. Cluster sampling involves selecting groups or clusters of individuals, in this instance, data is being collected from the first semester students of Diploma in Tourism Management (DUP) session I 2023/2024.

Data about their preference for learning applications was collected through a questionnaire that consists of several questions. Part A of the questionnaire focused on filling in the student's background, while Part B and C included questions related to DTM10103 Tourism Geography. For example, question one asked if they liked DTM10103 Tourism Geography. Part D, the final part of the questionnaire, included questions about applications related to Tourism Geography. For instance, one question asked if they had used any applications related to Tourism Geography.

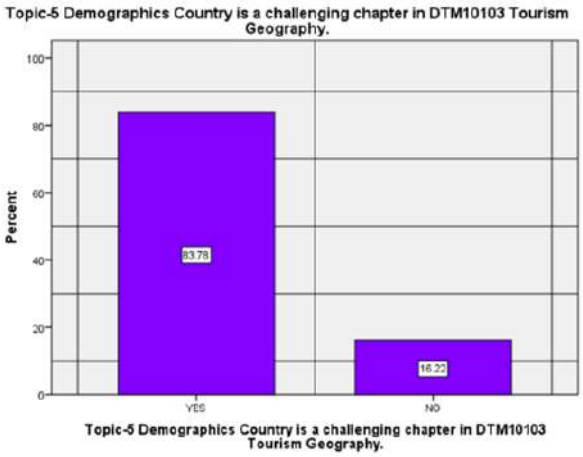
4.0 FINDINGS (DATA ANALYSIS)

Results are obtained and analyzed and compared from pre-test and post-test. In this section, the research also provides samples of pre-test and post-test questionnaires for reference. There are four sections such as Section A, B. C and D. Section A is a demographic question with questions such as gender and matric number. Part B and C are about the subject DTM10103 Tourism Geography. Part D is about the Geography application. The best answer will be chosen by Polytechnic METrO Kuantan PMKu) students who are 1st semester students from Session I: 2023/24.

Analysis was performed by Statistical Package for the Social Sciences (SPSS) Software. The results are shown and presented in tabular form. Data analysis refers to the entire component separately for individual studies. It is also a process to collect data and data analysis is an exploration to interpret data. This study was conducted through a questionnaire using Google form. The data collected summarizes information by showing frequency and percentage.

PRE TEST (QUESTIONNAIRE)

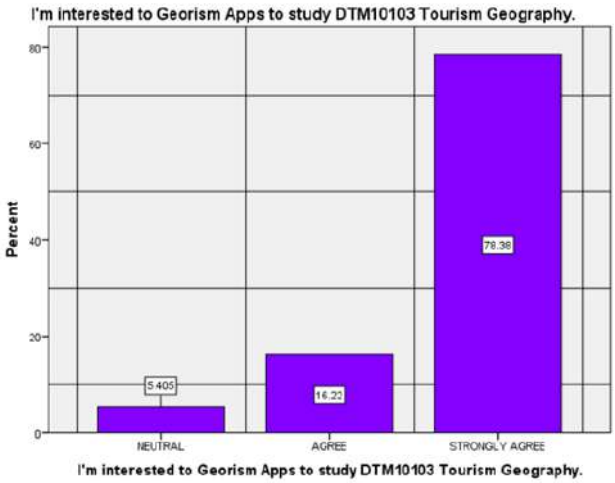
The analysis of this questionnaire is based on questions that were in the survey. Researchers took 37 respondents from the 1st Semester from Session I: 2023/24. This is because the objective of this project focuses on the subject DTM10103 Tourism Geography which is Topic 5 Demographic. The bar chart below shows the survey result of “Demographic Country is a challenging chapter in DTM10103 Tourism Geography”.



The bar graph shows that 83.78% of DUP students chose the topic of country demographics as a challenging chapter in DTM10103 Tourism Geography, while 16.22% of DUP students did not choose the topic of country demographics as a challenging chapter in DTM10103 Tourism Geography.

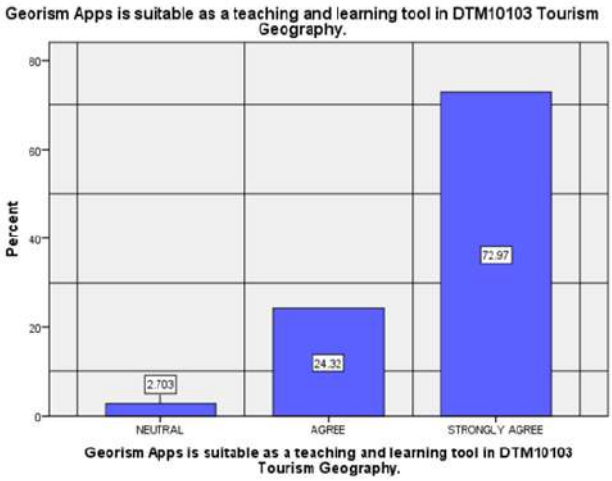
POST TEST (QUESTIONNAIRE)

The post test is to find out their knowledge about Tourism Geography after giving them a chance to try our application to know information about Tourism Geography. The chart below show the survey of, "I'm interested to Georism Apps to study DTM10103 Tourism Geography".



Based on this bar graph, it shows that 78.38% of DUP students strongly agree that they are interested in using tourism apps to study DTM10103 Tourism Geography, while 16.22% of DUP students chose to agree. Additionally, 5,405 DUP students choose neutral.

Next chart is the survey about, "Georism is suitable as a teaching and learning tool in DTM10103 Tourism Geography."



Based on this bar graph, it shows that 72.97% of DUP students strongly agree that Georism apps are suitable as a teaching and learning tool in DTM10103 Tourism geography, while 24.32% of DUP students agree, followed by 2,703% DUP students who choose Neutral.

4.1 DISCUSSION

The data analysis above shows the frequency of PRE-TEST and POST-TEST. The percentages of student feedback are shown in the POST-test analysis. There are also various differences between the pre-test and post-test. Section A is a Demographic Profile, with 14 male and 23 female students targeted for Semester 1. The questions are focused on Educational Apps. The applications (Georism) was experienced by the students and a post-test questionnaire was answered by 37 students. The post-test was divided into four sections: Section A, Section B, Section C, and Section D. The answers are using Likert Scale. After using the Georism apps, students gave mostly positive responses to the post-test, with some giving neutral responses. There haven't been any bad responses. For evidence, the data analysis of post-test students shows that I'm interested in Georism Apps to study DTM10103 Tourism Geography percentage is 94.58% and also that mean is 4.7297. The reason why students are interested in Georism Apps is that apps give their information needed in subject DTM10103 Tourism Geography. And then, Georism Apps is suitable as a teaching and learning tool in DTM10103 Tourism Geography percentage is 97.29% and the mean 4.7027. The reason students wish for Georism Apps is because they are Z generation whereby everything is about apps and technology.

5.0 DISCUSSION AND RECOMMENDATION

In the contemporary educational milieu, a concerning observation is the emergence of a subset of students who exhibit a noticeable lack of interest in traditional learning methods; however, there exists a promising avenue for remediation through the integration of innovative learning apps that have the potential to reignite their enthusiasm for education. The disinterest among some students may stem from various factors, including evolving attention spans and the ubiquitous influence of digital distractions, such as social media and entertainment platforms on handheld devices. Recognizing this, the strategic incorporation of engaging and interactive learning applications into the educational framework becomes imperative, as these apps have the capacity to transform the educational experience by providing dynamic and personalized content that caters to diverse learning styles and captures students' attention in a manner more aligned with their technologically oriented lifestyles. Thus, the judicious integration of learning apps holds the promise of not only addressing the current disinterest but also redefining the educational landscape to make learning a more interactive, accessible, and tailored experience for the diverse array of learners in today's digital age. Therefore, Georism is an action towards innovative learning apps.

5.1 SUGGESTION

In envisioning the future of learning app projects designed for collaborative sharing among Politeknik, it is recommended to prioritize interoperability and standardization to ensure seamless integration across diverse academic environments. These apps should adhere to common data standards, allowing for easy adaptation and implementation within the varying technological infrastructures of different Malaysian's Politeknik. Moreover, fostering an open-source approach could encourage collaboration, enabling to customize and contribute to the development of these apps based on their unique academic requirements and preferences.

To enhance the effectiveness of shared learning apps, a comprehensive and modular design is advisable. The app should comprise modules that cater to various academic disciplines, enabling Politeknik to choose and integrate components that align with their specific curricular needs. Emphasizing scalability and flexibility in design would also facilitate future updates and expansions, accommodating the evolving demands of higher education.

6.0 CONCLUSION

In conclusion, the objective of creating "Georism Application" is to help students to learn DTM10103 Tourism Geography to make it easier for students to learn offline by using the application. Therefore, with this application it makes it easier for students to find information, save time and the notes found in this Georism application are simple and easy to understand. In summary, future learning app projects designed can be share among Politeknik.

7.0 REFERENCES

Arfan S,. Rohail H, Adejare Yusuff A, Arsalan H, (2023 September 10) E-Learning On Higher Education. https://link.springer.com/article/10.1007/s11135-020-01028-z

Hanqin Qiu, Qinghui Li, Chenxi Li. (2023, September 23) Tourism Education In Covid-19. https://www.sciencedirect.com/science/article/pii/S1473837620302240#sec2

Judith B., Claribel R., Juan Genaro G., Lizeth R., (2023 September 12) Mobile Application. https://www.redalyc.org/pdf/4115/411550688005.pd

Mark Anthony Camilleri. (2023, September 30) The Tourism Industry. https://link.springer.com/chapter/10.1007/978-3-319-49849-2

Stephen Williams. (2023, September 17) The Tourism Geography. https://books.google.com.my/books?hl=en&lr=&id=JvkgvPVRcMAC&oi=fnd&pg=PP14&dq=tourism+geography+subject&ots=Lu9HurqB1&sig=gFd7xTRuldToTQTaL3GWWRb- zO0&redir_esc=y#v=onepage&q=tourism%20geography%20subject &f=false

SAFARA MAGIC KIT (S.M.Kit)

Surayahanim Binti Ali[1], Nur Aina Athirah Binti Mohd Muslil, Muhammad Danish Bin Salzali, Siti Nur Alya Binti Zorudin, Nur Aleya Syaqira Binti Md Akhir

Tourism and Hospitality Department
Politeknik METrOKuantan

surayahanim@pmku.edu.my[1]

ABSTRACT

This project aims to assist travelers by making it simpler for them to pray. All of these are intended to address various issues that can occur when praying while travelling or engaging in outdoor activities. However, during travel there are certain problem faced by the traveller, need to carry a thick and heavy telekung and mat in your bag. Most likely you will need to bring a special extra bag for telekung. It may limit your movement when traveling and not all places provide prayer equipment. For travellers, it takes up a lot of space to carry all those necessities. This study aim to examine the needs of Muslim travelers while travelling and to create an innovation product for Muslim tourists to pray when traveling and measure the useful of this product to traveler. The quantitative method was applied in this research with the gathering data using questionnaire survey via google form link to 255 sampling size from students of Polytechnic METrO Kuantan. All of the information gathered are assessed from finding and some data are analyzed by SPSS software and any ideas from the respondents are highlighted. At the end of this study, researchers are suggest and create a prayer rug innovation product name Safara Magic Kit which can be folded into a small bag and complete with other necessities for prayer such as telekung, compass, ablution water spray (wudhuk), socks, tayammum dust and digital rosary are also loaded in the bag. Each tool has a specific use. This project's materials also need to have unique qualities such being lightweight, waterproof, and portable. Canvas is the most appropriate material to use, according to the completed literature review.

Keyword : travel kit, prayer, muslim, tourist

1.0 INTRODUCTION

1.1 ProblemStatements

Travelling is the action or activity of going from one place to another, typically over a distance of some length. However, during travel there are certain problem faced by the traveller. First, you need to carry a thick and heavy telekungand mat in your bag. Most likelyyou will need to bring a special extra bag for telekung. It may limit your movement when traveling. As we know when traveling various prayer equipment such as prayermats, telekung and the like need to be broughtas Muslims becausethey are important. Not all places provide such equipment. For travellers, it takes up a lot of space to carry all those necessities. More associated with women who have many needs of their own and then want to bring telekung again. Thesecond issue is that Muslimvisitors are concerned about finding placesof prayer in non-Islamic nations. Therefore, it is essential for Muslims to be prepared for prayer in order to perform it in any appropriate and hygienic location. Tourists should look for surau and mosquestill you locatethem if they have a lot of time. However, travellers can use their own equipment for prayer if they do not have time.

1.2 Objective

• To examine the needsof Muslim travelerswhile travelling.
•To create an innovation productfor Muslim touriststo pray when traveling.
•To determine the importance of this productin Muslim friendlyhospitality.

2.0 LITERATURE REVIEW

2.1 Tourism

Understanding the significance of tourism and its role in economic growth tourism is defined as the act of leaving one's home to seek relaxation, leisure and enjoyment while consuming various commercial services. This practice originated in Western Europe during the 17th century, and it has since evolved into a thriving industry that continues to expand (2023, John K Walton). Today, tourism is essential to a country's economic growth, which highlights the need to promote it effectively. By educating potential tourists about the most appealing aspects of the tourism product on offer, the economy can generate more goods and services. This process typically involves communication efforts such as advertising and distribution.

2.2 Muslim Friendly

According to Salasiah & Razaleigh (2010), in order to adhere to Islamic values, hotel and venue operators should consider incorporating the following into their accommodations including of encouraging environmentally-friendly practices, ensuring modest behavior and dress in the swimming pool area and promoting the wearing of clothing that covers private parts within the community. In order to respect the religious customs of the Muslim population, it is preferable to have gender-separated baths. However, this may not apply to non-Islamic community members or outsiders. In order to attract more Muslim visitors to our country, it's essential to take all aspects into account. According to Mahmoud M. Ayoub's (1996), sharia law can be seen as the essence or soul of Islam.

2.3 Muslim Traveler

According to Salaasiah and Razaleigh (2010), this endeavor aims to accurately depict the Islamic community, highlighting their positive qualities such as discipline, politeness, kindness, and willingness to help others. Halal tourism, also known as halal travel or halal friendly tourism, is a specialized category of travel designed to cater to Muslim families who follow the Islamic law.Hotels located in specific regions offer various amenities that cater to the needs of their guests. These hotels do not serve alcohol, have separate spas and swimming pools for men and women, and offer halal food exclusively. Additionally, they provide both communal and in-room prayer spaces for their guests. Malaysia, Turkey, and other countries have implemented strategies to attract more tourists by providing facilities that cater to the religious views of Muslim visitors. However, there are currently no globally recognized standards for Halal tourism.

2.4 Travel Kit

According to Amydisyukrie Md Yusoff (2022) travel kit is a device developed for travellers to make it simpler for them to enjoy their cuisine by using their own food utensils without reluctance because certain nations do not give the food tools that we normally use. A travel kit is a must-have item for any vacation. They can help you decrease or eliminate unnecessary difficulties, boost convenience, and focus on having fun. Because most people believe that the greatest travel kit is one that is tiny, compact, and light, and therefore simple to pack in one's luggage, you may want to consider a kit that fulfils these characteristics in terms of size, weight, and materials. In addition, Medical and first aid packages for travellers should take into account unique travel itineraries and individual needs, according to Jason Gibbs, (2019). In addition, when travelling, Ravi Rathaur, (2022) recommends bringing as little as possible. Light luggage makes travelling easier and more fun, whether by car, aircraft, or bus.

2.5 Prayer

Millions of Muslims throughout the world consistently pray five times a day (salat) according to FM Chamsi- Pasha et al. Med J Malaysia (2021). Salat is more than simply a physical exercise it also entails reciting multiple Quranic passages and assuming particular postures. Salat, according to various studies, improves health. This review will investigate how Islamic prayer improves people's overall health. Aside from that, every Muslim is obligated to pray the Salat five times every day. Salat may be considered to medium intensity exercise because the majority of the muscles and ligaments are worked out during the various positions and motions utilized. Even though all Muslims conduct salat, there is just a modest corpus of study on the subject. For example, The Prophet (S.A.W.) always offered two Sunnah Rakats at Fajr and three Rakats at Witr with Isha prayers while traveling. Therefore, these two should be available even when traveling. Keep in mind that these guidelines only apply to individuals performing Salah while traveling.

3.0 METHODOLOGY

3.1 Product Development

Research are conducted before creating this product to identify the challenges that travelers have when trying to pray. Researcher discovered from our research that travelers often find it difficult to pack their own items for prayer. This is due to the fact that they have to carry heavy suitcases in addition to “telekung” and mats. As a result, this study developed a prayer kit that contains everything needed for prayer in a portable bag. Additionally, this study also searched for literature reviews to support the innovation of this product. In order to gather feedback from visitors to support our product, this study also produced a survey to be delivered to tourists.

3.2 Quantitative/Qualitative/ Mix Method (Questionnaire Survey/ Interview/ Both)

The quantitative method was applied in this research. That is where the questionnaire method comes into action. This survey is meant to gather data and information about S.M.Kit products from respondents, who are all students of Polytechnic METrO Kuantan. Each student will receive a link to this survey. All of the information gathered will be assessed, and any ideas from the respondents will be highlighted. When gathering and analysing data, this research technique puts great importance on numbers or statistics.

3.3 Sampling

The sample of this study mainly consists of all students of Polytechnic Kuantan METrO from the Diploma in Tourism Management course and the Diploma Food Service in Halal Practice course from semester 1 to semester 6. This sampling was taken based on students from semester 1 to semester 5 who are actively at Polytechnic METrO Kuantan which totaled 353 students. This experiment uses a quantitative approach, with a total of 255 students who answered the survey. Quantitative research is based on quantitative amounts or measurements.

3.4 Instrument Development (Questionnaire)

A research instrument which is questionnaire has been employed as the research tool for this study. The three sections of this questionnaire are labelled as A, B, and C. Demographic questions for section A include those related to age, semester and gender. As for part B, it aims to collect data on needs of muslim travellers while travelling. For the next of section C, discuss the innovation of S.M.Kit product for muslim tourist to pray when travelling.

We are Semester 5 students in Diploma of Tourism Management from Tourism & Hospitality Department, Polytechnic Metro Kuantan, Pahang. The purpose this survey is to get feedback for our final year project about innovation product for tourism Muslim friendly services which will benefit Muslim users. Secondly, this product brings together all prayer needs in one bag so that it is easy to carry while traveling. / *Kami merupakan pelajar Semester 5 dalam Diploma Pengurusan Pelancongan dari Jabatan Pelancongan & Hospitaliti, Politeknik Metro Kuantan, Pahang.Tujuan tinjauan ini adalah untuk mendapatkan maklumbalas untuk projek tahun akhir kami tentang produk inovasi untuk perkhidmatan mesra Muslim pelancongan yang akan memberi manfaatkepada pengguna Muslim.Kedua, produk ini menghimpunkan segalakeperluan solat dalam satu beg supaya mudah dibawa semasa melancong.*

SECTION A: DEMOGRAPHIC BACKGROUND
SEKSYEN A: LATAR BELAKANG DEMOGRAFI

1) Gender / Jantina
□ Male / Lelaki □ Female / Perempuan

2) Age / Umur

□ 18-22 years old / tahun □ 23-27 years old / tahun □ 28-32 years old / tahun
□ 33-37 years old / tahun □ 38 and above / ke atas

3) Semester / Semester

□ Semester 1 □ Semester 2 □ Semester 3
□ Semester 4 □ Semester 5

SECTION B: NEEDS OF MUSLIMTRAVELLERS WHILE TRAVELLING
SEKSYEN B: KEPERLUAN MUSLIM SAMBIL MELANCONG

Please rate how important are the following factors in choosingyour destination to meet the needs of Muslim traveller while travelling. Please rate from scale 1 which is very not important to scale 5 which is very import
/ Sila nilaikan betapa pentingnya faktor-faktor berikut dalam memilih destinasi anda untuk memenuhi keperluan pengembara Muslim semasa melancong. Sila nilaikan daripadaskala 1 yang sangat tidakpenting kepada skala 5 yang sangat penting.

1	2	3	4	5
Very not important / Sangat tidak penting	**Least Important / Kurang penting**	**Neutral / Biasa**	**Important / Penting**	**Very Important / Sangat Penting**

No	Statement/Pernyataan	1	2	3	4	5
1.	I prefer traveling in countries that have a lot of halal food. / Saya lebih suka melancong di negara yang mempunyai banyak makanan halal.					
2.	I am more careful about the ingredients of food when traveling whether the food uses halal ingredients or not. / Saya lebih berhati-hati tentang bahan makanan ketika melancong sama ada makanan tersebut menggunakan bahan yang halal atau tidak.					
3.	Prayer facilities are easy find during my oversea trip. / Kemudahan solat mudah didapati semasa melancong ke luar negara.					
4.	Prayer facilities are easy find during my domestic trip. / Kemudahan solat mudah didapati semasa perjalanan di dalam domestic.					
5.	I prefer to bring my own prayer equipment rather than using the provided prayer equipment. / Saya lebih suka membawa peralatan solat sendiri daripada menggunakan peralatan solat yang disediakan.					
6.	Prayer equipment is easy to find at the provided prayer facilities. / Peralatan solat mudah didapati di kemudahan solat yang disediakan.					
7.	I need a toilet that has a bidet to take ablution in the toilet. / Saya memerlukan tandas yang mempunyai bidet untuk mengambil wuduk di dalam tandas.					
8.	I prefer different prayer rooms according to gender than mixed gender prayers in one room. / Saya lebih suka ruang solat yang berbeza mengikut jantina daripada solat jdi dalam tempat yang bercampuran jantinan dalam satu bilik.					
9.	I prefer hotels that are not close to entertainment centres. / Saya lebih suka hotel yang tidak berdekatan dengan pusat hiburan.					
10.	I choose a hotel that focuses on Islamic entertainment. / Saya memilih hotel yang memfokuskan kepada hiburan tentang Islam.					

SECTION C: AN INNOVATION PRODUCT FOR MUSLIM TOURISTS TO PRAY WHEN TRAVELING
SEKSYEN C: PRODUK INOVATIF UNTUK PELANCONG MUSLIM BERSOLAT SAMBIL MELANCONG

This S.M.Kit is a product where prayer equipment is combined in one bag. The bag part is made from the mat itself and on the back of the mat, which is the S.M. Kit bag, is a waterproof bag. In this S.M.Kit product there is a prayer mat, telekung, compass and guidebook, ablution bottle spray, socks, tayammum dust and digital tasbih. So, the S.M.Kit product is very useful to carry while traveling because it can facilitate prayer no matterwhere you are. / S.M. Kit ini adalahproduk di mana peralatan solatdigabungkan dalam satu beg.

Bahagian beg adalah diperbuat daripada tikar sejadah itu sendiri dan di bahagian belakang sejadah itu iaitu beg S.M.Kit yang merupakan kalis air. Dalam produk S.M.Kit ini terdapat sejadah, telekung, kompas dan buku panduan,semburan botol wuduk,stokin, habuk tayammumdan tasbih digital.Jadi produk S.M.Kit sangat berguna untuk dibawasemasa dalam perjalanan kerana ia dapat memudahkan solat walau di mana anda berada.

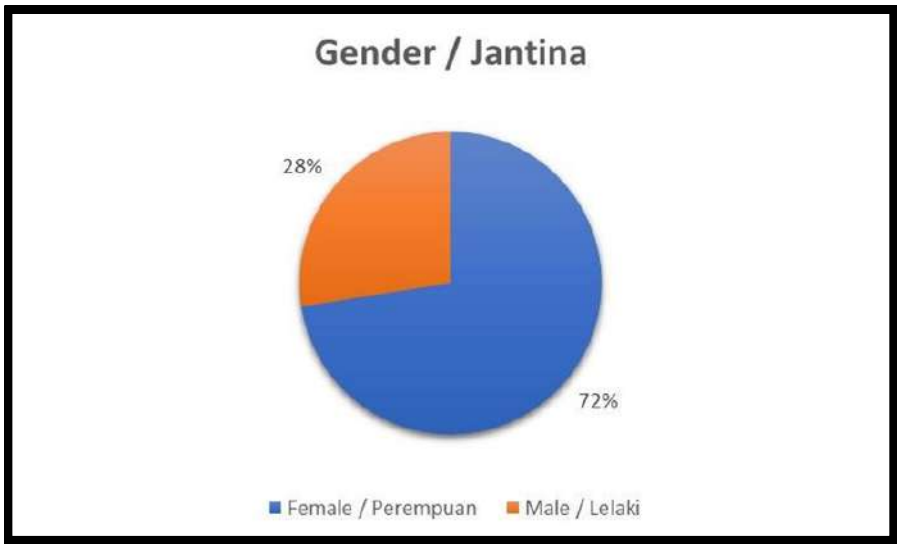
Please rate how important are the following factors in choosingyour destination to meet the needs of Muslim traveller while travelling. Please rate from scale 1 which is very not important to scale 5 which is very import.
/ Sila nilaikan betapa pentingnya faktor-faktor berikut dalam memilih destinasi anda untuk memenuhi keperluan pengembara Muslim semasa melancong. Sila nilaikan daripadaskala 1 yang sangat tidak penting kepada skala 5 yang sangat penting.

1	2	3	4	5
Very not important / Sangat tidak penting	**Least Important / Kurang penting**	**Neutral / Biasa**	**Important / Penting**	**Very Important / Sangat Penting**

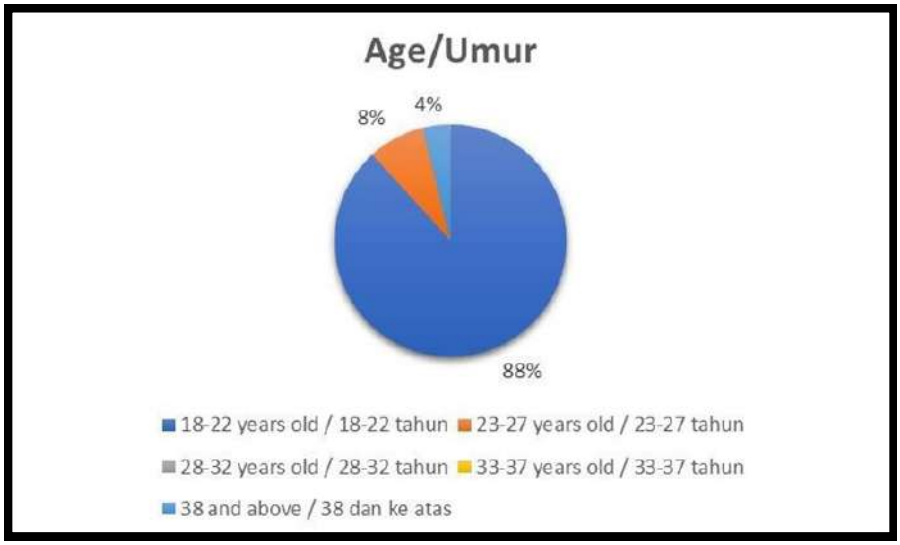
No	Statement/Pernyataan	1	2	3	4	5
1.	Telekung in the Safara Magic Kit that is innovation in accordance with Islamic Sharia. / Telekung dalam Safara Magic Kit yang diinovasi dengan berlandaskan Syariat Islam.					
2.	Telekung provided from head to toe is very easy to use. / Telekung yang disediakan dari hujung rambut hingga hujung kaki sangat mudah digunakan.					
3.	The material used on the telekung, which is "comocrip", is suitable and comfortable to use. / Material yang digunakan pada telekung iaitu "comocrip" sesuai dan selesa digunakan.					
4.	The pocket provided in the telekung makes it easy for me to store personal items during prayer. / Poket yang disediakan di dalam telekung memudahkan saya menyimpan barang-barang peribadi ketika solat.					
5.	The waterproof bag provided is suitable for use when traveling. / Beg kalis air yang disediakan sesuai digunakan semasa melancong.					
6.	The size of the prayer mat provided has a comfortable space for prayer. / Saiz sejadah yang disediakan mempunyai ruang yang selesa untuk solat.					
7.	The quantity of water provided in the spray bottle is enough to carry when traveling. / Kuantiti air yang disediakan dalam botol semburan cukup untuk dibawa semasa dalam perjalanan.					
8.	The socks that are provided are long and not thin, suitable for use during prayer. / Stokin yang disediakan adalah panjang dan tidak nipis, sesuai digunakan ketika solat.					
9.	The quantity of tayammum dust provided meets the requirements of tayammum use. / Kuantiti habuk tayammum yang disediakan menepati keperluan penggunaan tayammum.					
10.	The provided compass can help to find the Qibla direction when there is no internet line, or the battery runs out. / Kompas yang disediakan boleh membantu mencari arah kiblat apabila tiada talian internet, atau bateri kehabisan.					

4.0 FINDING (Data analysis)

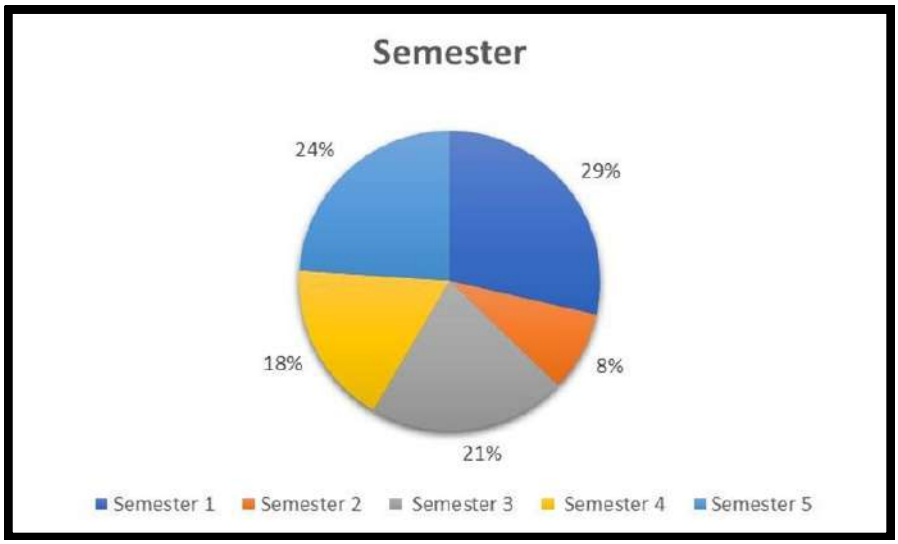
4.1 Section A – Demographic Information



Based on the pie chart above, most of students responds are female which is 72% and 28%are among the male students.



A survey has been distributed regarding the survey above, 88% the majority of respondents are between the ages 18- 22 years old. While those aged 23-27 years old account for up to 8%. Finally, the lowest percentage is 4% among 38 and above. In conclusion, most of the respondents that answer our survey are from teenagers.



The graph above shows that the highest percentage of students who responded to this survey was from semester 1 students which is 29% while the second respondents were from semester 5 which was 24%, 21% among semester 3, 18% from semester 4 and 8% from semester 2. To sum up, the majority of respondents are from semester 1.

4.2 Section B – The Needs of Muslim Traveller While Travelling

	N	Minimum	Maximum	Mean	Std. Deviation
1. I prefer traveling in countries that have a lot of halal food.	255	2	5	4.76	.554
2 I am more careful about the ingredients of food when traveling whether the food uses halal ingredients or not.	255	3	5	4.69	.584
3. Prayer facilities are easy find during my oversea trip.	255	1	5	4.04	.977
4. Prayer facilities are easy find during my domestic trip.	255	2	5	4.35	.789
5. Prayer equipment is easy to find at the provided prayer facilities.	255	2	5	4.22	.833
6. I prefer to bring my own prayer equipment rather than using the provided prayer equipment.	255	2	5	4.47	.777
7. I need a toilet that has a bidet to take ablution in the toilet	255	1	5	4.40	.854
8. I prefer different prayer rooms according to gender than mixed gender prayers in one room.	255	1	5	4.72	.657
9. I choose a hotel that focuses on Islamic entertainment.	255	2	5	4.51	.703
10. I prefer hotels that are not close to entertainment centres	255	1	5	4.35	.922
Valid N (listwise)	255				

The table of likert scale above shown the needs of Muslim travellers while travelling. Most of respondent responses said very agree which is the average mean is 4.04 and above. For the first question, the lowest mean which is 4.76 and most of the respondent are very agree to travel to countries that provided halal food. For the second question, respondent agree with 4.69 mean that to more careful about the ingredients in the food. Next, for the third question mostly respondent agree with highest mean which is 4.04 that the prayer facilities are easy to find during travel oversea. For the fourth question with 4.35 mean, respondents are agreed that the prayer facilities are easy to find during domestic trip. Fifth question, the lower mean which is 4.22 mean most of respondents are agreed that prayer equipment is easy to find at the provided prayer facilities. Next, with mean 4.47 respondents are very preferring to bring their own prayer equipment. For the seventh question, most respondents need a toilet that has a bidet to take ablution with mean 4.40. Next, the lower mean is 4.72 which is respondents are prefer different prayer rooms according to gender. Other than that, for the ninth question most of respondents are agreed with 4.51 mean that to choose a hotel focuses on Islamic entertainment. Lastly, with mean 4.35 respondents are preferring hotels that are not close to entertainment centres.

4.3 Section C - The Innovation of Safara Magic Kit

	N	Minimum	Maximum	Mean	Std. Deviation
1. Telekung in the Safara Magic Kit that is innovation in accordance with Islamic Sharia.	255	1	5	4.60	.713
2. Telekung provided from head to toe is very easy to use.	255	1	5	4.63	.669
3. The material used on the "Telekung", which is "Como crepe", is suitable and comfortable to use.	255	1	5	4.44	.771
4. The pocket provided in the "Telekung" makes it easy for me to store personal items during prayer.	255	1	5	4.51	.813
5. The waterproof bag provided is suitable for use when traveling.	255	3	5	4.68	.601
6. The size of the prayer mat (110cm X70cm) provided has a comfortable space for prayer.	255	2	5	4.54	.674
7. The quantity of water (100ml) provided in the spray bottle is enough to carry when traveling.	255	2	5	4.35	.784
8. The socks provided are long (28cm) with''wudhuk'' friendly is suitable for prayer.	255	3	5	4.53	.663
9. The quantity of tayammum dust (140gm) provided meet the requirements of tayammum use.	255	2	5	4.43	.722
10. The provided compass can help to find the Qibla direction when there is no internet line, or the battery runs out.	255	2	5	4.61	.660
11. Overall, this S.M.Kit is useful to carry while traveling as it is a product that helps Muslim travellers to pray no matter where you are.	255	3	5	4.66	.600
Valid N (listwise)	255				

Based on the Likert scale above, majority of respondents are aware that this product can be helpful and easy to carry anywhere. Most of the respondent answer is acceptable which all students agreed with 4.35 mean and above is. For the first question 4.60 mean which most of respondent agreed the telekung is innovation in accordance with Islamic Sharia. For the second question, the respondent is very agreed which is 4.63 mean, that telekung head to toe very important to bring while travel. Other than that, the third question, respondents agreed with 4.44 mean that this Como crepe material is very important to be used as a telekung because it is light and not hot. For the fourth question with 4.51 mean, most of respondents are very agreed that the pocket provided in the telekung are important to use. Next, for the fifth question the lowest mean which is 4.68 mean, the respondent said “yes” to the waterproof bag to be mad as a bag for travel. Besides that, majority of respondents are agreed with 4.54 mean that the size of sejadah that we provided are important taken into account so that it can be used by all people of different sizes. Next, the highest mean is 4.35 and the respondent agree that the quantity of the water in the spray bottle are enough and easy to carry when travelling. For the question seventh, respondents agreed with mean 4.53 that socks wudhuk friendly with long 28cm are suitable for prayer. Furthermore, respondents agreed with 4.43 mean that the quantity of tayammum dust provided are meet the requirements of tayammum use. Lastly, with mean 4.66 respondents are very agreed that the compass in the kit is important to help to find Qibla direction.

4.0 DISCUSSION

Based on the research that has been done using a questionnaire, that has been distributed is divided into 3 sections, namely, Section A: Demographic information. Section B: The needs of Muslim travellers. SectionC: The Innovation of Safari Magic Kit. In the Section A is demographic information, the researcher has selected respondents at Polytechnic METrO Kuantan which consists of Diploma in Tourism Management and Diploma in Food Service Halal Practice course students. Researchers have obtained a total of 255 respondents from Semester 1 to Semester 5. In the Section B, is to find out about the needs of Muslim travellers while traveling. In this section, researchers ask a question such as respondents prefer to bring their own prayer equipment rather than using the prayer equipment that has been provided. Lastly, in the Section C, the researcher has asked some questions to the respondents about the items that have been placed in the Safara Magic Kit (S.M.Kit). An example of the question in the questionnaire is the pocket provided in the "Telekung" makes it easy for respondents to store personal items during prayer. With this kind of question, it can help the researchers to improve the existing one according to the customer's taste.

5.1 THE PROCESS OF MAKING TELEKUNG

Picture 1 - This is a 'telekung' pattern

Picture 2 - Rubbing the fabric that has been cut according to the pattern using an iron

Picture 3 - Sew the ' telekung'

Picture 4- An example of a ready-made telekung on the face

5.2 TELEKUNG SAFARA MAGIC KIT

Picture 5 - Telekung Safara Magic Kit

5.3 THE PROCESS OF MAKING SAFARA MAGIC KIT

Picture 6 -The process of sewing a prayer mat to make a bag

Picture 7 -The process of sewing a compartment to be placed in a prayer bag

Picture 8 - The process of sewing the rope so that this Safara Magic Kit is easy to carry anywhere

5.4 PRODCUT - SAFARA MAGIC KIT

Picture 9 - Safara Magic Kit when closed

Picture 10 - Safara Magic Kit is partially open

Picture 11 - Safara Magic Kit when opened

6.0 CONCLUSION

In conclusion, the innovation product Safara Magic Kit will be able to meet the needs of Muslim tourists to travel anywhere. This product can also be determined in Muslim friendly hospitality. Safara Magic Kit has the prayer equipment needed by Muslims to perform prayer such as prayer rug, telekung, digital rosary, ablution spray bottle, socks, compass and guidebook, and tayammum dust. In addition, this S.M. Kit has a QR code for users to scan to find out how to open or close this bag and there is also a way to take ablution using the ablution spray bottle that has been prepared.

5.0 REFERENCES

Al-lavendari. (april8, 2017). Ceritalawatan ke jepun # 1: kemudahan tempatsolat.

Anderson, W. & Westcott, M. (Eds.). (2021). Introduction to tourism and hospitality in B.C (2nd ed.). BCcampus.

Bin Abdullah, N. F., & binti Mukhtar,M. Konsep Pelancongan Islam: Satu Pengamatan.

Britannica, T. Editorsof Encyclopaedia (2010, August 12). Sarzana. Encyclopedia Britannica.

Chamsi-Pasha, M., & Chamsi-Pasha, H. (2021). A review of the literature on the healthbenefits of Salat (Islamic prayer). Med J Malaysia, 76(1), 93-97.

Cuesta-Valiño, P., Bolifa, F., & Núñez-Barriopedro, E. (2020). Sustainable, smart, and Muslim-friendly tourist destinations. Sustainability, 12(5), 1778.

Goodyer, L., & Gibbs, J. (2019). Travelmedical kits. In Travel medicine (pp.61-64). Elsevier.

Lange, W. R., & Kreider, S. D. (1983). The little black bag: Medical travel kits for patient and physician. Postgraduate Medicine, 73(3), 259-263.

Mendes, B., Ferreira, M. C., & Dias, T. G. (2022). Tourism as a service: Enhancing the tourist experience. Transportation Research Procedia, 62, 1-8.

Nair, V., Munikrishnan, U. T., Rajaratnam, S. D., & King, N. (2015). Redefining rural tourism in Malaysia: A conceptual perspective. Asia Pacific Journal of Tourism Research, 20(3), 314-337.

Nur, H. M., Tawyer, H., & Mustaffa, S. (2023). Penggunaan TRAKIS (Traveller Kit for Solat) dalam Aktiviti Pelancongan dan Rekreasi [Use of TRAKIS (Traveller Kit for Solat) in Tourism and Recreational Activities]. BITARA International Journal of Civilizational Studies and Human Sciences (e-ISSN: 2600-9080), 6(1), 11-21.

Osama, M., & Malik, R. J. (2019). Salat (Muslim prayer) as a therapeutic exercise. Jpma. The Journal of The Pakistan Medical Association, 69(3), 399-404.

Rahman, Haliza Abdul; , Abdul Roslan;. (2019, May). Potensi dan Cabaran Dalam Memajukan Pelancongan Islam di Malaysia Potential and Challenges in Islamic Tourism in Malaysia. p. 14.

Rashid, N. R. N. A., Akbar, Y. A. A., Laidin, J., & Muhamad, W. S. A. W. (2019). Factors influencing muslim tourists' satisfaction travelling to non-muslim countries. In Contemporary management and science issues in the Halal Industry: Proceedings of the International Malaysia Halal Conference (IMHALAL) (pp. 139-150). Springer Singapore.

Walton, J. K. (2023, November26). tourism. Encyclopedia Britannica.

DUSUN BUS GLAMPING

Farizah binti Mohammad, Adriana Batrisyia binti Badri Zaman, Siti Nur Baakyah binti Hassan , Reeshanthini a/p Siva Sangkar , Nurhayati binti Ab Halim

Tourism and Hospitality Department
Polytechnic METrO Kuantan

adrianabadrizaman@gmail.com

ABSTRACT

This project resulted in a new Eco-tourism product entitled 'Dusun Bus Glamping'. This title is inspired by 'dusun' which is a settlement of local fruit trees. The idea of the bus is to use a used bus to be rused as accommodation with a 'glamping' concept, a combination of 'glamour + camping' to create and give users a unique experience which is 'glamping' in the 'village' area. It is easy to understand, the concept of this project is to transform a used bus into a new accommodation that has the characteristics of sustainable tourism, this is because the construction of the accommodation does not involve concrete construction which can increase the negative impact on the environment.

1.0 INTRODUCTION

This project was implemented to create more sustainable tourism product. This project also emphasizes sustainability in producing or developing products or services in the tourism industry so that tourism products or services can continue to be best used by internal and external users. In addition, it can provide many benefits to all stakeholders namely the economy, the social, national finance, the image of the country and the local communities in Malaysia. The idea of this project is inspired by Eco-tourism that develops and manufactures products that have sustainability characteristics to meet the needs of the present without having a small or large impact on the needs of the future by maintaining the natural ecosystem that exists in Malaysia.

The target market that is focused on is domestic tourism. For example, urban residents. This is because the people in the city have less experience of living in their surrounding areas which have the concept of villages and forests. Residents in the city prefer to do activities in the natural environment, which is glamping activities in the forest in Janda Baik or Dusun in Raub. An orchard is an intentional plantation of tree or shrubs that is maintained for food production. Orchards comprise fruit- or nut-producing trees that are generally grown for commercial production. Orchards are also sometimes a feature of large gardens, where they serve an aesthetic

as well as a productive purpose Malaysia has a variety of local fruits or tropical fruits that are originally from Malaysia and many trees that are grown in Malaysia because the geography in Malaysia is suitable for tropical fruit trees to live for a long time, therefore there are some famous fruits that are in Malaysia.

The issue of the limitations of existing accommodation types in Malaysia sparked the idea of this project to renovating old buses into comfortable accommodation in Malaysia or known as “Bus Glamping”. Glamping refers to a combination of "glamour" and "camping" that offers an outdoor alternative for people who don't enjoy the stripped-down nature of camping. Glamping accommodations go beyond a typical camper experience by providing more comfortable accommodations. Bus Glamping can offer a different experience than the usual tent or hut. After renovation, the bus will be equipped with furniture, beds, kitchen items and beautifully decorated can become a unique new accommodation as well as new option to promote sustainable tourism. With an eco-friendly concept in style, this bus glamping is also an effort to reduce the impact of pollution on the ecosystem due to construction for accommodation such as resorts, hotels, or chalets because it does not involve any construction.

Camping is an outdoor activity that involves staying the night/more than one night in a protective shelter out in nature. Camping is a broad term but, in its essence, camping is a way of getting away from the hassle of urban life, to a more natural environment for a limited time. Recreational camping started in the late 19th century and became one of the most common outdoor activities all around the world. The concept of a campsite located in a village is very interesting by experiencing the experience of living in a village while enjoying the deliciousness of local fruits. The camping experience can also calm the mind by staying in a green area and nature, while visitors who come will experience bathing in the river found in the orchard.

1.1 Problem Statements

The problem faced is the lack of variety of existing tourism products in Malaysia. The tourists who visit Malaysia are no longer just coming to spend by staying in luxury hotels around the city but instead looking for something new. Nowadays, existing tourism products are not so unique to meet the demand of tourists who want something more interesting and premium.

Apart from that, the certain Eco-tourism product in Malaysia does not meet the outlined Eco-tourism requirement when it involves many building constructions and generate a significant amount of negative impact on environment that affect the sustainability of the areas. Ecotourism is growing in popularity due to its focus on the environment, progressive guiding principles, and largely positive press, but if not used properly method, it will produce negative effects. The development of infrastructure and accommodation that is not managed sustainably will have an impact on noise, litter, and pollution that can damage the natural habitat.

In addition, the current market in tourism industry less focused on Eco-tourism product because most of tour operator offer the same products or services, causing tourist do not have many choices due to the lack of variety. The current Eco-tourism product options are not so many to bring a difference to provide diversity in tourism products. Hence, new eco-products to add color to tourism are needed to attract more tourists to travel within the country.

Therefore, we came up with the idea of renewing tourism products by recycling old vehicles into new type accommodation, which is to modify old buses into new type of accommodation with an Eco-sustainable concept.

1.2 Objective

The research objective of the Dusun Bus Glamping is as below:
1.2.1 To create and introduce new tourism products we develop a product using a refurbished bus.

1.2.2 To reduce the negative impact on the environment through the application of Eco-tourism concept by providing non-concrete accommodation.

1.2.3 To diversify new eco products based on natural areas such as forest or "Dusun" and encourage tourist to visit Eco-tourism destination in Malaysia.

2.0 LITERATURE REVIEW

2.1 Related topic

2.1.1 Tourism

Based on the article publish by Springer Nature on September 2017, Leisure and business travellers may also visit attractions, and engage in recreational activities. Tourism products can include; urban or city tourism, seaside tourism, rural tourism, ecotourism, wine tourism, culinary tourism, health tourism, medical tourism, religious tourism, cultural tourism, sports tourism, educational tourism, and business tourism among others. Tourism uses nature as part of its products (Weaver DB. 2010). This clearly shows that tourism products that have natural elements are the key to the success of the tourism industry.

2.1.2 Tourism Product

According to Gunn in Alhemoud and Armstrong (1996), tourism exists because of attraction. Attraction is anticipated and mentally visualized by a potential traveler, providing the motivation and magnetism to move from one point to another. However, the element of attraction is not merely the reason that attracts tourists to a destination. The provision of appropriate tourist facilities should come together with tourist attraction elements to maintain the tourism industry's sustainability. The mix of destination attraction and facilities create a set of intangible "subjective experience" for tourist known as Tourism product (Tourism Research Group in Kim (2001).

A tourism product is any offering that can satisfy need or want of customers (Kim, 2001). It may consist of one or a combination of components, including physical goods, services, experiences, events, persons, places, properties, organizations, information and ideas (Kotler, 2001). Maximizing travel satisfaction is crucial for a successful business in tourism destination management. The evaluation of the physical products of a destination (instrumental performance), as well as the psychological interpretation of a destination product (expressive attributes), are necessary for human actions (Swan & Combs, 1976; Uysal and Noe, 2003), which could be represented as travel satisfaction and destination loyalty. Since the expressive is more related to emotion, whereas instrumental performance is more cognitively oriented, expressive experiences truly motivate and contribute to satisfaction. Instrumental performance includes maintenance attributes which, if absent, could create dissatisfaction. Both concepts can be examined within the context of a tourism system representing two major components of the marketplace, namely, demand (tourist) and supply (tourism attractions). It has been suggested that the instrumental and expressive attributes work in combination to produce overall satisfaction (Jurowski, Cumbow, Uysal, and Noe, 1996; Uysal and Noe, 2003). Therefore, the need to create new tourism is important to maintain a high level of tourist satisfaction.

2.1.3 Eco-Tourism Product

Based on an article released by Earth Reminder on 16 April 2022, Ecotourism and Sustainable Development: How is Eco-tourism Sustainable. Ecotourism is a market-based approach to environmental conservation gains and incentives for local communities to aims towards preserving and protecting their natural resources. Ecotourism as defined by The International Ecotourism Society, responsible travel to natural areas that conserves the environment, sustains the well-being of local people, and involves interpretation and education. While, sustainable development is development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs(United Nations, 1987). Therefore, the creation of an eco-tourism product such as Dusun Bus Glamping can help reduce the negative impact on the environment, as it is more environmentally friendly without involving the excessive use of resources.

According to the World Tourism Organization, a tourism product is a combination of tangible and intangible elements,such as natural, cultural and man-made resources, attractions, facilities, services and activities around a specific center of interest which represents the core of the destination marketingmix and creates an overallvisitor experience includingemotional aspects for the potential customers. Besides, basic infrastructure like transport, accommodation and food is provided at such places to convert them into products (BTMC- 137 Profile of Modern Tourism: Unit-12 by Sharma, Sonia, 2021). This is indicates thatproducts like Dusun Bus Glamping have the potential to become a new type of well-known accommodation as well as a new attraction in tourism.

2.1.4 Bus Glamping

According to Jankowski (2015), No one can predict how demand will develop, but even before the crisis there was an observable change in camping tourism, including a growing demand for larger and more luxurious campers and recreation vehicles. This shows that there is a demand to produce a variety of new products for tourists, such as unused buses to accommodation buses or “Bus Glamping”. While, according to Mikulić et al (2017) For campers, living in nature is important, which is why camping tourism can be defined as a form of nature-based special interest tourism. (Mr. Raj, 2022) also said, You always want to find a new way of getting guests to experience something different. Thus, the idea of making a glamping bus as new type tourism product can add a new experience to tourists to enjoy nature in a comfortable and luxurious condition.

The reuse of vehicles such as buses for accommodation can prevent the damaged bus from being abandoned. It will be really meaningful to look back at these outdated vehicles in the future (Chongfeng Yue, 2016). It can give new ideas in order to create something new and provide comfort to tourists. For example, Dusun Bus Glamping is simple luxurious accommodation at natural locations with jaw-dropping views.

2.2 Theory/ Conceptual/ Model

In conclusion, the need to produce a new and unique eco-tourism product such as "Dusun Bus Glamping" is able to provide new options for tourists. It can be used as a new and unique attraction to attract more tourists to visit nature-based areas. Furthermore, after doing a literature review, it can be summarized that various resources and things can be used as tourist attractions because they are not focused on natural resources only. Creativity and thoughtful ideas are needed to create a new product that can attract tourists.

3.0 METHODOLOGY

3.1 Product Development

3.1.1 Product Identification

This project will produce an Eco-tourism product in the form of new accommodation using refurbished buses as new type accommodation combined with tents to show the characteristics of glamping or "Bus Glamping". Overall, the bus will be renovated into a room with several beds, namely a queen size bed and two dunk beds. There is also a sink and stove for cooking and washing dishes. Under the queen size bed there is storage that can store small and medium sized items. Next to the two dunk beds, there is a dining table for those who prefer to eat inside instead of eating outside while breathing in the fresh air. Next to the sink and kitchen there is an entrance and in front of it there is a kitchen cabinet and fridge to store wet and dry items.

This product functions as a new type of accommodation that will give variety and uniqueness in the tourism industry. Having eco features such as recycled buses, less energy consumption, makes it have little impact on the environment. This product will be placed in a nature-based area to match the concept of this product itself, which is Dusun Bus Glamping.

3.1.2 Product Design

The designed design has a different view from every angle. Facilitating the prediction of the finished product, three different viewpoints have been provided. Starting from the front view showing the width of the bus that will be modified as accommodation. Next is a top view showing the design of the bus combined with a tent to show the characteristics of glamping. Finally, a full view showing the characteristics of the bus design that will be used as an eco-product of this project.

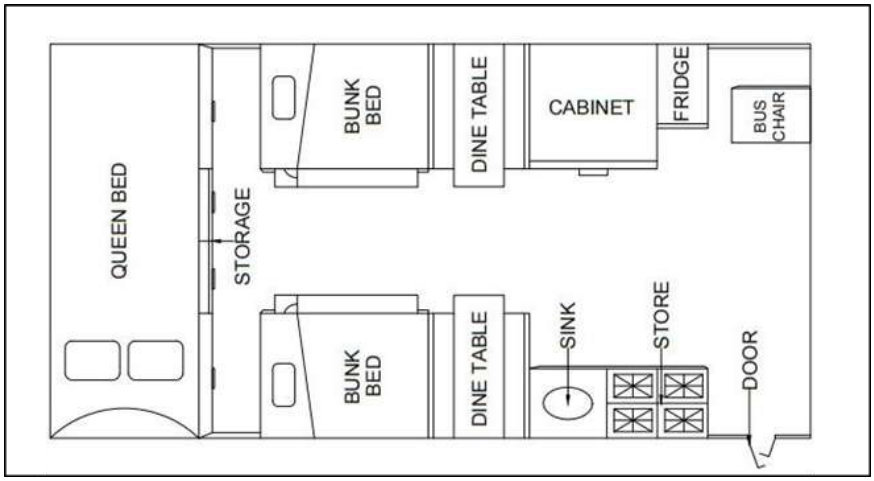


FIGURE 3.1: Inside Bus Layout

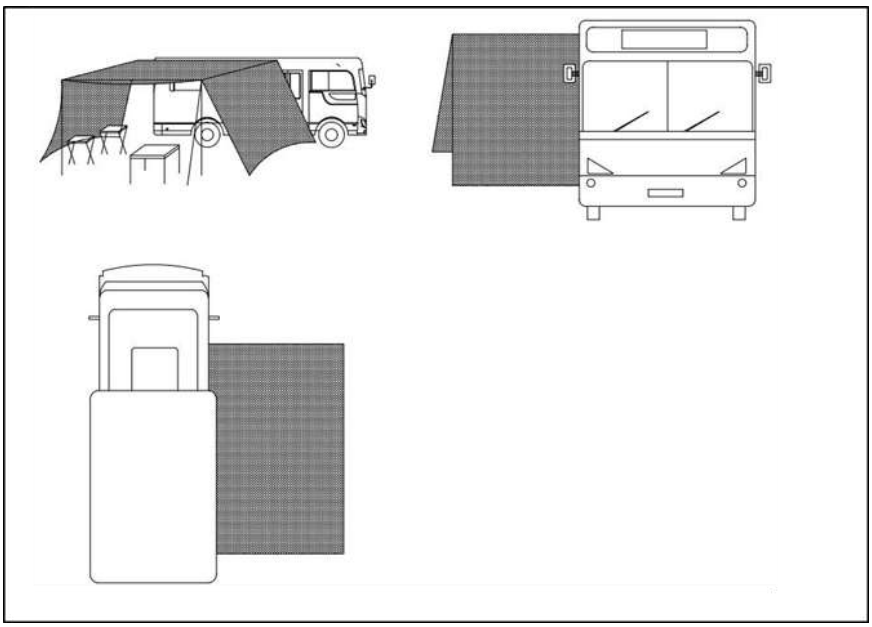
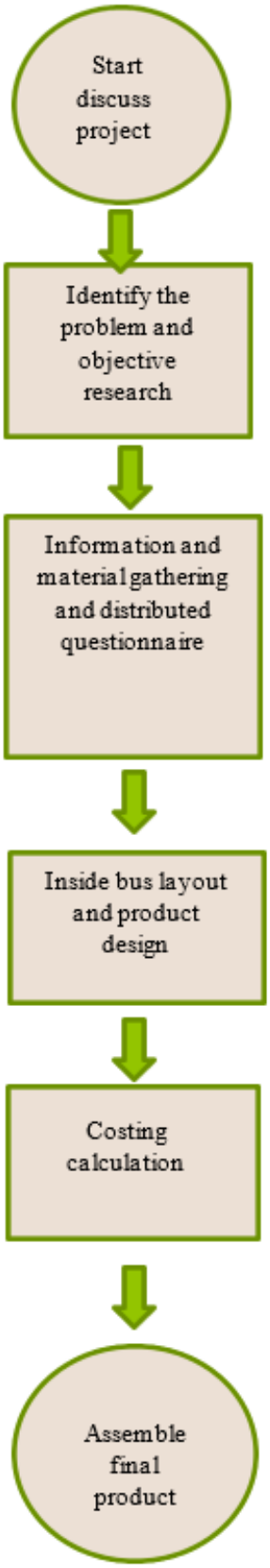


FIGURE 3.2: Three Different Angle Dusun Bus Glamping Design

3.1.3 Product Process and Product Chart



- Start with discussing what the best product to produce that suitable to theme that chosen.
- Start searching and gathering the necessary information.

- Identify problems based on the product made and solve theproblem.
- Set the objectives to be achieved at the end of the project basedon the problem statement presented.

- Collect data and information about the product
- Discuss the material that will use for product
- Start distributing the questionnaire to residents in Kuantan

- Using editing tools to design the products.
- Design the layout inside the bus such as bed, sink and etc.

- Calculate the costing of materials to make a mock-up productand the actual cost of the product.
- Buy materials according to the budget set by the group.

- Producing the final product after processing the material andfollow as the design.
- Present the final product in front of the panel during the fyp showcase at the end of the semester.

3.2 Quantitative/ Qualitative/ Mix Method (Questionnaire Survey/ Interview/ Both)

3.2.1 RESEARCH DESIGN

Data Collection Method

Data collection is defined as the "process of gathering and measuring information on variables of interest. There are two methods used to obtaining data for complete this project study, which is;

i) Primary data collection

Primary data is the raw or first-hand data we can obtaining, directly from the source; survey and questionnaire.

ii) Secondary data is the information that has already been collected, structured, and analyzed by prevised researcher; books

3.3 Instrument Development (Questionnaire)

3.3.1 Research Instrument

We chose to use quantitative method to ensure the accuracy of the data obtained. This type of data deals with things that are measurable and can be expressed in numbers or figures, or using other values that express quantity. We conducted a survey by providing an online questionnaire form using google form as an instrument tool to obtain the necessary quantitative data. This also helps us get public opinion and determine the type of target market that is interested in our Eco-tourism product. This research instrument is to provide questions that are divided into 3 sections that contain questions to collect data about the eco products of this project. Part A focuses more on user personal data such as age, gender, job and status, this is because each user with different personal data is very helpful in the product development of this project with the taste of each consumer age and gender. From the aspect of employment and income, it will help this project set the price of worthwhile and affordable products or get services from these eco products. Next, section B asks for the consumer's opinion to give a rating to the statement about the bus as a new place to stay. Section C is more focused on bus accommodation placement.

i) Section A

AGE/*UMUR* *

- Below 18
- 19 - 25
- 26 - 30
- 31-35
- 36 - 40
- 41 & above

GENDER/*JANTINA* *

- Male/Lelaki
- Female/Perempuan

RACE/*BANGSA* *

- Malay/Melayu
- Indian/India
- Chinese/Cina
- Other...

OCCUPATION/*PEKERJAAN* *

- Goverment/Kerajaan
- Swasta/swasta
- Retired/Bersara
- Self-employed/Bekerja sendiri
- Student/Pelajar
- Other...

INCOME/*PENDAPATAN* *

- Below RM1500
- RM1501 - RM2500
- RM2501 - RM3500
- RM3501 - RM4500
- RM4501 and below

ii) Section B

Have you ever heard of a bus that was used as a new tourism product?/ *Adakah anda pernah dengar tentang bas yang digunakan semula dijadikan sebagai satu produk pelancongan yang baru?* *

- ◯ Yes/ Ya
- ◯ No/ Tidak

Do you think bus can be innovated into a new type of accommodation for tourism product in Malaysia? *Adakah anda fikir bas boleh diinovasikan menjadi jenis penginapan baharu untuk produk pelancongan di Malaysia?* *

- ◯ Yes/ Ya
- ◯ No/ Tidak
- ◯ Not sure/Tidak Pasti

The space inside the bus is suitable to be renovated into a new accommodation product such as having beds, sofa, cabinet, toilet and kitchen equipment?/ *Ruang di dalam bas sesuai untuk diubah suai menjadi produk penginapan baharu seperti mempunyai katil, sofa, kabinet, tandas dan kelengkapan dapur.* *

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

The equipment of Dusun Bus Glamping meet the concept of "glamping" (glamour+camping) for tourists who want a unique camping experience. *Kelengkapan di dalam Dusun Bus Glamping menepati konsep "glamping" (glamour+camping) bagi pelancong yang inginkan pengalaman perkhemahan yang mewah dan unik.* *

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

The innovation of Dusun Bus Glamping that uses eco-friendly features help in reducing/minimize the negative effects of pollution on environment in tourism industry./ *Inovasi Dusun Bus Glamping yang menggunakan ciri mesra alam membantu dalam mengurangkan/meminimumkan kesan negatif pencemaran terhadap persekitaran dalam industri pelancongan?* *

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

iii) Section C

Do you agree Dusun Bus Glamping able to be marketed as a unique new tourism product in Malaysia. *Adakah anda setuju Dusun Bus Glamping mampu dipasarkan menjadi satu produk pelancongan baharu yang unik di Malaysia.* *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Do you think Dusun Bus Glamping can be recognized as one of the eco-tourism products in the Malaysian market in the future./ *Adakah anda fikir Dusun Bus Glamping boleh diiktiraf sebagai salah satu produk pelancongan eko dalam pasaran Malaysia pada masa hadapan.* *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Dusun Bus Glamping innovation is able to diversify eco-tourism products and encourage tourism to visit nature-based areas./ *Inovasi Dusun Bus Glamping mampu mempelbagai produk eco-pelancongan dan mengalakkan pelancongan melawat kawasan berasaskan semulajadi.* *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Dusun Bus Glamping can give tourists a new and unique experience. *Dusun Bus Glamping boleh memberi pengalaman baharu dan unik kepada pelancong.* *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

What are the benefits that tourism will gain with the creation of Dusun Bus Glamping? *Apakah faedah yang akan diperolehi oleh pelancongan dengan penciptaan Dusun Bus Glamping?* *

- [ ] Improve the local community's economy/ Meningkatkan ekonomi penduduk tempatan
- [ ] Promote environmental awareness/ Mengalakan kesedaran alam sekitar
- [ ] Increase job opportunities/ Meningkatkan peluang pekerjaan
- [ ] More interesting and existing place to visit/ Lebih banyak tempat menarik untuk dilawati
- [ ] Other...

Do you think this product can improve the sustainability approach in tourism? *Adakah anda fikir produk ini boleh meningkatkan pendekatan kelestarian dalam pelancongan?* *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

In your opinion, what can be improved to make this product compete and gain a place in the Malaysia tourism industry market./ *Pada pendapat anda, apakah yang boleh ditambahbaik untuk menjadikan produk ini mampu bersaing dan mendapat tempat di pasaran industri pelancongan Malaysia.* *

Long-answer text

3.4 Sampling

A sampling design is definite plan for obtaining a sample from a given population. For complete data collection, we used a type of probability sampling which is simple random sampling. Simple random sampling is a completely random method of selecting subjects. 100 people will be selected from resident in Kuantan as our sample to answer the questionnaire form provided.

4.0 FINDING (Data analysis)

4.1 INTRODUCTION

In this chapter will discuss the analysis data collected through the 'google form' platform which is distributed online and face-to-face. At the end of this chapter, we discuss the results of the analysis data collected and studied that the Eco-tourism product 'Dusun Bus Glamping' will be produced and can provide many benefits to local residents, tourists, the country and the environment. The analytical data collected will also support the statement of the problem stated in chapter 1.

4.2 DATA ANALYSIS

4.2.1 Section A: Demographic Data

DEMOGRAPHIC PROFILE	FREQUENCY	PERCENT (%)	VALID PERCENTAGE (%)	CUMULATIVE (%)
AGE/UMUR				
BELOW 18	4	3.7	3.8	3.8
19-25	51	47.7	48.1	51.9
26-30	21	19.6	19.8	71.7
31-35	12	11.2	11.3	83
36-40	5	4.7	4.7	87.7
41 AND ABOVE	13	12.1	12.3	100
GENDER/JANTINA				
MALE/LELAKI	63	58.9	59.4	59.4
FEMALE/PEREMPUAN	43	40.2	40.6	100
RACE/BANGSA				
MALAY/MELAYU	77	72	72.6	72.6
INDIAN/INDIA	19	17.8	17.9	90.6
CHINESE/CINA	7	6.5	6.6	97.2
MAMAK	2	1.9	1.9	99.1
ACEH	1	9	9	100
OCCUPATION/PEKERJAAN				
GOVERNMENT/KERAJAAN	12	11.2	11.3	11.3
SWASTA/SWASTA	51	47.7	48.1	59.4
RETIRED/BERSARA	5	4.7	4.7	64.2
SELF EMPLOYED/BEKERJA		8.4		
SENDIRI	9		8.5	72.6
STUDENT/PELAJAR	25	23.4	23.6	96.2
SURIRUMAH/HOUSEWIFE	2	1.9	1.9	98.1
KEDAI KASUT	1	9	9	99.1
RESTORAN	1	9	9	100
INCOME/PENDAPATAN				
BELOW 1500	33	30.8	31.1	31.1
RM1501-RM2500	41	38.3	38.7	69.8
RM2501-RM3500	16	15	15.1	84.9
RM3501-RM4500	9	8.4	8.5	93.4
RM4501 AND ABOVE	7	6.5	6.6	100

TABLE 1: DEMOGRAPHIC FREQUENCY ANALYSIS DATA

Discussion about demographic data

Refers to data analysis demographic data. Starting from the respondent's age category, the majority of the 106 respondents who participated in answering the demographic data question was 47.7%, that is, a total of 51 people answered the questions from the 'google form' which was distributed online and face-to-face. Next, looking at the gender of the 106 respondents, 58.9% are male. The remaining 40.2% are females who have answered questions from the 'google form'. Based on the race category of the 106 respondents, the majority are Malay, which is 72%. Followed by Indians with 17.8%. The rest are ethnic, Chinese and others. Most respondents' jobs are private categories, which is a total of 51 respondents who answered the question by choosing the answer 'private' for the respondent's job. A total of 11.2% work for the government. The rest are retired and self-employed. The majority of respondents' jobs are private categories, which is a total of 51 respondents who answered the question by choosing the answer 'private' for the respondent's job. A total of 11.2% work for the government. The rest are retired and self-employed.

4.2.2 Section B: Innovation of reused bus as new Tourism Product

HAVE YOU EVER HEARD OF A BUS THAT WAS USED AS A NEW TOURISM PRODUCT?	FREQUENCY	PERCENT (%)	VALID PERCENT (%)	CUMULATIVE (%)
YES/ YA	26	24.3	24.5	24.5
NO/ TIDAK	80	74.8	75.5	100

TABLE 2: SECTION B (QUESTION 1)

A total of 106 respondents, a total of 80 people with a percentage of 74.8% think that they have never heard of 'Bus a new tourism product'. With the results of this data analysis, it can well support the problem statement stated on the page of chapter 1, which is 'Lack of existence of unique tourism products'. Support from the questions stated can further strengthen the reasons why this product needs to be created so that it can add to the existence of a unique tourism product in Malaysia, thus being able to compete in the market.

DO YOU THINK BUS CAN BE INNOVATED INTO A NEW TYPE OF ACCOMMODATION FOR TOURISM PRODUCT IN MALAYSIA?	FREQUENCY	PERCENT (%)	VALID PERCENT (%)	CUMULATIVE (%)
YES/ YA	100	93.5	94.3	94.3
NOT SURE/ TIDAK PASTI	6	5.6	5.7	100

TABLE 3: SECTION B (QUESTION 2)

100 respondents agree with the stated statement with a percentage of 93.5%, 6 respondents are not sure with the stated statement. Valid value percentage of respondents who agree is higher than respondents who are not sure about the statement.

THE SPACE INSIDE THE BUS IS SUITABLE TO BE RENOVATED INTO A NEW ACCOMMODATION PRODUCT SUCH AS HAVING BEDS, SOFA, CABINET, TOILET AND KITCHEN EQUIPMENT?	FREQUENCY	PERCENT (%)	VALID PERCENT (%)	CUMULATIVE (%)
1 (STRONGLY DISAGREE)	2	1.9	1.9	1.9
3 (NEUTRAL)	5	4.7	4.7	6.6
4 (AGREE)	9	8.4	8.5	15.2
5 (STRONGLY AGREE)	90	84.1	84.9	100

TABLE 4: SECTION B (QUESTION 3)

The majority of respondents totaling 90 people with a percentage of 84.1% strongly agree with the statement that the space in the bus is very suitable to be modified into an accommodation that has enough equipment. There are 2 respondents who do not agree with the above statement. The rest, agree and neutral.

THE EQUIPMENT OF DUSUN BUS GLAMPING MEET THE CONCEPT OF "GLAMPING" (GLAMOUR + CAMPING) FOR TOURIST WHO WANT A UNIQUE CAMPING EXPERIENCE	FREQUENCY	PERCENT (%)	VALID PERCENT (%)	CUMULATIVE (%)
1 (STRONGLY DISAGREE)	2	1.9	1.9	1.9
2 (DISAGREE)	1	9	9	2.8
3 (NEUTRAL)	8	7.5	7.5	10.4
4 (AGREE)	7	6.5	6.6	17
5 (STRONGLY AGREE)	88	82.2	83	100

TABLE 5: SECTION (QUESTION 4)

88 respondents, which is a percentage of 82.2% of 106 respondents, strongly agree with the fact that cons (glamor + camping) can provide a unique experience with the existence of eco-tourism products such as 'Dusun Bus Glamping' which complements the characteristics of eco-tourism and sustainability products in the tourism industry, thus being able to support the national economy. 8 respondents out of 106 respondents were also neutral with the statement.

THE INNOVATION OF DUSUN GLAMPING THAT USES ECO-FRIENDLY FEATURES HELP IN REDUCING/MINIMIZE THE NEGATIVE EFFECTS OF POLLUTION ON ENVIRONMENT IN TOURISM INDUSTRY	FREQUENCY	PERCENT (%)	VALID PERCENT (%)	CUMULATIVE (%)
1 (STRONGLY DISAGREE)	1	9	9	9
2 (DISAGREE)	2	1.9	1.9	2.8
3 (NEUTRAL)	8	7.5	7.5	10.4
4 (AGREE)	7	6.5	6.6	17
5 (STRONGLY AGREE)	88	82.2	83	100

TABLE 6: SECTION B (QUESTION 5)

Referring to the following frequency table, a total of 88 respondents as much as 82.2% strongly agree with 'Dusun Bus Glamping' which uses eco-friendly features to produce tourism products that is by using used buses as accommodation that does not involve concrete construction that can cause destruction or increase negative impact on the environment.

4.2.3 Section C: The potential of Dusun Bus Glamping to be marketed in Tourism Industry

DO YOU GREE DUSUN BUS GLAMPING ABLE TO BE MARKETED AS A UNIQUE NEW TOURISM PRODUCT IN MALAYSIA?	FREQUENCY	PERCENT (%)	VALID PERCENT (%)	CUMULATIVE (%)
2 (DISAGREE)	2	1.9	1.9	1.9
3 (NEUTRAL)	6	5.6	5.7	7.5
4 (AGREE)	29	27.1	27.4	34.9
5 (STRONGLY AGREE)	69	64.5	65.1	100

TABLE 7: SECTION C (QUESTION 1)

64.5% of respondents agree that 'Dusun Bus Glamping' can be marketed as one of the unique tourism products in Malaysia, while 1.9% which is a total of 2 respondents disagree with the statement.

DO YOU THINK DUSUN BUS GLAMPING CAN BE RECOGNIZED AS ONE OF THE ECO-TOURISM PRODUCTS IN THE MALAYSIAN MARKET IN THE FUTURE	FREQUENCY	PERCENT (%)	VALID PERCENT (%)	CUMULATIVE (%)
3 (NEUTRAL)	6	5.6	5.7	5.7
4 (AGREE)	14	13.1	13.2	18.9
5 (STRONGLY AGREE)	86	80.4	81.1	100

TABLE 8: SECTION C (QUESTION 2)

DUSUN BUS GLAMPING INNOVATION IS ABLE TO DIVERSIFY ECO-TOURISM PRODUCTS AND ENCOURAGE TOURISM TO VISIT NATURE-BASED AREAS.	FREQUENCY	PERCENT (%)	VALID PERCENT (%)	CUMULATIVE (%)
3 (NEUTRAL)	6	5.6	5.7	5.7
4 (AGREE)	11	10.3	10.4	16
5 (STRONGLY AGREE)	89	83.2	84	100

TABLE 9: SECTION C (QUESTION 3)

The majority of respondents strongly agree with the statement, which is as much as 83%, which is a total of 89 respondents. Proving that the tourism industry needs to encourage the innovation of eco-tourism products to increase the popularity of nature-based areas. The remaining 10.3% agreed and 5.6% were neutral.

DUSUN BUS GLAMPING CAN GIVE TOURIST A NEW AND UNIQUE EXPERIENCE	FREQUENCY	PERCENT (%)	VALID PERCENT (%)	CUMULATIVE (%)
3 (NEUTRAL)	6	5.6	5.7	5.7
4 (AGREE)	12	11.2	11.3	17
5 (STRONGLY AGREE)	88	82.2	83	100

TABLE 10: SECTION C (QUESTION 4)

A total of 82.2% agreed with the statement that 'Dusun Bus Glamping' is able to provide a unique experience to tourists who come with the concept of used bus accommodation placed in locations such as eco-tourism destinations, for example in Dusun.

WHAT ARE THE BENEFITS THAT TOURISM WILL GAIN WITH THE CREATION OF DUSUN BUS GLAMPING	FREQUENCY	PERCENT (%)	VALID PERCENT (%)	CUMULATIVE (%)
IMPROVE THE LOCAL COMMUNITY'S ECONOMY	66	61.7	62.3	62.3
PROMOTE ENVIRONMENTAL AWARNESS	19	17.8	17.9	80.2
INCREASE JOB OPPOTURNITIES	10	9.3	9.4	89.6
MORE INTERESTING AND EXISTING PLACE TO VISIT	11	10.3	10.4	100

TABLE 11: SECTION C (QUESTION 5)

The benefits that can be obtained from the production of eco-tourism products such as 'Dusun Bus Glamping', respondents chose a variety of benefits that can be obtained, for example as many as 61.7% think it will improve the economy of the local population.

DO YOU THINK THIS PRODUCT CAN IMPROVE THE SUSTAINABILITY APPROACH IN TOURISM	FREQUENCY	PERCENT (%)	VALID PERCENT (%)	CUMULATIVE (%)
3 (NEUTRAL)	8	7.5	7.5	7.5
4 (AGREE)	17	15.9	16	23.6
4 (STRONGLY AGREE)	81	75.7	76.4	100

TABLE 12: SECTION C (QUESTION 6)

The majority of respondents strongly agree with the above statement with 75.7%, the rest simply agree and are neutral.

4.3 DISCUSSION

Some respondents gave an open opinion by stating, this product can be improved by considering the accommodation 'Dusun Bus Glamping' needs to add facilities for Muslim tourists or add 'Muslim Friendly' features to the product. In addition, there are also opinions that this location or product is easily accessible, so that it is easy for tourists to come and experience a unique experience when using the products and services from this 'Dusun Bus Glamping'. Many respondents also think that the promotion for eco-tourism products such as 'Dusun Bus Glamping' needs to be increased so that it can attract the attention of tourists, consumers, the local community and also the tourism industry so that it can compete in the market in the future.

Some respondents also think that if this product is placed in an attractive and strategic location, this product will be able to compete in the eco-tourism product market in Malaysia. This is because the attractive and strategic location attracts people's attention, the addition of an attractive location will prove that the eco-tourism product, namely 'Dusun Bus Glamping' will provide a unique experience to tourists and users who come to visit. For example, this product will be placed in the 'Farm' area, because when the local fruit season arrives in Malaysia, some tourists who live in the city want to taste the uniqueness of the local fruit in Malaysia, for example such as durian. With that, 'Dusun Bus Glamping' was created to give a unique satisfaction and experience by offering accommodation in a used bus that has been modified into accommodation with the concept of 'Glamping' itself.

5.0 CONCLUSION

5.1 INTRODUCTION

The following chapter concludes about the end-of-semester project that has been completed based on the title Dusun Bus Glamping. Our product is a non-moving bus that has been repurposed into new accommodation. These buses are also located in dusun or places where people usually camp and are close to the river. Based on this project, we care about nature and do not use construction materials to make accommodation so that the environment is always maintained and healthy. This product is more important than the current glamping products so that many tourists can experience unique new accommodation. We have done a survey based on the public using google form and we have got very positive answers about our product. Most of the public have never heard of new accommodation such as bus glamping. With the survey questionnaire we can improve the design of our product that will be implemented. This product has also been given an idea by a group of us to make this semester's final project a success.

5.2 RECOMMENDATIONS

Dusun Bus Glamping is an eco-tourism product, and it is new accommodation. This product is made from buses that are no longer in use to be reused as accommodation for eco-tourism. It can give new ideas to create something new and provide comfort to tourists. This product is released to help travel agencies or companies to attract more tourists from within the country or abroad. Next, the idea of this project is inspired by eco-tourism that develops and manufactures products that have sustainability characteristics to meet the needs of the present without having a small or large impact on the needs of the future by maintaining the natural ecosystem that exists in Malaysia. This clearly shows that tourism products that have natural elements are the key to the success of the tourism industry. Target market of this project that is focused on domestic tourism. Nowadays, many tourists want to try something different to fill their free time or school holidays. With this product, travel agencies can attract more tourists to try new accommodation. The camping experience can also calm the mind by staying in a green area and nature, while visitors who come will experience bathing in the river found in the orchard. This is indicating that products like Dusun Bus Glamping have the potential to become a new type of well-known accommodation as well as a new attraction in tourism.

5.3 PROJECT LIMITATIONS

The cost of purchasing items like merchandise and booth décor for our showcase comes next. Moreover, use transit to make purchases at the store. Transport to places like Shop Rm 2 and DIY shops is difficult to come by. have difficulties with social media stores like Shoppee and Lazada. deliveries of goods are taking longer than expected.

The cost of purchasing items like merchandise and booth décor for our showcase comes next. Moreover, use transit to make purchases at the store. Transport to places like Shop Rm 2 and DIY shops is difficult to come by. have difficulties with social media stores like Shoppee and Lazada. deliveries of goods are taking longer than expected.

Finally, one of the challenges we have in showcase is responding to a question posed by the panel against our group. then, in week 14, we are able to prepare the final report.

5.4 Conclusion

To sum up, this final year project's results and conclusions have been thoroughly summarized in Chapter 5. We have addressed the goals established at the start of the study by conducting thorough research, analysis, and application. This project is significant overall in part because of the lessons learned and difficulties encountered during its completion. These findings set the foundation for further research in this area as we move forward.

We have numerous obstacles and lessons to learn in order to produce our final year project product from week one to week thirteen. We suggest choosing our final project in week one. and decide on the project's name and logo. Next, we begin working on Chapter 1 of our proposal.

We show our project supervisor chapter 1 at the end of the second week. We begin working on Chapter 2 in Week 3. By week's end, we finish chapter 2 and begin chapter 3. whereas we begin producing our product in week six. Thus, in week seven, we made appropriate purchases for our product from stores and online retailers like Lazada and Shopee. We completed chapter 3 and began chapter 4 work in week 8. This chapter covers creating a Google Form. Weeks 9 through 13 see us continuing to decorate our product. Week 14: Set up our fyp booth and begin creating a slide show about our product to show the panel and our supervisor. We completed our proposal and presentation at the end of week 14.

By making this product limitation, can further strengthen the product that is made with challenges, or problems when making the product.

6.0 REFERENCES

Alyson Wyers (2016) This Chinese Resort Transformed Abandoned Buses Into Cartoon Accommodations

Bernama (2022))Industri pelancongan perlukan produk baharu, premium https://www.astroawani.com/berita-malaysia/industri-pelancongan-perlukan-produk-b aharu-premium-363147

DR Negin Vaghefi (2019) Ecotourism: A Sector where Sustainability is Everything

Micheal Hemsworth (2017) The Big Bus Hotel Offers a Charming Glamping Experiences.

MULTI TENT H

Nurrul Hasanah Binti Md Teni1, Nur Basirah Binti Abdul Khalim, Rahayu Binti Othman,

Tourism and Hospitality Department
Polytechnic METrO Kuantan

nurrulhasanah@pmku.edu.my1

ABSTRACT

In this study we put a lot of emphasis on the innovative design of a bag that has a hammock, several versatile components that prioritize ease of use, comfort, safety, and storage space. This hammock has several elements that distinguish it from conventional hammocks. First, this hammock is sewn together with a bag which makes it easier for users to carry the hammock. By combining the bag and hammock it can make it easier for users to use it. With this product, users can open the hammock quickly and easily. This hammock is equipped with many parts to make it easier for users to place items that need to be carried. Accordingly, users can easily store items such as clothes, food, and toiletries in this hammock. Not only does it optimize the use of space, but it also makes the hammock a versatile material for outdoor activities. Importantly, this hammock has a sophisticated safety system which is an air mattress attached to the hammock. This hammock can guarantee the safety of the user.Next, this hammock also has a solar system that can make it easier for users to charge phones and turn on lights more easily. Also, this crib can be converted into a great shelter with the addition of a cover. This covering structure protects from insects. This study also emphasizes the principles of comfort, safety, usability, and space-saving in an excellent hammock design. The results of the study show that this innovative hammock can meet the needs of users.

1.0 INTRODUCTION

In this study, we put a lot of emphasis on the innovative design of a bag that has a hammock, and several versatile components that prioritize ease of use, comfort, safety, and storage space. This hammock has several elements that distinguish it from conventional hammocks. First, this hammock is sewn together with a bag which makes it easier for users to carry the hammock. By combining the bag and hammock it can make it easier for users to use it. With this product, users can open the hammock quickly and easily. This hammock is equipped with many parts to make it easier for users to place items that need to be carried. Accordingly, users can easily store items such as clothes, food, and toiletries in this hammock. Not only does it optimize the use of space, but it also makes the hammock a versatile material for outdoor activities. Importantly, this hammock has a sophisticated safety system which is an air mattress attached to the hammock. This hammock can guarantee the

safety of the user. Next, this hammock also has a solar system that can make it easier for users to charge phones and turn on lights more easily. Also, this crib can be converted into a great shelter with the addition of a cover. This covering structure protects from insects. This study also emphasizes the principles of comfort, safety, usability, and space-saving in an excellent hammock design. The results of the study show that this innovative hammock can meet the needs of users.

PROBLEM STATEMENT

1. It is difficult to find strong and sturdy materials and the price is also expensive. Such as, a camp tent made of half nylon and half fabric which has a weakness that is if it rains, the place in the camp tent will get water. So, travelers need something of good quality and durability.
2. It is difficult to find a high-quality bag at a cheap price that can provide comfort to travelers.
3. It is hard to find a hammock that provides safety that as a strong hammock strap that can support heavy loads when doing outdoor activities as well as a comfortable hammock to use for a long time.

RESEARCH OBJECTIVES

1. To provide bag fabric that has high quality and waterproof so that the bag can be used for a long time.
2. To ensure tourists are comfortable to bring the products.
3. To ensure safety for users whether young or old.

2.0 LITERATURE REVIEW

i. HISTORY OF HAMMOCK

-"Hammock" originated from a Taino culture Arwakan word meaning "fish net". Traditional hammocks originated in Central America, and can be traced back nearly 1,000 years ago to the Mayan civilization. Originally, hammocks were not designed for leisure, but instead served as protection. The suspended beds safely kept hammockers away from dangerous creatures and insects in warmer climates.

-Christopher Columbus is credited with bringing hammocks to Europe after observing their widespread use among the Taino people of the Bahamas. During Spain's colonial period, cotton and canvas were brought to the Americas and began to be incorporated into the hammock design we know today. In the mid-16th century, hammocks were adopted as the primary on-deck sleeping choice by Spanish and English navies. These portable beds were used aboard ships for three centuries spanning from World War I, World War II, the Civil War, and the Vietnam

ii. HISTORY OF CAMPING

In 1908, Thomas Hiram Holding produced the The Camper's Handbook, which helped to popularise his love of camping in the outdoors as a recreational activity in the United Kingdom. Holding wrote the book after remembering his early years, and the time he spent travelling across the United States of America with his family in a wagon train.

However, in the decades prior to this, recreational camping had sprung up in England as part of the late Victorian pleasure boating craze. Victorian men and women took up skiffing, or pleasure boating, on the Thames in large numbers (so much so there is a style of boat called a Thames skiff). These pleasure outings would sometimes also include camping on the banks of the river, or on the river itself, with Thames skiff construction allowing for easy conversion from boat to floating tent.

iiii. HISTORY OF BACKPACK

The first step towards the modern backpack and came from a man named Henry Merriam. His design fused the two most common designs of the era: the wood frame and the soft canvas rucksack. He called his design a knapsack and had it patented in 1878. His design, while imperfect and uncomfortable, showed the flaws of the bags of the day. They were either too stiff or too soft and both caused back and shoulder pain. Merriam hoped that, by using sheet metal to keep the bag away from the body, he could reduce some of this strain.
Norwegian inventor, Ole Bergan, had a eureka moment while out hunting in 1908. His soft sack was not exactly uncomfortable, but it put a great deal of strain on his shoulders. By bending a piece of juniper wood into a keyhole shape that followed the contours of his back, Bergan could hang his soft bag on his back, while maintaining a more comfortable and ergonomic design. Eventually, he transitioned to using light tubular steel, which remained popular for the next 25 years.

iv. ADVENTURE TOURISM HISTORY

Travelling in those times was quite tough not like today were adventure travelers can hire a professional guide who will provide a range of technical support and equipment, as well as culture and nature interpretation. The growth and development of modern day adventure tourism industry can trace back to the mid-1800 in America. It was here that adventure lovers started to push the limits of sports like the white water rafting and mountaineering with the first ascent of the Matterhorn in 1865 and descent of the Colorado River in 1869.
Shortly after these two events two of the great instates were set up that later on proved to be of monumental importance for the Adventure lovers and the Industry at large these to great instates were, The National Geographic Society formed in 1888 to "increase and diffuse geographic knowledge" and the Explorers Club formed in 1904 to "promote the scientific exploration of land, sea, air, and space".

Maurice Herzog's successful ascent of Annapurna in 1950 and Sir Edmund Hillary and Tenzig Norgay's successful ascent of Mount Everest on 29th May 1953, was hailed by the media and adventure lovers around the world and these two events proved to be the golden moments in the history of mankind post the 1950's that inspired millions across the globe to take up adventure sports and journeys.

The roots of first dedicated adventure travel agency can be traced back to 1920's to a person called Dan Hatch in America. He and his brothers decided to build wooden rafts to explore the River Green situated in today's Dinosaur National Monument. Don Hatch later on formed a company, Hatch River Explorations, which was the first business to receive a national park concessioner permit for rafting in 1953. Adventure Tourism today has grown into one of the most promising and dynamic sectors of the Tourism industry. The government's world over are actively promoting this sector due to its direct benefit to the local communities, local economies and environment at large.

Business holdings in this sector are primarily small proprietorships thus promoting entrepreneurship. Adventure tourism is a type of niche tourism activity, generally an outdoor activity, involving exploration to remote areas, challenging oneself against the nature and its various elements such as air, water, mountains, and climate and weather conditions. Physical and mental fitness is a pre-requisite before participating in such activity.

3.0 METHODOLOGY

According to the Fourth Edition Chamber Dictionary, methodology means a system that includes the methods and principles used in an activity or discipline. Research methodology refers to the most appropriate method for conducting research and determining effective procedures to answer the research problem. Methodology refers to the more detailed study of work used in research or studies to collect data, analyze information, and achieve research goals. It includes the steps, techniques, tools, and approaches used to carry out research or studies in a systematic and orderly manner. Methodology also helps determine how data is collected, organized, and interpreted in a research or study. It plays an important role in maintaining the reliability and accuracy of research results. This can be used to achieve the stated objectives. the function of the research methodology is to make the research conducted more manageable in achieving the research objectives. Research methodology also aims to master the application of the method by making details about the research process.

i. Product Development

Product introduction is a method of showing the combination of materials that will form an innovation product to facilitate tourists. First, our product is created from a hammock that is formed into a multi-purpose bag, has a zipper that can be opened to become a hammock that can fit tourists to sleep comfortably. have a happy cover to prevent from the weather such as rain and sunlight. in addition, it has a safety rope and a floating mattress to avoid any disaster in the forest. Next, most tourists want us to provide an innovation product that has a compartment under the hammock, and it will make it easier for tourists not to carry many bags when going out to do outdoor activities. Finally, we also made an addition by placing a solar panel to make it easier for tourists to charge phones or even turn on lights at night.

ii. Data Collection Method

·Quantitative Data
·Primary data (questionnaire)

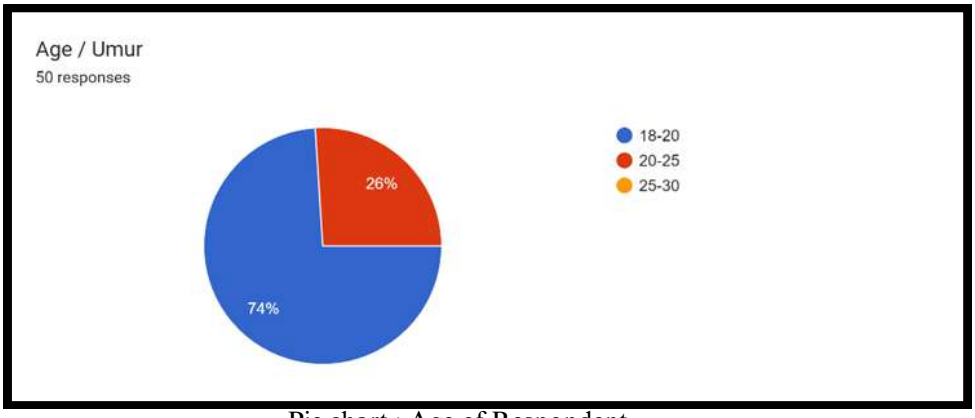
iii. Instrument Development (Questionnaire)

A research instrument is a tool used when conducting research to obtain data for the purpose of achieving research objectives. The instrument that can be used is a questionnaire that uses google forms.

iv. Sampling

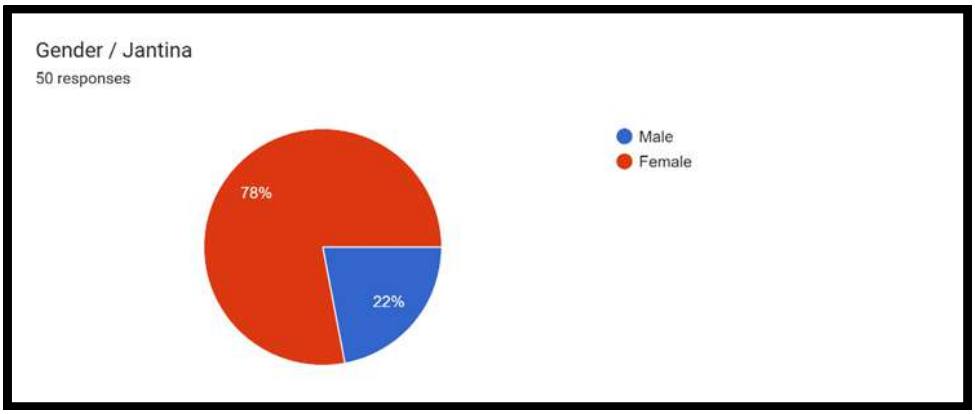
The sampling technique used in the study is clearly stated. Sampling shows to make inferences made on the population unnecessarily sampling can provide analysis from the study made to the population in question. Some commonly used sampling techniques include simple random sampling. The dup polytechnic student population is 50 people. The sampling target for this project is all tourism management diploma student's semester 2 and semester 5 as well as members of the public living around Kuantan and Kuantan Metro Polytechnic lecturers.

Data analysis in research is a way of thinking that is closely related to testing something to determine parts, relationships between parts, and relationships with the whole. (James Spadley) 2017. This chapter shows the analysis data that we have obtained through a survey that we made using a simple platform that is "google form". We have followed the current development to implement this chapter without holding face-to-face question-and answer sessions with respondents. In addition, this study was conducted among semester 1, semester 2 and semester 5 students of the Diploma in Tourism Management who are studying at Kuantan Metro Polytechnic. Based on the findings of the study, there are 50 students involved in this research.



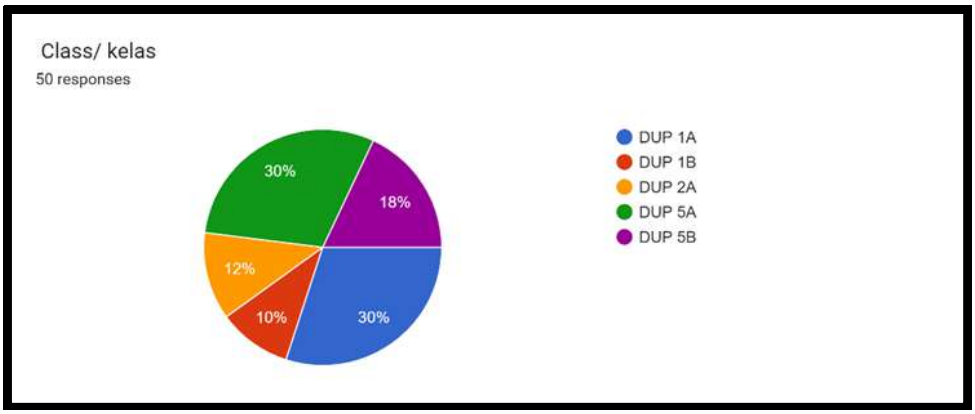
Pie chart : Age of Respondent

Based on pie chart above show the age of 50 respondents. Based on the table shown , majority of respondent which total 74% is age 18 – 20 years old . the remaining 26% is age between 20 – 25 years old



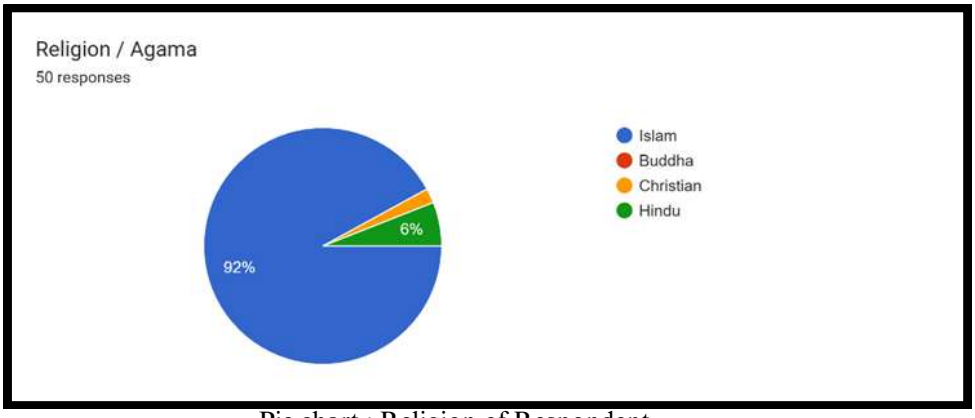
Pie chart : Gender of Respondent

Based on pie chart above show the gender of respondent . 24 % or 12 from 50 respondent is male while the remaining 76% or 38 respondent is female .



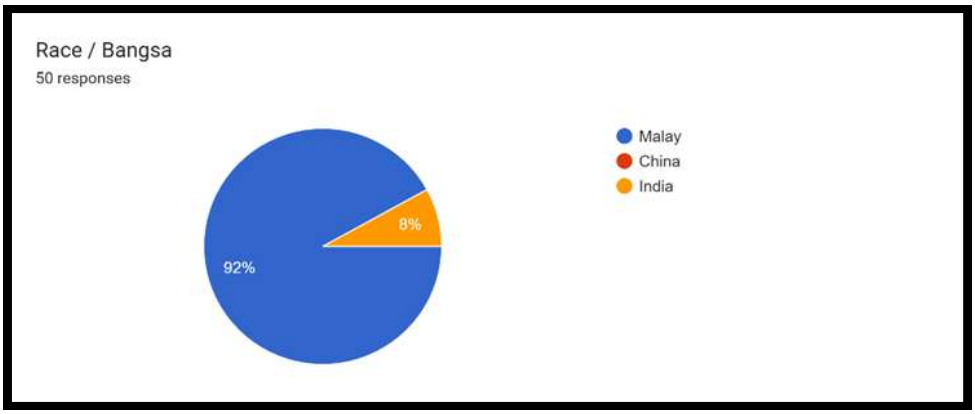
Pie chart : Class of Respondent

Based on pie chart above shows the class of respondent . The respondent is Dup 1A which stand 34 % from all respondent . 6 % from respondent is Dup 1B , 12% from respondent is Dup 2A , 30% from respondent Dup5A and 18% from respondent is Dup 5B .



Pie chart : Religion of Respondent

Based on pie chart above shown the religion of respondent . there is total of 3 categories of religion . The majority of respondent is Islam which stands 92% or 46 from all respondent . 1 or 2% from respondent is Christian , 3 or 6% is Hindu.



Pie chart : Race of Respondent

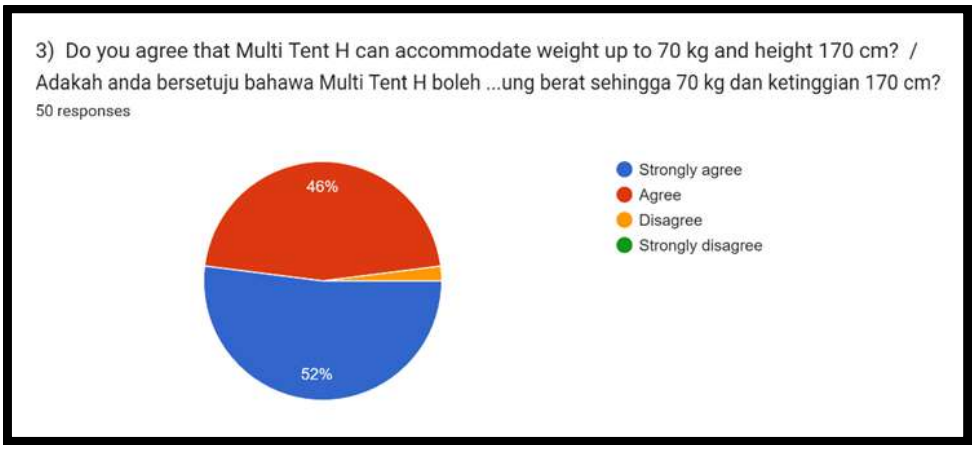
Based on pie chart above shown the Race of respondent . there is total 2 categories of Race. The majority of respondent is malay which stand 92% or 46 from all respondent . 8% or 4 from respondent is India.

Pie chart : Do you agree if we create Multi Tent H of Respondent

Based on pie chart above shown do you agree if we create Multi Tent H of respondent . The majority of respondent is Yes which stand 100% or 50 from all respondent and 0 % or 0 from respondent is No.

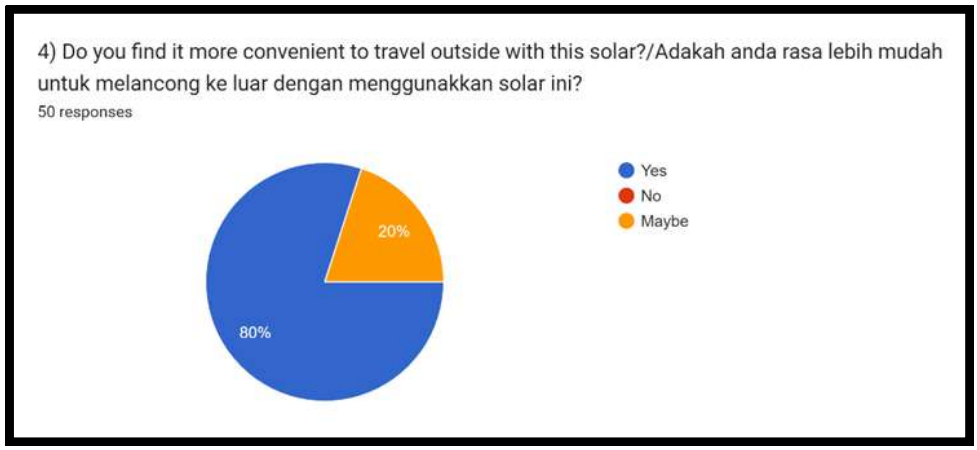
Pie chart : Do you agree that the creation of Multi Tent H can make it easier for you to travel of respondent

Based on pie chart above shown do you agree that the creation of Multi Tent H can make it easier for you to travel of respondent . the majority of respondent is Yes which 98% from all respondent and 2% from respondent is No .



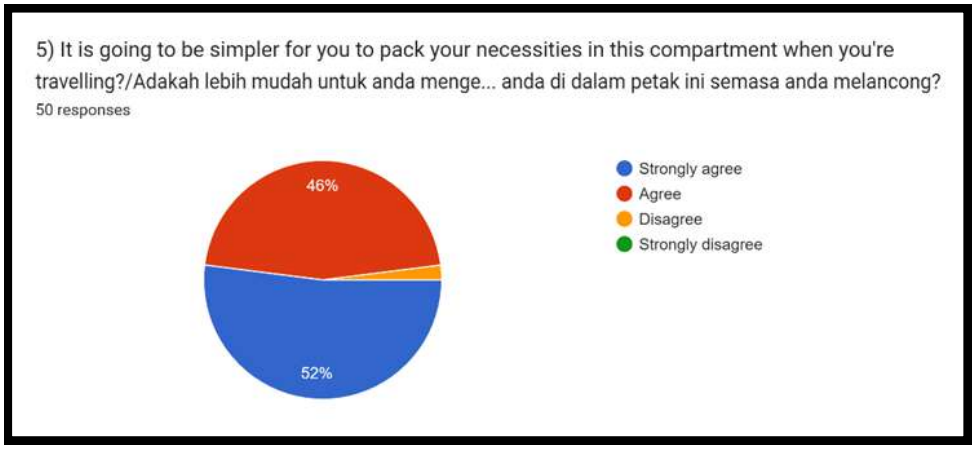
Pie chart : do you agree that Multi Tent H can accommodate weight up to 70kg and height 170 cm of respondent .

Based on pie chart above shown do you agree that Multi Tent H can accommodate weight up to 70kg and height 170 cm of respondent . The majority of respondent is strongly agree which 52% from all respondent , 46% from respondent is agree and 2% from respondent is disagree.



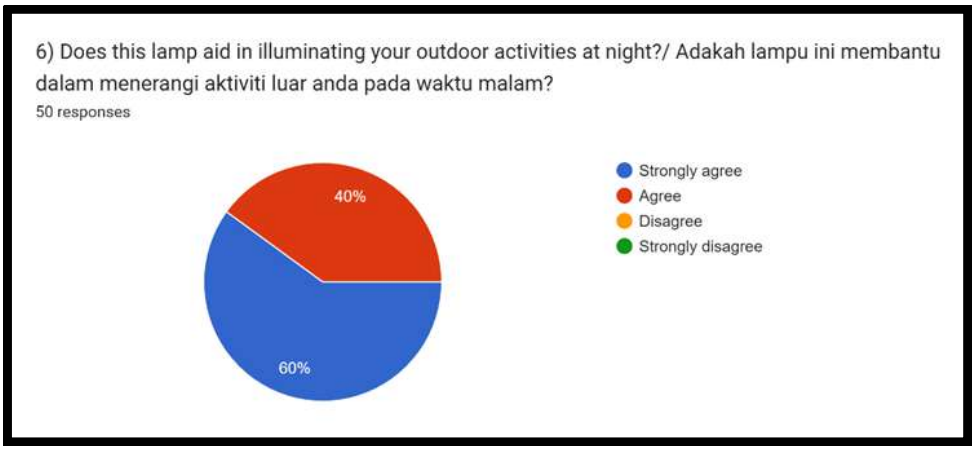
Pie chart : if Do you find it more convenient to travel outside
with this solar of respondent.

Based on pie chart above shown Do you find it more convenient to travel outside with this solar of respondent . The majority of respondent is Yes which stands 80% from all respondent and 20% from respondent is Maybe



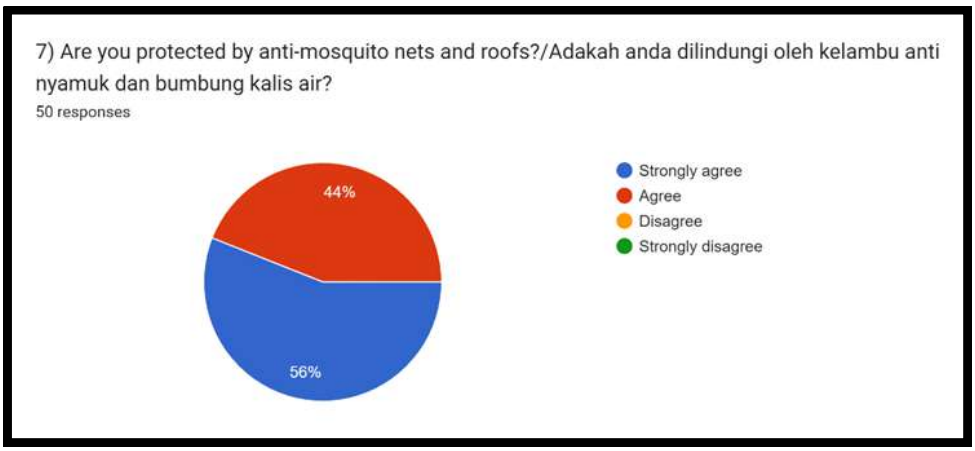
Pie chart : it is going to be simpler for you to pack your necessities in
this compartment when you're travelling of respondent

Based on pie chart above shown is going to be simpler for you to pack your necessities in this compartment when you're travelling of respondent . The majority of respondent is strongly agree which stands 52 % from all respondent , 23% from respondent is agree and 2% from respondent is disagree.



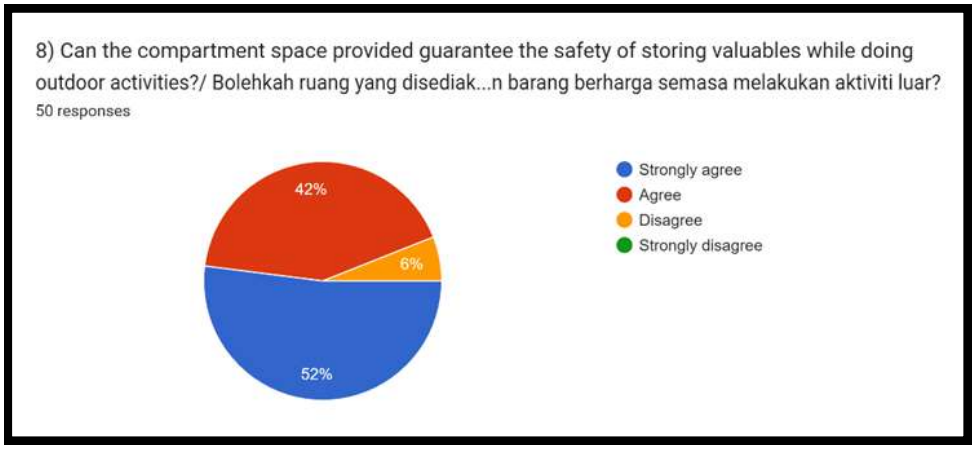
Pie chart : does this lamp aid in illuminating your outdoor activities at night of respondent .

Based on pie chart above shown does this lamp aid in illuminating your outdoor activities at night of respondent. The majority of respondent is strongly agree which stands 60 % from all respondent and 40% from respondent is agree.



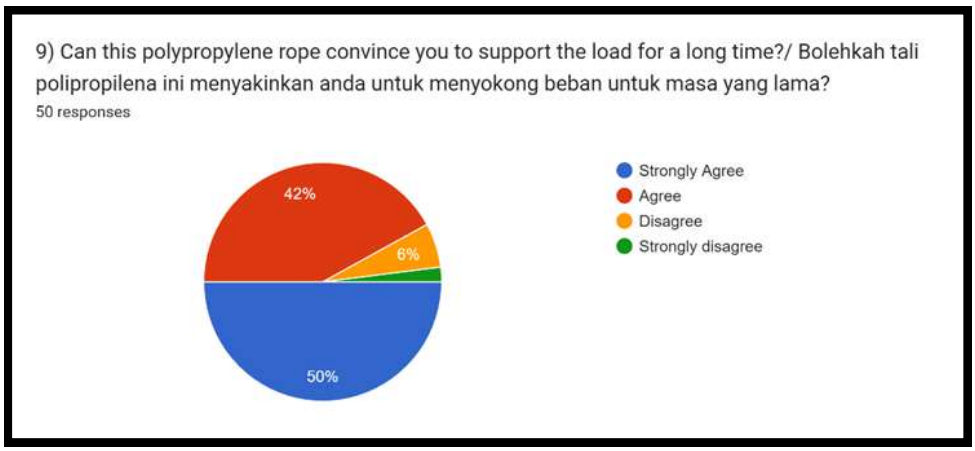
Pie chart : are you protected by anti-mosquito nets and roofs of respondent

Based on pie chart above shown are you protected by anti-mosquito nets and roofs of respondent. The majority of respondent is strongly agree which stands 56 % from all respondent and 22% from respondent is agree



Pie chart : can the compartment space provided guarantee the safety of storing valuables while doing outdoor activities of respondent .

Based on pie chart above shown can the compartment space provided guarantee the safety of storing valuables while doing outdoor activities of respondent. The majority of respondent is strongly agree which stands 52 % from all respondent , 42% from respondent is agree and 6% from respondent is disagree .

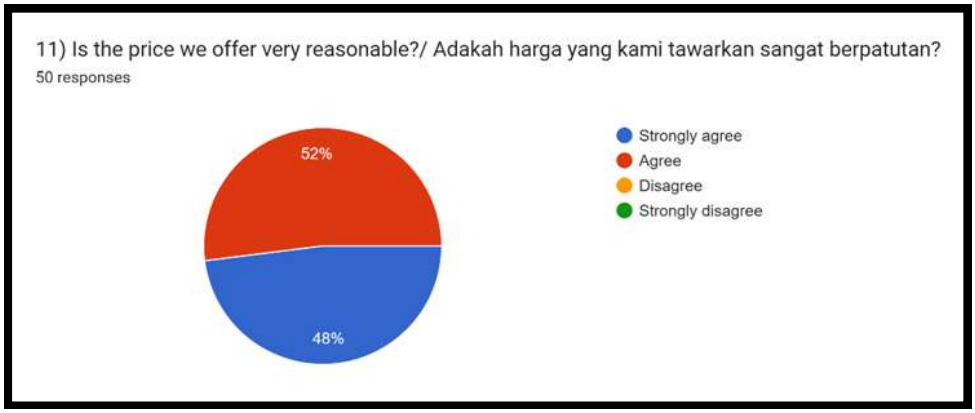


Pie chart : can this polypropylene rope convince you to support the load for a long time of respondent .

Based on pie chart above shown can this polypropylene rope convince you to support the load for a long time of respondent. The majority of respondent is strongly agree which stands 50 % from all respondent , 42% from respondent is agree , 6% from respondent is disagree and 2% from respondent is strongly disagree.

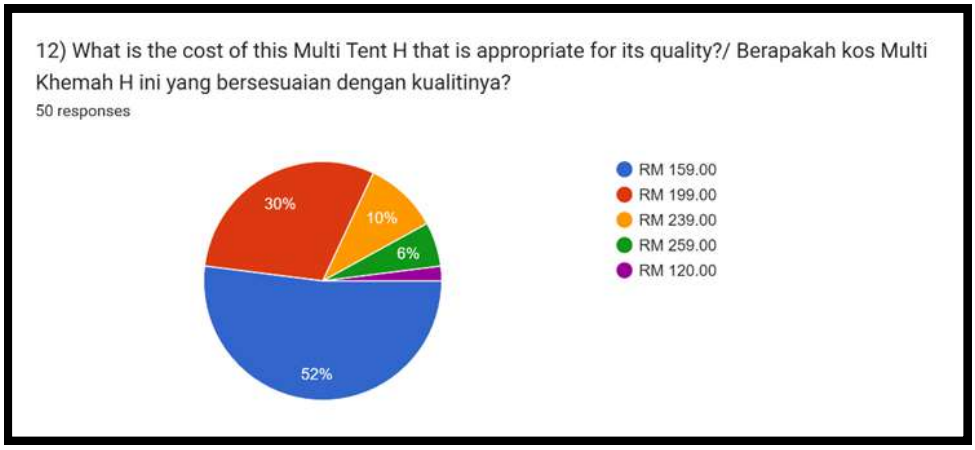
Pie chart : do you believe that the bag's pricing is appropriate given its quality of respondent .

Based on pie chart above shown do you believe that the bag's pricing is appropriate given its quality of respondent. The majority of respondent is strongly agree which stands 46% from all respondent , 52% from respondent is agree , 2% from respondent is disagree



Pie chart : is the price we offer very reasonable of respondent

Based on pie chart above shown is the price we offer very reasonable of respondent . The majority of respondent is strongly agree which stands 48% from all respondent and 52% from respondent is agree



Pie chart : what is the cost of Multi Tent H that is appropriate for its quality of respondent .

Based on pie chart above shown what is the cost of Multi Tent H that is appropriate for its quality of respondent. The majority of respondent is Rm159.00 which stands 54% from all respondent , 30% from respondent is Rm 199.00 , 10% from respondent is Rm239.00 and 6% from respondent is Rm259.00.

4.0 FINDING (Data analysis)

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-20	37	74.0	74.0	74.0
	20-25	13	26.0	26.0	100.0
	Total	50	100.0	100.0	

Table above show the age of 50 respondents. Based on the table shown, majority of respondent which total 74% is age 18 – 20 years old. the remaining 26% is age between 20 – 25 years old.

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	12	24.0	24.0	24.0
	female	38	76.0	76.0	100.0
	Total	50	100.0	100.0	

Table above show the gender of respondent. 24 % or 12 from 50 respondent is male while the remaining 76% or 38 respondent is female.

Class					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	dup 1a	17	34.0	34.0	34.0
	dup 1b	3	6.0	6.0	40.0
	dup 2a	6	12.0	12.0	52.0
	dup5a	15	30.0	30.0	82.0
	dup 5b	9	18.0	18.0	100.0
	Total	50	100.0	100.0	

Table above shows the class of respondent . The respondent is Dup 1A which stand 34 % from all respondent . 6 % from respondent is Dup 1B , 12% from respondent is Dup 2A , 30% from respondent Dup5A and 18% from respondent is Dup 5B .

Religion					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	islam	46	92.0	92.0	92.0
	christian	1	2.0	2.0	94.0
	hindu	3	6.0	6.0	100.0
	Total	50	100.0	100.0	

Table Religion of Respondent

Table above shown the religion of respondent. there is total of 3 categories of religion . The majority of respondent is Islam which stands 92% or 46 from all respondent . 1 or 2% from respondent is Christian , 3 or 6% is Hindu.

Race					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	malay	46	92.0	92.0	92.0
	india	4	8.0	8.0	100.0
	Total	50	100.0	100.0	

Table above shown the Race of respondent. there is total 2 categories of Race. The majority of respondent is malay which stand 92% or 46 from all respondent. 8% or 4 from respondent is India.

Do you agree if we create Multi Tent H ?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	50	100.0	100.0	100.0

Table above shown do you agree if we create Multi Tent H of respondent. The majority of respondent is Yes which stand 100% or 50 from all respondent and 0 % or 0 from respondent is No.

Do you agree that the creation of Multi Tent H can make it easier for you to travel?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	49	98.0	98.0	98.0
	no	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

Table above shown do you agree that the creation of Multi Tent H can make it easier for you to travel of respondent. The majority of respondent is Yes which 98% from all respondent and 2% from respondent is No.

Do you agree that Multi Tent H can accommodate weight up to 70 kg and height 170 cm?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	26	52.0	52.0	52.0
	agree	23	46.0	46.0	98.0
	disagree	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

Table above shown do you agree that Multi Tent H can accommodate weight up to 70kg and height 170 cm of respondent. The majority of respondent is strongly agree which 52% from all respondent , 46% from respondent is agree and 2% from respondent is disagree .

Do you find it more convenient to travel outside with this solar?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	40	80.0	80.0	80.0
	maybe	10	20.0	20.0	100.0
	Total	50	100.0	100.0	

table above shown Do you find it more convenient to travel outside with this solar of respondent. The majority of respondent is Yes which stands 80% from all respondent and 20% from respondent is

It is going to be simpler for you to pack your necessities in this compartment when you're travelling?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	26	52.0	52.0	52.0
	agree	23	46.0	46.0	98.0
	disagree	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

table above shown is going to be simpler for you to pack your necessities in this compartment when you're travelling of respondent. The majority of respondent is strongly agree which stands 52 % from all respondent, 23% from respondent is agree and 2% from respondent is disagree .

Does this lamp aid in illuminating your outdoor activities at night?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	30	60.0	60.0	60.0
	agree	20	40.0	40.0	100.0
	Total	50	100.0	100.0	

Table of does this lamp aid in illuminating your outdoor activities at night of respondent.

table above shown does this lamp aid in illuminating your outdoor activities at night of respondent. The majority of respondent is strongly agree which stands 60 % from all respondent and 40% from respondent is agree.

Are you protected by anti-mosquito nets and roofs?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	28	56.0	56.0	56.0
	agree	22	44.0	44.0	100.0
	Total	50	100.0	100.0	

Table of are you protected by anti-mosquito nets and roofs of respondent .

Table above shown are you protected by anti-mosquito nets and roofs of respondent. The majority of respondent is strongly agree which stands 56 % from all respondent and 22% from respondent is agree

Can the compartment space provided guarantee the safety of storing valuables while doing outdoor activities?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	26	52.0	52.0	52.0
	agree	21	42.0	42.0	94.0
	disagree	3	6.0	6.0	100.0
	Total	50	100.0	100.0	

Table above shown can the compartment space provided guarantee the safety of storing valuables while doing outdoor activities of respondent. The majority of respondent is strongly agree which stands 52 % from all respondent, 42% from respondent is agree and 6% from respondent is disagree .

Can this polypropylene rope convince you to support the load for a long time?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	25	50.0	50.0	50.0
	agree	21	42.0	42.0	92.0
	disagree	3	6.0	6.0	98.0
	strongly disagree	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

table above shown can this polypropylene rope convince you to support the load for a long time of respondent. The majority of respondent is strongly agree which stands 50 % from all respondent, 42% from respondent is agree , 6% from respondent is disagree and 2% from respondent is strongly disagree.

Do you believe that the bag's pricing is appropriate given its quality?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	23	46.0	46.0	46.0
	agree	26	52.0	52.0	98.0
	disagree	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

table above shown do you believe that the bag's pricing is appropriate given its quality of respondent. The majority of respondent is strongly agree which stands 46% from all respondent , 52% from respondent is agree , 2% from respondent is disagree

Is the price we offer very reasonable?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	24	48.0	48.0	48.0
	agree	26	52.0	52.0	100.0
	Total	50	100.0	100.0	

Table above shown is the price we offer very reasonable of respondent. The majority of respondent is strongly agree which stands 48% from all respondent and 52% from respondent is agree

What is the cost of this Multi Tent H that is appropriate for its quality?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	rm 159.00	27	54.0	54.0	54.0
	rm 199.00	15	30.0	30.0	84.0
	rm 239.00	5	10.0	10.0	94.0
	rm 259.00	3	6.0	6.0	100.0
	Total	50	100.0	100.0	

Table above shown what is the cost of Multi Tent H that is appropriate for its quality of respondent. The majority of respondent is Rm159.00 which stands 54% from all respondent, 30% from respondent is Rm 199.00, 10% from respondent is Rm239.00 and 6% from respondent is Rm259.00.

5.0 DISCUSSION

In the discussion session, we have identified the idea for the "Final Year Project" and concluded that producing MULTI TENT H is a strategic idea. The combination of hammocks, mosquito nets, storage space and solar technology provides innovative ideas that can be the focus of our projects. We are excited to continue the plan and see how this product develops along the way and to see that our product is accepted by everyone who is interested in it.

6.0 CONCLUSION

The conclusion of the study shows that this product is very suitable for all users who like outdoor activities including DUP 1A, DUP 1B, DUP 2A, DUP 5A, and DUP 5B class students. With the advantages that our products have in terms of attractive appearance and design, our products can speed up the marketing process to all those who want the products we develop to be marketed in the industry. We hope that this product will be well received and can be enjoyed by more users in the market in the future.

7.0 REFERENCES

Adventure Tourism » Concept, Definition, Meaning, Types, Benefits. (n.d.). Tourism Beast. Retrieved December 12, 2023, from https://www.tourismbeast.com/adventure-tourism/

Ashwell, P. (2022, April 26). Where are Hammocks Originally from? A Brief History of Hammocks. Caribbean Hammocks. Retrieved December 12, 2023, from https://caribbeanhammocks.com/blogs/everything-you-want-to-know-about hammocks/where-are-hammocks-originally-from-a-brief-history-of-hammock

Dean, N. (2010, May 3). The Up and Down History of the Zipper – Smithsonian Libraries and Archives / Unbound. Smithsonian Libraries and Archives / Unbound. Retrieved December 12, 2023, from https://blog.library.si.edu/blog/2010/05/03/the-up-an-down-history-of-the-zipper/

Hawk, T. (2023, November 7). Hiking | Definition, Types, & Facts. Britannica. Retrieved December 12, 2023, from https://www.britannica.com/sports/hiking

History of LED Lighting. (n.d.). Shine Retrofits. Retrieved December 12, 2023, from https://www.shineretrofits.com/lighting-center/lighting-resources/history-of-led-lighting/

History of LED Lighting. (n.d.). Shine Retrofits. Retrieved December 12, 2023, from https://www.shineretrofits.com/lighting-center/lighting-resources/history-of-led-lighting/

The history of LED lighting - energy saving lighting. (n.d.). Energy Saving Lighting. Retrieved December 12, 2023, from https://www.energysavinglighting.org/the-history-of-led-lighting/

The History of the Beloved Hammock. (2019, August 19). Hammock Universe. Retrieved December 12, 2023, from https://www.hammockuniverse.com/blogs/hammock-blog/the-history-of-the-hammock-how-this-beloved-product-came-to-be

Keefe, B. (2018, August 13). Unpacking The History of the Backpack. Heddels. Retrieved December 12, 2023, from https://www.heddels.com/2018/08/unpacking-history-backpack/

Marshall, D. (2017, December 19). Why the zipper is one of history's greatest inventions. IMMAGO. Retrieved December 12, 2023, from https://immago.com/zipper-historys-greatest-inventions/

Van Oostendorp, F. (2020, March 18). The History of Hiking. Hiking is deeply intertwined in the… | by Frank van Oostendorp. Medium. Retrieved December 12, 2023, from https://medium.com/@f.vanoostendorp/the-history-of-hiking-6a3e79575bd5

Walters, K. (2020, October 16). A Very Brief History of Camping. Abbey Museum. Retrieved December 12, 2023, from https://abbeymuseum.com.au/a-very-brief-history-of-camping/

Where does the hammock come from? (n.d.). Hamacama. Retrieved December 12, 2023, from https://www.hamacama.com/en/hammock-guide/history-and-origin-of-the-hammock/

FUN TOURISM BOARD GAMES

Effa Izzati binti Mahmun, Nur Aini binti Abdullah, Farawahida binti Mohd Rozawi, Nureen Izzati binti Md Saupi, Uthman Affan bin Abd Radzak

Tourism and Hospitality Department
Polytechnic METrO Kuantan

effa@pmku.edu.my

ABSTRACT

1.0 INTRODUCTION

Problem Statements

·Limited educational resources in teaching and learning
·Lack of motivation among students
·Serious board games dominates games with a learning and teaching goals

Objective

·To create an educational tool for tourism education teaching and learning
·To develop an activity that can increase student motivation to study tourism
·To design a fun board game consistent with learning and teaching goals

2.0 LITERATURE REVIEW

A literature review is a search and evaluation of the available literature in your given subject or chosen topic area. It documents the state of the art with respect to the subject or topic you are writing about. A literature review shows your readers that you have an in-depth grasp of your subject and that you understand where your own research fits into and adds to an existing body of agreed knowledge. So, the researchers came up with a product named Fun Game (Game Board) that uses cardboard, we include subjects from semester 1. The subject is Tourism In Malaysia , Tourism Geography . All the subjects are suitable for students who study Tourism Management.

3.0 METHODOLOGY

A Research methodology is a method and technique of designing, collecting and analysis data in order to produce evidence that can support a study. Methodology describes how a problem is studied and a certain method and technique is used. The purpose of the methodology is to help understand more broadly or in more detail about the application of the method by making a description of the research process. Methodology does not define specific methods, even though much attention is given to the nature and kinds of processes to be followed in a particular procedure or to attain an objective. The methodology may include publication research, surveys and other research technique.

4.0 Research Design

Research design is an action plan that shows in detail how a study is conducted (Sabiha, 2006). It also serves as a guide in helping researchers in the process of collecting, analyzing and interpreting the results of the research conducted. The following are research methods in education.

This study is a quantitative study. The information required uses a quantitative approach that requires researchers to collect data using survey research methods. A questionnaire was used by the researcher to obtain data from the respondents. This study is used by researchers to obtain data from respondents. The results of this study will help researchers identify the relationship between the independent variable and the dependent variable.

Sampling and Population
Sampling Design

Study Population and Sample

Population refers to the entire population that is to be studied. While the sample refers to a group of individuals selected from the population to be studied. The study respondents consisted of students in the Diploma in Tourism Management at Kuantan Metro Polytechnic. The study sample taken was 100 people using a simple random sampling method according to the sampling table by Krejcie R.V and Morgan (1979).

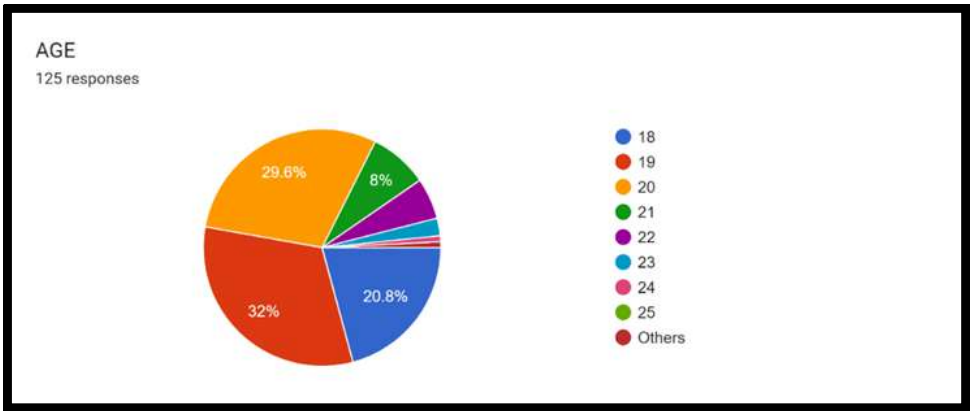
Sampling is important to use in all studies because of time, expense, human resource and various other constraints to support the collection of all data from a broad and large population. In fact, using sampling will help in minimizing errors in actual data collection and increase efficiency in analyzing data. So, this will produce a reliable study.

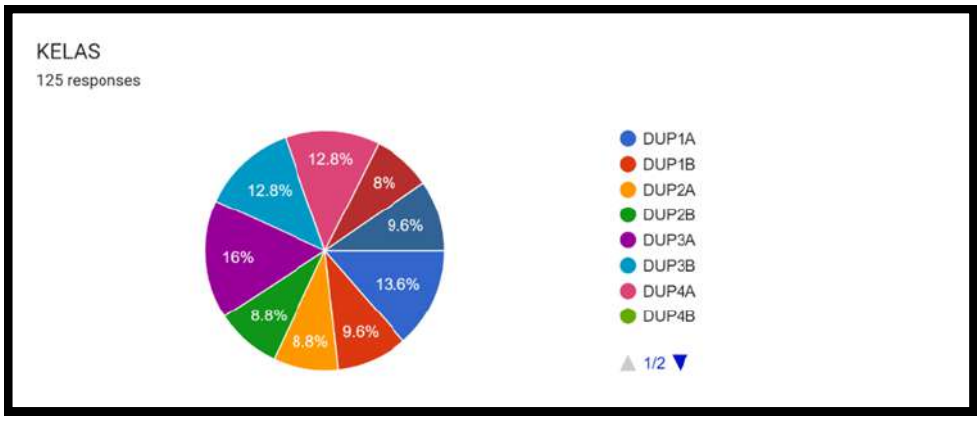
5.0 FINDING (Data analysis)

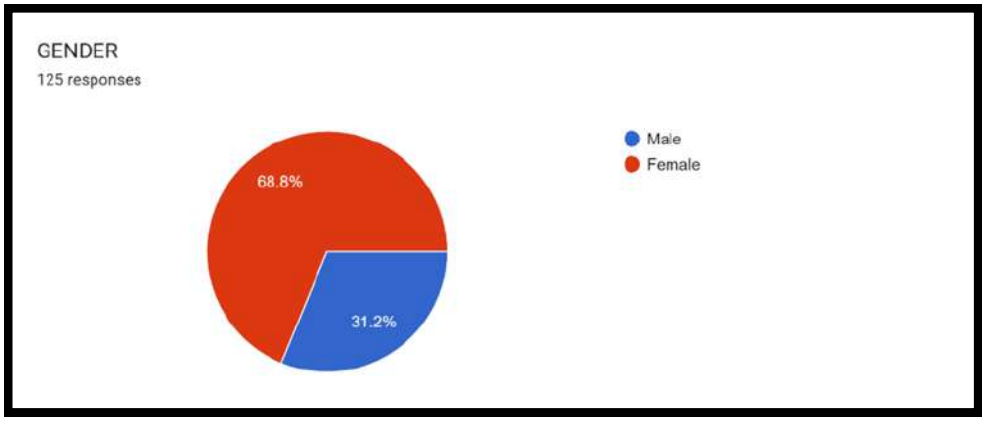
This product has a strong and good quality. According to our research, this product is very popular with people under the age of 24. In addition, this product uses materials such as boxes and cards of different materials. The purpose of our product is also to make it easier for students to travel during study time and also the product we are more about education and fun. During the showcase we not only introduce the innovation of our product but we also promote our product widely. In conclusion this product also has benefits for tourism students a lot. In my opinion, this product will also have a big and positive impact on the tourism industry. This is because it can make it easier for respondents to understand the work. and journals.

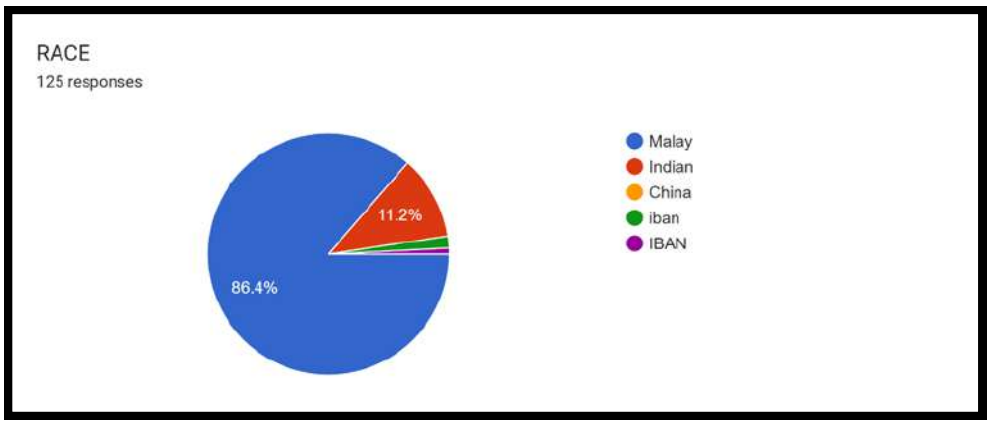
Section A : Demographic Profile

This section is about 126 respondent which is from DUP students in PMKu which is from semester 1 until semester 5. The respondent that have answer this questionnaire is from 18 years old to 25 years old. They were from class DUP1B to DUP5B. In about 86 responses from female students and 39 responses from male students. They all are made up of malays, Ibans and Indians.

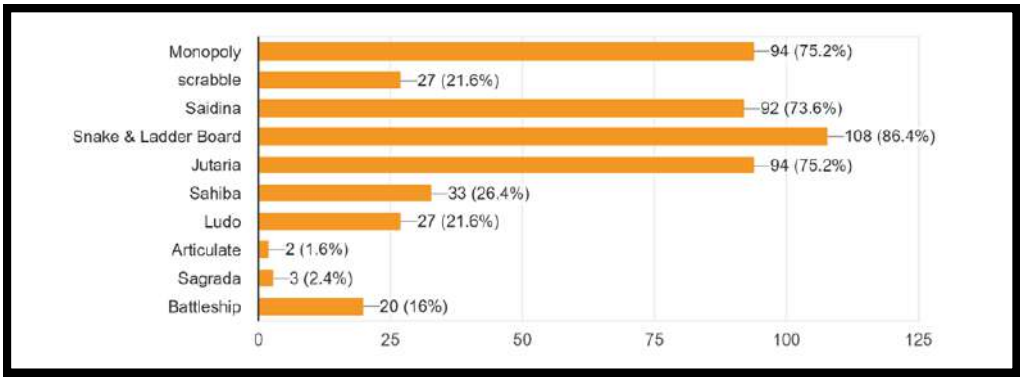




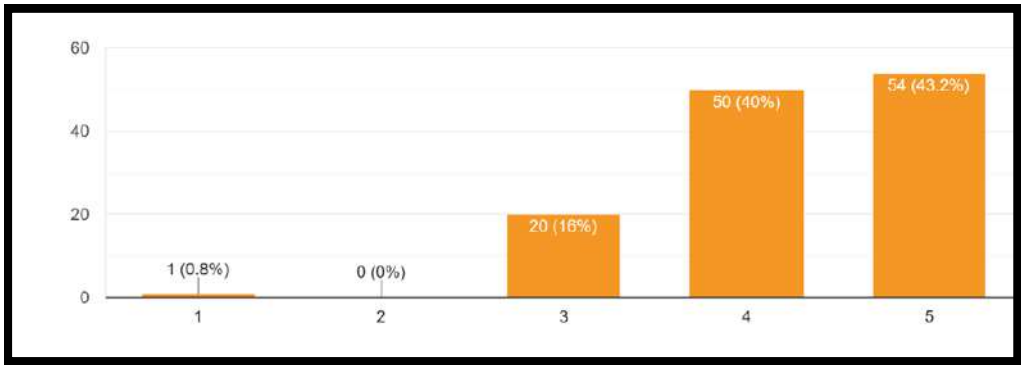




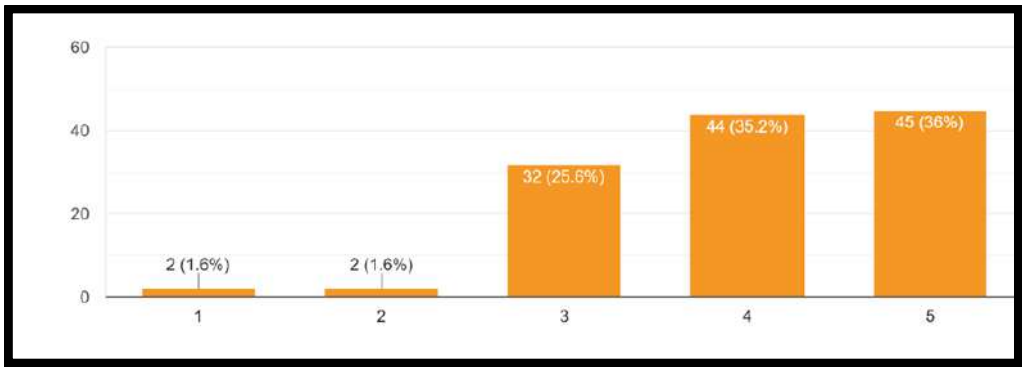
Section B : Tourism Educational Tools



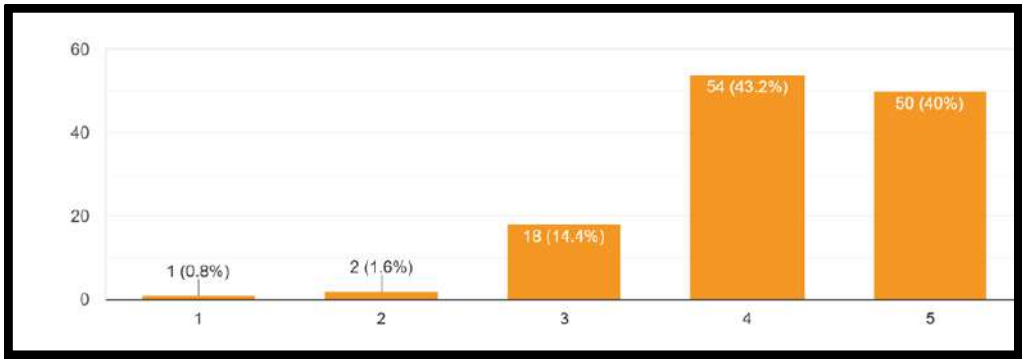
Based on this graph, the highest percentage that students in PMKu interest to choose board games is Snake and Ladder Board which is 86.4% which represents 108 responded. While for the second highest is is Monopoly which is 75.2% which represents 94 responded.



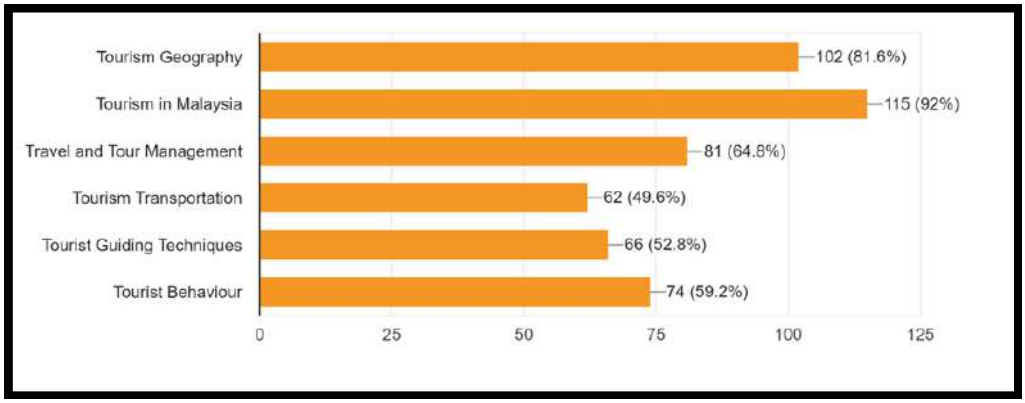
Based on this graph, it show that percentage of students PMKu agreed that board games is the one of best teaching tools in the classroom. The percentage that strongly agree which is 43.2% which represents 54 responded. While percentage that choose neutral is 16% which represents 20 responded and last percentage that choose strongly disagree is 8% which represents 1 responded.



Based on this graph, it show that percentage of student agree that board game are very suitable to be used as a teaching and learning tool for tourism. The highest percentage is choose strongly agree which is 36% which represents 45 responded. The middle percentage choose is Neutral which is 25.6%which represents 32 responded. Last percentage is choose strongly disagree which is 1.6% which represents 2 responded.

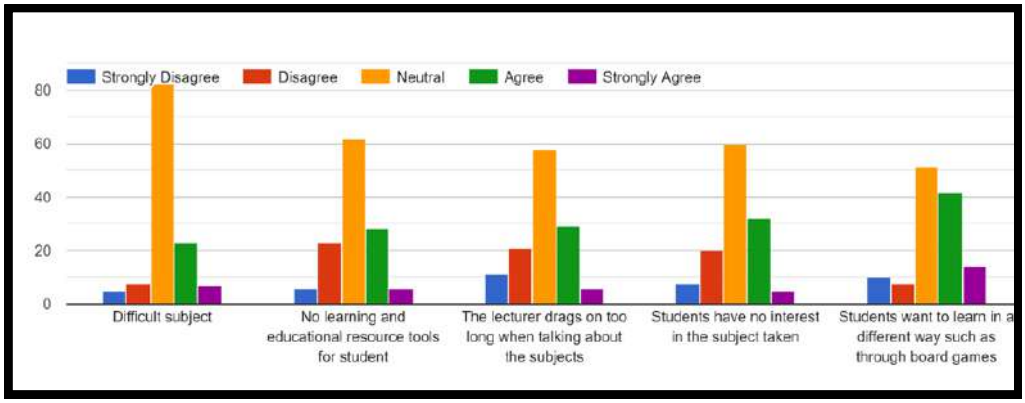


Based on this graph, it show that the percentage of students PMKu has agreed that board game can helps lecturers increase student interaction, making teaching and learning more efficient. The highest percentage that students have choose is strongly agree which is 40% which represents 50 responded. Next is Neutral which is 14.4% which represents 18 responded. The lowest percentage is strongly disagree which is 0.8% which represents 1 responded.

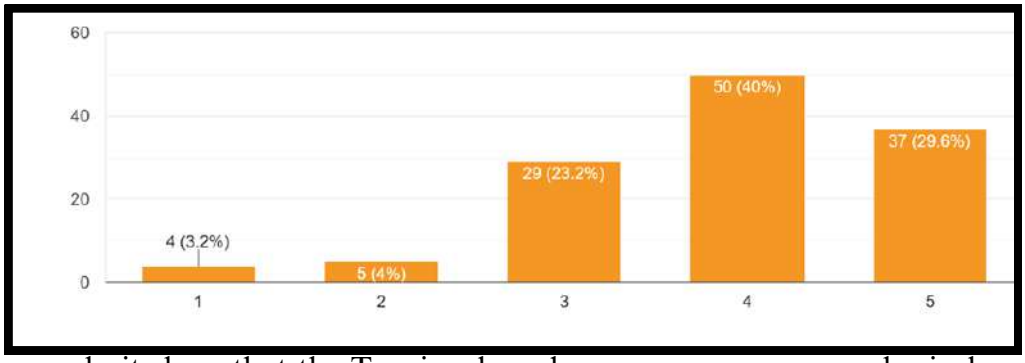


Based on this graph, it show that courses in the field of tourism that are suitable and likable to be developed as a board game. The highest subject course that student have choose is Tourism in Malaysia which is 92% which represents 115 respondent. The second highest is Tourism Geography which is 81.6 %which represents 102 responded.

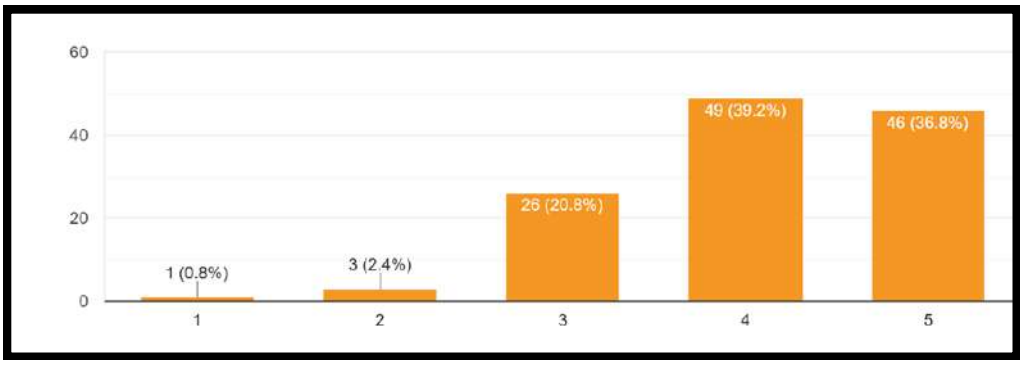
Section C : Motivation



Based on this graph, it show the reasons for why lack of motivation to study tourism among students. The first reason is because of the difficult subject. The highest level of agreement for the difficult subject is Neutral which is 81 responses. Next reason is no learning and educational resources tools for student. The highest level of agreement for these reasons is Neutral which is 62 responses. Then, the lecturer drags on too long when talking about the subject. For this level of agreement, student have chosen Neutral as the highest level which is 58 responses. After that is Students have no interest in the subject taken. This reason has majority students choose Neutral as the highest level which is 60 responses. The last reason is students want to learn in a different way such as through board games. The highest level of agreement is also Neutral which is 51 responses.

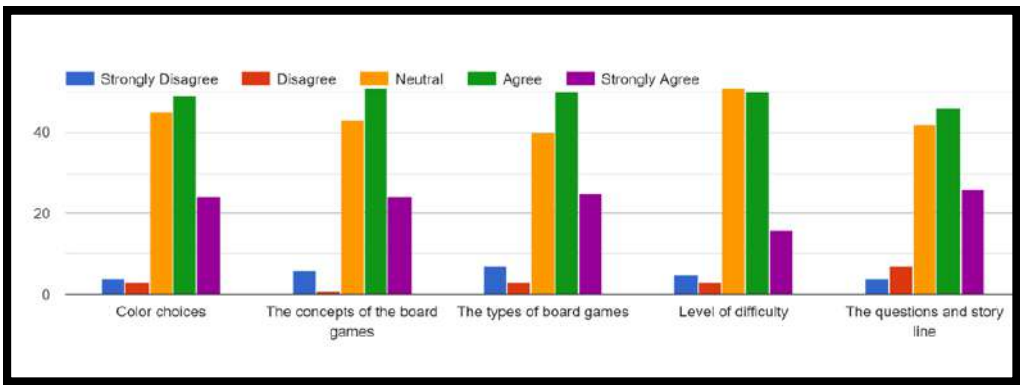


Based on this graph, it show that the Tourism board games can overcome physical, mental or other personal issues. The highest percentage of students PMKu choose is agree which 40% which represents 50 responded. The Neutral is 23.2% which represents 29 responded. The lowest percentage is 3.2% which represents 4 responded.



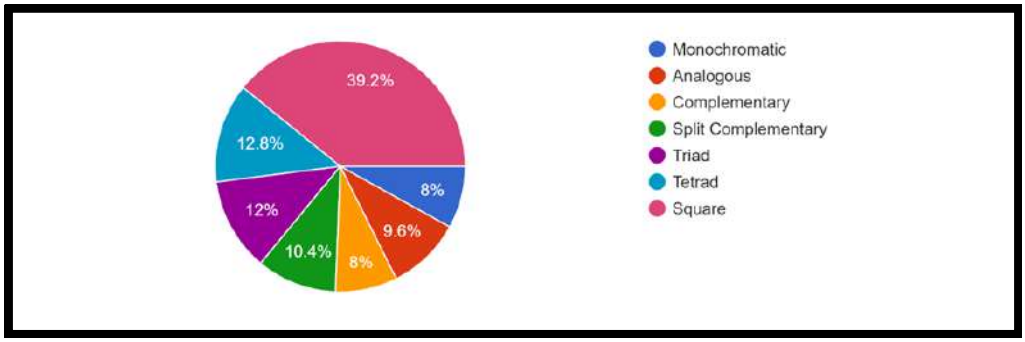
Based on this graph, it show that the Tourism board games can help to increase motivation and interest in certain tourism subjects. The highest percentage of students PMKu choose is agree which 39.2% which represents 46 responded. The Neutral is 20.8% which represents 26 responded. The lowest percentage is 0.8% which represents 1 responded.

Section D : Fun Tourism Board Games

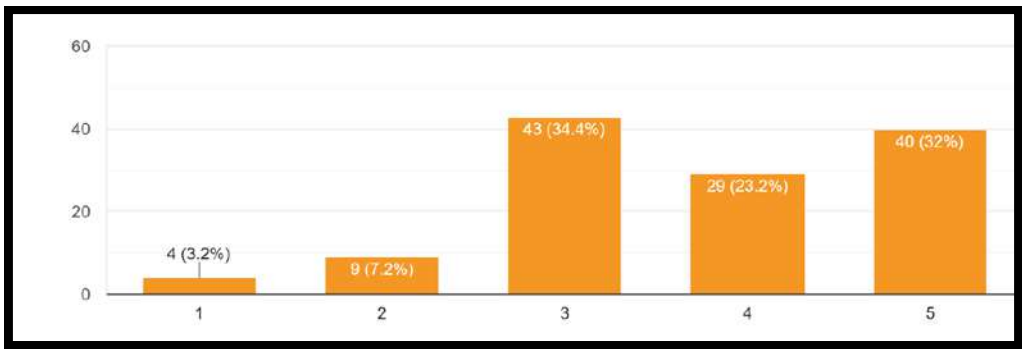


Based on this graph, it show that the factors that can make the board game interesting and fun. Indicate your level of agreement. For the colour choices, the highest level of agreement that students have choose is agree which is 49 responses. Next, the concepts of the board games, the highest level of agreement that students have choose is agree which is 51 responses. For the type of board game, that is also students choose agree as a highest level which is 25 response. After that is level of difficulty, which is the highest level that students have choose is neutral which is 52 response. Lastly, The highest level for the question and story line is agree which is 46 response.

Based on this graph, it show that the factors that can make the board game interesting and fun. Indicate your level of agreement. For the colour choices, the highest level of agreement that students have choose is agree which is 49 responses. Next, the concepts of the board games, the highest level of agreement that students have choose is agree which is 51 responses. For the type of board game, that is also students choose agree as a highest level which is 25 response. After that is level of difficulty, which is the highest level that students have choose is neutral which is 52 response. Lastly, The highest level for the question and story line is agree which is 46 response.



Based on this graph, it show that the preferred colour scheme for the development of fun tourism board games that student have choose. The highest colour that students have choose is square which is 39.2 % which represents 49 responded. The lowest colour that has been choose is complementary and monochromatic which is 8% which represents 10 responded for each.



Based on this graph, it show that students will easily get bored if the question on the board game is too difficult. Majority students choose neutral which is 34.4% which represents 43 responded. The percentage of strongly agree is 32% which represents 40 responses.

6.0 DISCUSSION

After we get a response from the DUP students who have answered the questions from the questionnaire, we will start designing a board game andput a suitable subject to be included in the board game based on the highest response for the questions that have been answered. Next we will prepare it as a whole which includes color, design, subject and so on. After all done, we will show off our design fun board game to the show case.

7.0 CONCLUSION

This product has a strong and good quality. According to our research, this product is very popular with people under the age of 24. In addition, this product uses materials such as boxes and cards of different materials. The purpose of our product is also to make it easier for students to travel during study time and also the product we are more about education and fun. During the showcase we not only introduce the innovation of our product but we also promote our product widely. In conclusion this product also has benefits for tourism students a lot. In my opinion, this product will also have a big and positive impact on the tourism industry. This is because it can make it easier for respondents to understand the work.

8.0 REFERENCES

Bashar Aref Alhaj Mohammad, & Hamam Talal Alsaleh. (2013). Motivation of Students to Study Tourism Hospitality. International Journal of Asia Social Science, 1637 - 1647.

Bayeck, R. Y. (2020). Examining Board Gameplay and Learning: A Multidisciplinary Review of Recent Research. Journal of Sage Publication, Simulation and Gaming, 1 - 21.

Karbownik, M. S., Wiktorowska-Owczarek, A., Kowalczyk, E., Kwarta, P., Mokros, L., Pietras, T. (2016). Board Game Versus Lecture-Based Seminar in the Teaching of Pharmacology of Antimicrobial Drug - A Random Controlled Trial. FEMS Microbiology Letters, 363 (7).

Madrid, R. B. (2023, May 5). Teaching with Limited Resources: Challenges and Potential Benefit. Retrieved from Online TEFLCourses-Accredited TEFL Certification Program: https://tefltrainer.com/general/teaching-limited-resources-challenges-potential-benefits/

Mehmet Oguzhan Ilban, & Mehmet Kash. (2015). The Impat of Tourism Education Problems on the Student's Affective Commitment. European Journal of Social Sciences, 390 - 403.

Oxford Languages. (2013). Paperback Oxford English Dictionary, 7th Edition. Oxford, England: Oxford University Press.

Radzi, S. H. (2021). Effects of Simulation Board Game in Enhancing Cognition and Knowledge Retention in Learning Shipping Management among
Students in Two Higher Education Institutions. Tanjung Malim, Perak: Sultan Idris Education University.

United Nation World Tourism Organization. (2023, September 1). Glossary of Tourism Terms. Retrieved from https://www.unwto.org/:
https://www.unwto.org/glossary-tourism-terms
Wonica, P. (2017). Learning to Evaluate Analog Games for Education. Analog Game Studies, Vol. 2, 61 - 67.

Woods, M., & Rosenberg, M. E. (2016, March 7). Educational Tools: Thinking Outside the Box. Retrieved from National Library of Medicine:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4791817/
Yasin Boylu. (2008). Problems Related to Approach to Tourism Education. Journal of Management and Economic Research, 30 - 37.

Zainab Mohd Zain, Noraini Ismail, Khairunnisa Abd Samad, Syahrina Hayati Md Jani, & Shareenie Shera Abdul Hamid. (2022). Applying
Edutainment Concept among Tourism Management Students in Learning English Language. Internationa Journal of Academic Research in
Business & Social Sciences, 267 - 275.

THE READINESS OF RAFTING OPERATORS TOWARDS ADVENTURE TOURISM SAFETY PROCEDURE DURING PENDAMIC : A CASE STUDY

Mohd Rezal bin Miskam

Tourism and Hospitality Department
Polytechnic METrO Kuantan

rezal@pmku.edu.my

ABSTRACT

Safety procedure is very important in doing tourism activity especially when it involved adventure setting. Nowadays, with the cases of COVID – 19 still arising, the concern over safety is high. People are keen to travel after a long restriction because of the pandemic. It is a responsibility to the tourism operator to fulfilled their wants and delivery excellent service quality without compromising safety aspect trough out the whole process. Is tourism operator ready in term of safety procedure in their place? Therefore, this is in line with the aim of this research which to analysed operator readiness towards adventure safety procedure during COVID -19. Rafting can be considered as hard adventure tourism activities in natural setting. It required mental and physical strength. Three objectives have been out lined for this research. First, to identified the factor of safety procedure for adventure activities that has been affected the rafting activities during COVID -19. Second, to examine the factors of rafting operator readiness towards safety procedure during COVID-19. Third, to understand the challenges of adventure tourism operator in providing safety procedure during COVID -19. Qualitative approach was chosen for these research. Data was gathered through researcher observation and interview. Five rafting operators were interviewed using in- depth semi structure question. Data collection then was analyzed using thematic analysis. The finding shows that rafting operator in Gopeng, Perak are ready to serve the tourist . They have prepared what it takes to deliver safe experience to their tourist.

Keyword : Adventure tourism, safety procedure, operator readiness, Covid -19

1.0 INTRODUCTION

The COVID-19 pandemic has had a particularly severe impact on the tourism industry. The statistics are alarming after a few years of the outbreak. According to the United Nations World Tourism Organization, tourism destinations received one billion fewer foreign visitors in 2020 than in 2019. A sharp drop in international travel resulted in a loss of almost USD 1.3 trillion in export income, more than 11 times the loss seen during the previous economic downturn in 2009. A total of 100 to 120 million tourism jobs were jeopardised, the majority of which were in small and medium-sized businesses. The COVID-19 epidemic has caused uncertainty and spillover effects in practically all industries, and the lingering crisis in worldwide tourism is a major concern. The tourism industry contributes to the country's economic growth, accounting for 10.4% of GDP and 10% of global employment (Joppe, 2020).

Adventure tourism is a popular form of tourism that attracts a huge number of visitors. There are destinations that meet the needs of adventure tourists while also being popular for leisure and/or relaxation. Adventure tourism has grown in popularity in today's worlds, particularly among those affluent travellers seeking an adventure rather than simply sitting and relaxing in a destination.
The phrase "adventure" refers to an activity that creates a sense of personal thrill. Adventure tourism is a fast expanding tourism offering that encompasses activities like hiking, camping, river rafting, backcountry bicycling, and many others.

Due to COVID-19, most of the countries implemented travel restriction in order to control the spreading of the virus. Border closure implemented by most of the countries had badly impact tourism operator. People will always be wanted to travel once the pandemic is over. Once the economic is open to operate as usual, people who unable to travel for quite some time will take this opportunity to start the gear. Today’s travel main concern is about safety procedure or so call as new norm of traveling to ensure they have safe travel experience. All sectors not only tourism is discussing this topic. Adventure tourism operator such as rafting operator need to strengthen the strategy on safety precaution measure to ensure the safety and health of the tourist is being taken care of. This is very important to increased tourist trust and confident to take part in tourism activities.

Health, safety, and trust are crucial in this new century, according to the World Travel and Tourism Council (WTTC) Report 2020. In the short to medium term, consumer behaviour will be guided by personal experiences, fears of being stuck in another nation, and concerns about distancing.

Social distancing measures and strengthened safety protocols are two of the most typical precautions that all adventure travelers want from their final destination. Besides that, the survey indicated that adventure travellers in the United States are more concerned about their safety when visiting a popular or crowded metropolis than when visiting a small town, backcountry, or national park. This is an excellent opportunity for adventure activities to take place in order to fully satisfy their desires.

This is in line with the aim of this research which to analyzed operator readiness towards adventure safety procedure during COVID- 19. Gopeng, Perak is the selected area to conduct the research as this area is well known for rafting activity not only in Malaysia but also internationally.

2.0 LITERATURE REVIEW

This chapter describes the literature review in the context of operator readiness and try to elaborate on adventure tourism in the context of defining adventure tourism in a difference perspective. For the purpose of this research adventure tourism will refer to rafting activity. During COVID-19, people around the globe are concern over health and safety. Rafting activity is one of activities under the umbrella of adventure tourism is now getting popular among adventure traveller. As part of being rough and required mental physical strength, it's considered as an activity that could lessen the risk of getting affected.

Tourism

The first definition of tourism is made by Guyer –Feuler in 1905. Guyer and Feuler defined Tourism as "A phenomenon unique to modern time which is dependent on the people's increasing need for a change and relaxing, the wish of recognizing the beauties of nature and art and the belief that nature gives happiness to human beings and which helps nations and communities' approaching to each other thanks to the developments in commerce and industry and the communication and transportation tools' becoming excellent". In 1976, the Tourism Society of England defined Tourism as "Tourism is the temporary, short-term movement of people to destination outside the places where they normally live and work and their activities during the stay at each destination. It includes movements for all purposes". While And A.K, Bhatia defined Tourism as :"Tourism does not exist alone. It consists of certain components, three of which may be considered as basic. These three basic Component tourism are; Transport, Locale, and Accommodation". In order to prevent the disaccords to define "Tourism", UNWTO defined it as indicated as "Tourism comprises the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes."

Tourism is not the same as travel. There must be a displacement for tourism to occur: an individual must travel, utilizing any mode of transportation available. In order to classify a trip as tourism-related, three criteria are applied concurrently. It is necessary that the displacement is such that;

- It entails a departure from one's normal surroundings
- Type of purpose: the travel must be for a reason other than being remunerated from within the destination: the former boundaries, which limited tourism to recreation and visiting family and friends, have recently been widened to accommodate a wide range of purposes;
- There is no indication of a minimum or maximum duration. With or without an overnight stay, tourism displacement can occur

Adventure Tourism

Adventure tourism, according to the World Travel Trade Association (2020), consists of three essential components that make up the entire experience: natural environment, physical activity, and culture, which are then used by the business community to determine whether a specific product can be classified as adventure travel. Adventure travel may include any of the following 34 activities: joining an archeological expedition; attending local festival/fairs; backpacking; bird watching; camping, caving; climbing; taking a cruise; participating in cultural, educational or environmentally sustainable activities; fishing/fly-fishing; getting to know the locals; hiking; horseback riding; hunting, kayaking; whitewater rafting; learning a new language; orienteering; joining a research expedition or safari; sailing, scuba diving; snorkeling; skiing and snowboarding; surfing; trekking; walking; visiting friends and family; visiting a historical site; and participating in a volunteer tourism program (ATTA,2016)

These elements come together to provide unique experiences for travellers who are motivated by goals like transformation, challenge, and wellbeing. In this case, the criteria only required two of the three factors to be considered while travelling, but trips that include all three parts tend to provide tourists with the best experience. Adventure tourism can be domestic or international, and it must include a stay of at least one night but not more than a year. (UNWTO, 2014).

Adventure tourism, according to Muller and Cleaver (2000), is a tourist activity that provides "high levels of sensory stimulation, which is typically achieved by incorporating physically challenging experiential components into the tourist experience". Adventure activities range from soft to hard, based on the balance of safety and risk, challenge, novelty, and skill required (Shephard and Evans, 2007). Hard adventures, on the other hand, include significant degrees of risk, advanced abilities, and intense dedication while soft adventures are low-risk activities that require beginner skills (Hill, 1995). Hard adventures require real skills in dangerous situations, where participants usually join together because of an intense interest in some activity outside the confines of commercial outfitting. Hard adventure includes activities such as rafting, rock climbing, skiing, and caving. Besides that, soft adventure tourism skill and expertise is purchased along with the use of specialized equipment required for engaging in the chosen activity. Soft adventure activities include camping, fishing, canoeing and bird watching. Soft adventure activities means "generally led, only involving low/perceived risk, and capable of being carried out by novices" (Gross & Sand, 2019). Most activities, however, can be done in either a'soft' (e.g., camping in a fully equipped mobile home at a caravan park in nice weather) or a 'hard' (e.g., camping in a tent with the bare essentials in a high-altitude mountain environment in bad weather).

Adventure travel is a type of recreational activity that takes place in a unusual, exotic, remote, or wilderness location. It's usually linked to the participant engaging in a lot of physical exercise, most of which is done outside. Adventure tourists expect to be individually tested and exposed to varying levels of risk, thrill, and tranquillity. They are, in particular, explorers of untouched, exotic corners of the globe who are also looking for personal challenges (Millington et al, 2001).

Sung et al (1997) define adventure tourism as "adventure tourism is the sum of the phenomena and relationships arising from the interactions of adventure touristic activities with the natural environment away from the participant's usual place of residence area and containing elements of risk in which the outcome is influenced by the participation, setting, and the organizer of the tourist's experience."

Cheng et al. (2018) identify a progression of adventure tourism definitions from being predominantly focused on physical features, such as wilderness and physical activity, towards being increasingly psychological-centred, incorporating elements such as excitement and fear

Those seeking adrenaline and thrills will enjoy adventure tourism. It entails taking a break from one's normal routine and immersing oneself in something new. Whether that is a new culture and its traditions, or exposure to recreation that the destination is known for. An adventure incorporates escapism and a challenge, often straining comfort zones, as well as a reward—typically inherent in nature—for successfully accomplishing the obstacle.

White water rafting is one of the example of adventure tourism. Whitewater rafting entails steering a boat through a series of rapids while navigating a river. Rubber rafts and catarafts, wooden or metal dories, and other types of boats are among the available options. Snouts, J-rigs, and boloney boats are all rubber pontoon boats. Canoes, kayaks, and other watercraft are available. Rafting adventures are frequently accompanied by inflatable kayaks or "duckies". The length of rafts, catarafts, and dories varies from 12 to 18 feet. Paddle or oar-powered boats are the most common. Pontoon boats are available in a variety of sizes, ranging from 22 to 37 feet and are usually powered by a motor.

There are two categories of whitewater rafters: river guides and their passengers. The river guides are in charge of steering the boat downriver. River guides engage in extreme adventure or "edgework" by taking command and handling the dangers posed by the rapids.

Adventure tourism safety

Swarbrooke et al (2003) defined adventure tourism as an outdoor recreational activity that takes place in a unique, exotic, isolated, or wilderness location and is associated with either low or high levels of activity.

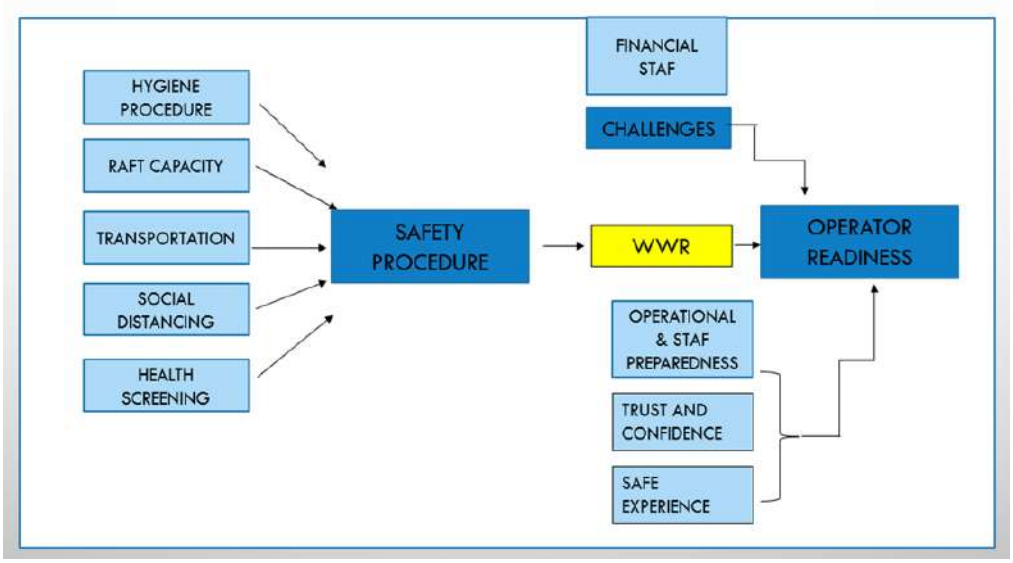
In addition, Virden (2006) stated that adventure tourism means adventure recreation that often happens during tourism outing or trips such as skiing, white water rafting, kayaking, mountaineering and rock climbing. The participant perceives these activities as containing elements of danger and adventure, as well as opportunities for risk taking, challenge, sensation seeking, achievement, competence, and skill testing. This definition reveals that adventurers are exposed to a number of possible risk factors, including unfamiliar location and activities, remote locations, risk taking, and challenge (Bentley et al,2007).

Any vacation or travel excursion requires a high level of safety. The standard or recommendations help adventure tourism operators improve their safety performance, fulfil participant and staff safety expectations, and comply with applicable regulatory requirements. COVID-19 has prioritized safety procedures when participating in adventure activities.

Operator Readiness

'Operator' includes a person or other legal entity that provides adventure activities as a contractor to sports or recreation clubs, and/or to associations representing sports or recreation clubs, and/or to registered schools or tertiary education providers. 'Operator' also includes a 'principal' as a person or other legal entity that engages any other person or other legal entity as a contractor to do any work for gain or reward (ATTA, 2017). Tourism operator readiness in providing a good quality of service to tourist is important especially in the era of pandemic whereby health and safety are the main priority aspects when indulging in any tourism activity. UNWTO (2020) have come out with a global protocol in order to tourism operator to be back in operation.

This guideline later being adapt by World Travel and Tourism Council (WTTC, 2020) that focus on adventure tourism. Three component that been highlighted are which include operational and staff preparedness, delivering safe experience and ways to gain tourist trust and confidence during the pandemic.



Conceptual Framework

The aim of this research is to analyzed operator readiness towards safety procedure during COVID – 19. Rafting activity in Gopeng, Perak has been chosen as a case study because Gopeng is one of the best location for this activity. Researcher will look into five aspect of safety procedure that has been identified as dominant during pandemic which includes hygiene procedure, raft capacity, transportation, social distancing and health screening.

A part from that, operator readiness will be look into there aspect which are operational and staff preparedness, trust and confident and delivering safe experience to the tourist. On top of that, researcher would also to understand the challenges that operator faced during pandemic in providing safety procedure.

Operator Readiness Assessment

The data for this research were collected during interviewed session with all the interviewees. They have to rate their level of readiness towards the safety procedure based on the scale given. Researcher adapted Tri – Ethnic Centre for Prevention Research (2006), Fort Berthold Comprehensive Regional Transportation Plan which outline 9 level of communityreadiness which starts with no awareness, denial, vague awareness, Pre-planning, Preparation, Initiation, Stabilization, Confirmation/expansion and the last one is professionalization.

Researcher adapted community readiness model to be apply in measuring operator readiness . Then indicator for each level was developed as a guideline to rate how ready operator is in implementing safety procedure to the tourist. The table can be seen as shown in table below.

Adapted concept of readiness from Fort Berthold Conprehensive Regional Trasportation Plan

Stages	Description
1. No awareness	Rafting operator have little or no recognition/ effort in preparing SOP for rafting activities
2.Denial	Rafting Operator have no recognition over the need of preparing SOP for rafting activities
3. Vague Awareness	There is a recognition about SOP procedure but operator have little knowledge or specific knowledge over the issue
4. Pre-planning	The operator begin to recognize the need of strengthening the SOP and they may be a real action planed
5. Preparation	The operator have enough information about the need to enforce SOP and there are planning and focussing on practical aspect.
6. Initiation	Operator starting to implement new SOP and consider as on trial.
7. Stabilization	The SOP implemented by operator with the support of staff.
8. Confirmation	Operator received good support from experiences staff and received positive feedback from tourist.
9. Professionalization	Operator have excellent knowledge and understanding towards the SOP. Well train staff in making sure the SOP being enforce correctly.

Indicator of operator readiness towards safety procedure for rafting activity

3.0 METHODOLOGY

Research Design

Denzin and Lincoln (2000) claim that interpretative and naturalistic approach is used in qualitative research: "Qualitative researchers investigate things in their natural environments, aiming to understand or interpret phenomena in terms of the meanings people assign to them. It is also a type of social science research that collects and works with non-numerical data that seeks to interpret meaning from these data that help us to understand social life through the study of targeted populations or places (Punch, 2013). Therefore, this research used qualitative approach in order to identify tourism operator readiness in providing rafting safety procedure in Gopeng, Perak.

All the data were analyzed using content analysis. It's a technique for analyzing written, spoken, or visual communication messages. According to Leedy and Ormrod (2001) content analysis can be define as "a detailed and systematic examination of the contents of a particular body of materials for the purpose of identifying patterns, themes, or biases". All information will be classified according to the sub topic or theme based on the interview session done with the rafting operator in Gopeng, Perak.

Type of Data Collection

Data collection is a method of gathering reliable information from a variety of sources in order to provide insights and answers, such as when testing a hypothesis or analyzing a result. The primary goal of data collecting is to collect high-quality data that can be examined and used to support or offer evidence for decisions. Quantitative and qualitative data are the two forms of information gathered. Numbers and measurements, such as percentages and statistics, are used in quantitative data collection. Descriptions, such as descriptions and opinions, are collected as qualitative data. Data that has been collected from first hand experience is known as primary data which mean the data has not been publish and is more reliable, authentic and objective. Primary data has not been hanged or altered by human being; therefore it's validity is greater than secondary data (Kabir, 2016). Meanwhile, secondary data are existing data or information collected for a purpose other than that of researcher (Finn et al, 2000). Therefore, this research used both primary and secondary data for data collection.

Primary Data

Primary data collected by using three major technique of data collection. These were in dept semi structure interview, field observation and document analysis. While each of these techniques are discusses in detail in next section, document analysis also served as a source of secondary data.

Secondary Data

In order to address the research question, the research required secondary data collection. The main purpose was to understand the background of key issue the research is try to examine. According to Kabir (2016), data collected from a source that has already been published in any form is call secondary data. The review of literature in any research is based on secondary data.

In – Dept Semi-Structured Interview

Semi - structured interview are characterized by topic guides containing major question that are used in the same way in every interview, although the sequence of the question might vary as well as the level of probing for information by the interviewer. An in-depth interview allows to acquire insight into the interviewee's world and gain a better understanding of the nature or purpose of the interviewee's daily experiences. Semi-structured interviewing is suitable when the researcher already has some graps of what is happening within the sample in relation to the research topic (Kabir, 2016). In addition, despite having specific questions, semi-structure interviews allow more probing to seek clarification and elaboration of the participant's own idea, asapiration, and feeling while generating details, rich content, qualitative data (Long,2007). This flexibility allowed an extention of the interviewa into other issues that were not originally included in the interview checklist, but nonetheless helped towards addressing the study research question.

Profile of Interviewees

Interview session will be done to about fives rafting operators in Gopeng. Due to COVID – 19 not all rafting operator can sustain the business, therefore the possibility of getting less respondent to participate in the interview is higher. Some of the operators have shift to others economic activity such as agriculture to get income. Semi structured question will be use as a guide during the interview session. Virtual and phone interview were used as a tool in collecting a data. The respondents are the operators and staffs who indulged in rafting activities in Gopeng, Perak. All fives operators are bumiputera and have experience more that five years in the business. The list of the interviewees were as below;

NO	List of Interviewees
1	Radak Adventures
2	Gopeng Glamping Park (2 interviewees)
3	Natasha Riverside Resort
4	Natasha Caravan Park

List of interviewees

Structure of the Interview

All interviews were conducted by the researcher to get first hand information and to ease the whole process. Those who participate in the interviews were encourage to give expression to their views, thought and intertions. All interviews were conducted in malay which all interviews were familiar with and in which the researcher is fluent.

The interview session conducted by the researcher in an informal discussion with the respondents. These enable the respondents to be at ease which could enhanced a sense of likeness, enabling a sincere discussion of their experience. It includes stories, methaphors and expalanation, allowing other respondents to agree, disagree or tell their stories in relation to the quiding question. Each interviews was conduct at a mutually convenient time and place and covered questions about the aspect of operator readiness towards safety procedure as well as the challenge faced during pandemic. The interviews session were done through google meet platform due the current situation which the cases of Covid 19 is still in the rise.

Observation

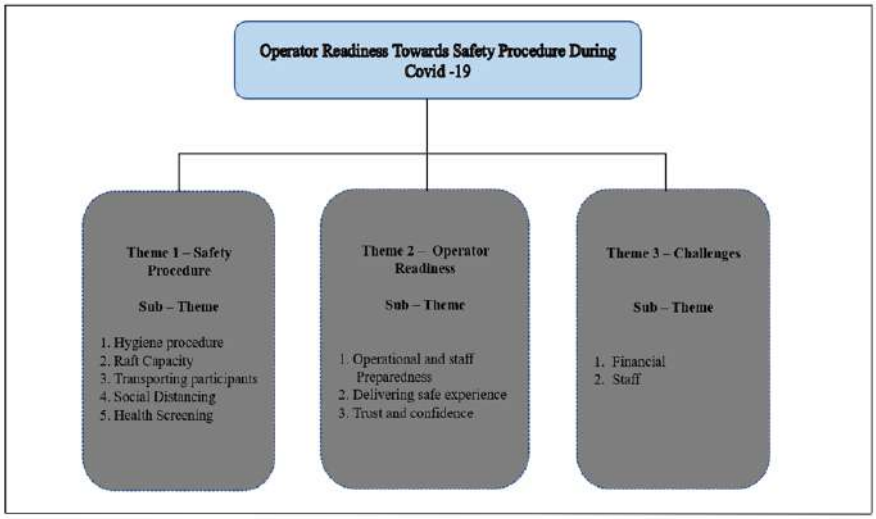
Observation is used for data collection on non – verbal behaviour and only use for understanding dynamic process in natural setting. Urquhart (2015) states that observation is a useful complementary technique for research. This method is taken as an alternative for research to self – assess the actual phenomena occurring in the research area. Though, this technique, researcher become a part of the group they are studying to collect data and understand a social phenomenon or problem. Crossman (2017) state that the goal of participant observation is to gain an in -depth understanding and familiarity with a particular group of individuals, thiers values, beliefs, and a way of life. It is an effective method in this study as the researcher able to elaborate all the information obtained based on the understanding of previous literature studies. In short, it is a method that provides opportunities for researcher to combine knowledge based on previous research knowledge with the research area.

During the fieldwork study, the researcher observed how the operator implement the safety procedure throughout the rafting activities which include before, during and after the activities. The safety procedure will be observed to see how well operators apply or align with the procedure in order to boost tourist confidence and trust. In addition, the researcher also made a direct observation by participating in several activities organized by the operator. Therefore, researcher has made a descriptive observation that involve the overall observation of what actually happened in the study area.

4.0 FINDING

As mentioned in previous chapter, this research using qualitative method. Sets of interviews questions that cover all the objectives that wanted to be achieved were prepared. During the sessions, the interviews were recorded with permission of the participants throughout the session. The interviews lasted about 30 to 50 minutes. At the same times, researcher also jotted down notes in order to assist in the accuracy and transcription. Then the data obtained were transcript and after that using code to generate themes. The process of analysis was conducted manually without using any softwear.

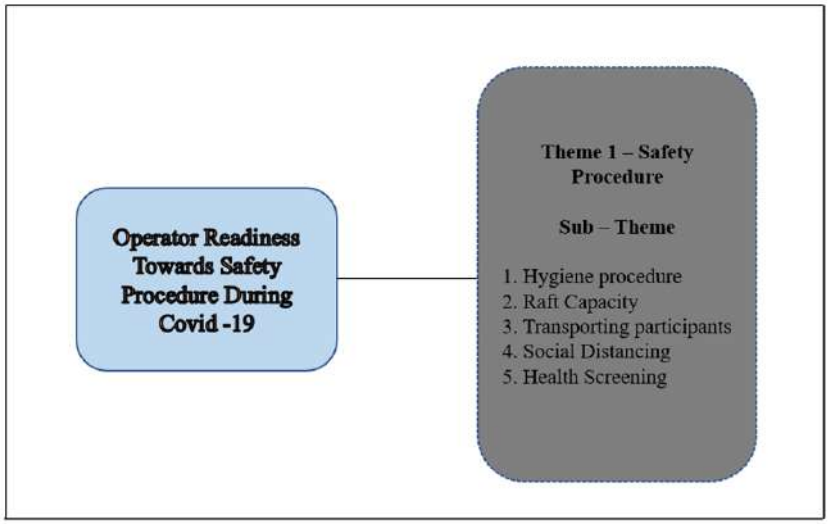
Research Finding



Theme of operator readiness toward safety procedure during Covid - 19

There are three (3) theme that has been identified which are safety procedure, operator readiness and the challenge that operator faced during the pandemic. Each theme has sub theme to support the main theme in order to strengthen the finding. These three themes align to answer all the research question.

Theme 1 : Safety Procedure



Safety procedure are very important element in adventure activity. Whitewater rafting for instance required all aspect in making sure safety precaution measure has been taken care off to reduce the risk of any unfortunate incident from happening. Furthermore, during pandemic, extra effort need to be established. These includes hygiene procedure such as sanitizing all the rafting equipment (raft, helmet, personal floating device, paddle, glove), accommodation (chalet or camping facilities), and dining area. One of the respondents indicates that ;

"We do sanitize before and after each rafting activities and all the equipment needs to be sanitized just right after the activity finished. All staff have their own responsibilities to ensure this procedure carry out perfectly."

(Source : Respondent 1)

Another respondents also added;

"It is important to sanitize all the equipment, before and after and we gap at least one or two hours before the next trip"

(Source : Respondent 2)

Furthermore, accommodation facilities also sanitized to enhance safety and hygienic measure of the room. Another respondent share their procedure as below ;

" room that have been used will be seal for sanitize and will be closed for one day. For example, if we have 20 rooms available and 5 rooms were just checked out. These 5 rooms will be close for 1 day for sanitize procedure. That means only 15 rooms are available for the next day".

(Source : Respondent 4)

Rafting capacity during Covid-19 is also changing. Before the pandemic about six to seven participants allowed in one raft but now only four is the maximum number in one raft excluding raft guide. One of the respondent mentioned as below;

" Nowadays only four participants are allowed in one raft excluding guide to maintained social distancing and to avoid crowded. Before this maximum seven participant in one raft. "

(Source : Respondent 3)

Another respondent added as below ;

"We did mention to the customer earlier about rafting capacity, only four participants in one raft, we told them during booking process. So, they already know before arrival"

(Source : Respondent 1)

Transporting participant from the camp or resort to the rafting check point is also changing. Before the pandemic, they loaded all participant in one lorry base on the total participants. Their main transportation in Gopeng is lorry because this is the best mode of transport used here according of the road condition. During pandemic, they limit their participant per trip as mentioned one of the respondent below.

"*Before this we transport participants to the rafting check point in a group without limiting the capacity in one lorry, but now we arrange few trip to transport them to the check point"*

(Source : Respondent 2)

Another respondent added as follow;

"What we practice is, if the participant came in one group, and they are already make RTK test and done show any symptom, we transport them to the check point together without mix them with another group to avoid overloaded"

(Source : Respondent 5)

Social distancing and health screening also important aspects in safety procedure during pandemic in order to maintain safety of the participants. Both aspects is also being practices by the rafting operators in Gopeng, Perak. Health screening not only apply to participants only, but staff also undergo the same process. For participants they need to do temperature check upon arrival, hand sanitizing, wearing mask properly and keep social distancing during their stay. For staff, if they show any symptoms, they are advised to stay at home and do self-quarantine.

One respondent commented:

"Upon arrived to the camp first thing they have to do is temperature check and check in using MySejahtera application. They must wear mask and keep social distancing always. Hand sanitize dispenser will be available at the major spot like receptionist counter, dining area, toilet and also in the chalet"

(Source : Respondent 4)

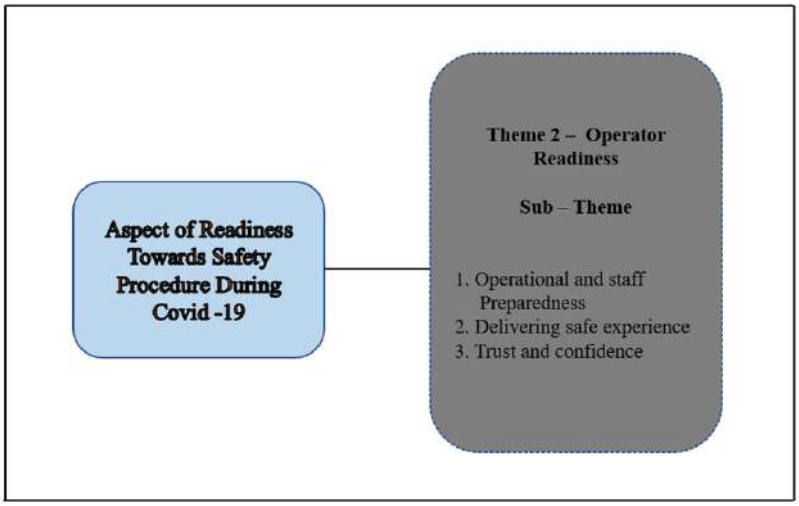
Another respondent also comment as below :

"Most of the tourists already familiar with the new norm. They know already what to do. This makes ours task easier. We just need to check their vaccination status and remind them to always obey with the procedure"

(Source : Respondent 1)

From this interview, researcher found that, rafting operator already play their part to ensure all the safety procedure being carried out properly and with the good corporation from the participants, will lessen their exposure to Covid – 19.

Theme 2 : Operator Readiness Chapter Summary



Rafting activities can be considered as hard adventure as participant required mental and physically strong. Operator need to ensure they are ready to give save and good service to fulfilled their excitement. Rafting operator must ready in delivering what it takes to make sure all safety procedure being enforce through out the process especially during pandemic. This includes operational and staff preparedness. One of the respondent indicates ;

"Training is very important. All of our staff must undergo induction to make them familiar with the working environment. The guide especially need to have experience"

(Source : Respondent 5)

"We have to be prepared at all time, especially during pandemic, have to put more effort to ensure safety at a good level, hand and equipment sanitizing , for example must be done"

(Source : Respondent 3)

" As guide we have to be well prepared especially during emergency, skill can be learn, but experience make us better in our field"

(Source : Respondent 1)

" we produce short video to increase our customer trust and confident to booked a trip from us, in the video we showcase what we do especially regarding safety procedure, our experienced guide and customer review"

(Source : Respondent 2)

During interview session, operator agreed that they are ready to serve their clients and make sure all safety procedure has been taken care off. These includes three factor that mentioned above which are operational and staff preparedness, delivering safe experience and built trust and confidence among the tourist. When they were asked about their level of readiness towards safety procedure during COVID -19, in the scale one to nine, which one is the least level and nine is the highest level, all off them with the steps and precaution measure that has been implemented, they rated at level number eight which mean according to the Community Readiness Model which is adopted for this research shows that, operator readiness is in level confirmation. This means, they have really understood about their responsibilities towards safety procedure. Cooperation with the staff also good and received positive feedback from tourist.

" I believed with all the safety procedure that have been taken in this resort, we are at level eight"

(Source : Respondent 4)

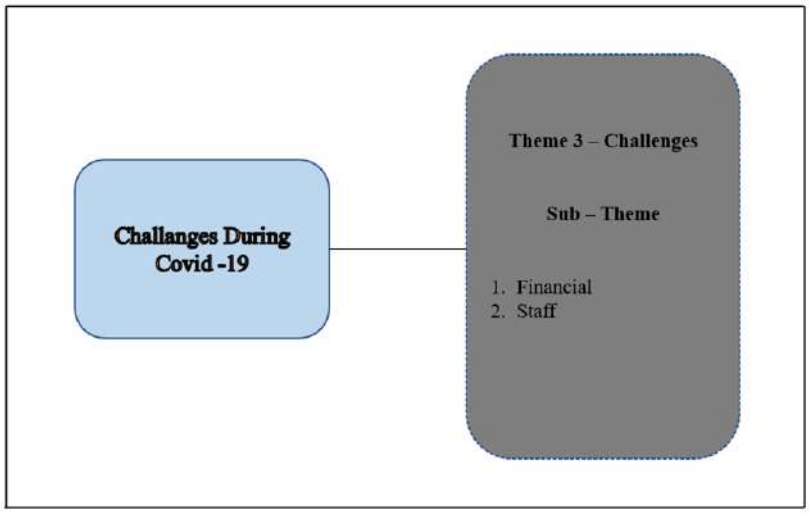
"I must say we are ready to serve our client confidently, therefore i must say we are at level eight"

(Source : Respondent 1)

"not mean to be over confident, but as long as I'm concerned in the level one to nine, level of readiness towards safety procedure during COVID – 19 is at level number eight"

(Source : Respondent 3)

Theme 3 : Challenges



Financial burden is the main challenge during COVID – 19. During Movement Control Order enforced by the government, business was close and operator have to be creative to generate alternative income. Some of the rafting operators have to shift to other field like agriculture or food and beverage to get income. Some of them venture into consultation business and produce signature souvenir product for their place. One respondent commented;

‘ I told my staff to market my expertise to education institution and government agency. Since online platform has become popular nowadays, we organized online webinar to student who wants to know about rafting activities”

(Source: Respondent 1)

He added;

“ we also produce mug and promote them through online platform like Facebook and Instagram”

(Source: Respondent 1)

“ During pandemic alhamdulillah we don’t lay off staff, what we do is salary deduction about 20%. That’s the best we can help our staff. We also try to sell pizza to maintain survive”

(Source : Respondent 2)

He added :

“We use pandemic time to slowly upgrade our facilities and enhanced safety procedure to our place ”

(Source : Respondent 2)

“ Some of the staff have stop work with us for during pandemic but return back to us once MCO has ended”

(Source : Respondent 5)

5.0 DISCUSSION

The first objective of this research is to identify the factors of safety procedure for adventure activities that has been affected the white water rafting activities during COVID -19. From the finding researcher have identified there are five factor that has been affected whitewater rafting activities during COVID -19. These includes hygiene procedure, raft capacity, transporting participant to the check point of rafting activities, social distancing, and health screening.

All tourism destination need to be hygienic and safe for both employees and tourist. This applies to all, not just destination involved in handling food and personal products but also in doing activities. Hygiene is important in tourism destination because it contributes to a healthy workforce as well as to increase competitiveness.
With health & hygiene gaining importance, employees, particularly client-facing staff, will need to be trained and feel comfortable with the new protocols. In effect, creating a safe environment for employees will be critical.

Tourism is such a complicated sector, the competitiveness of a place is determined by a variety of factors (Vanhove, 2006). "What makes a tourist destination truly competitive," say Ritchie and Crouch (2005), "is its ability to increase tourist consumption, to attract as many visitors as possible,

to provide them with pleasure and unforgettable experiences, and to do so profitably, for the population well-being of the destination, and to preserve the natural resources of the destination for future generations." As a result, it may be concluded that more competitive locations attract more visitors and that those visitors spend more money in those destinations, hence increasing GDP and stimulating economic growth, thereby enhancing the local population's economic well-being.

For the travel and tourism industry to remain competitive, health and cleanliness are critical (Cooper et al. 2008). The availability of a high degree of hygienic and sanitary conditions, medical treatment, and adequate drinking water quality is required for the correlation between health and tourism. Tourists' health is at danger if this level of quality is not met (Claver-Cortés et al. 2007). Operator need to proactively worked to enhance its hygiene and cleanliness standards to world-class levels, including deep cleaning, sanitation, and health screenings as needed. During pandemic, operator has to put more effort to ensure hygienic procedure is at a good practice. Researcher have found that sanitation was done perfectly. Hand and equipment sanitation as well as accommodation was sanitized adequately.

Due to COVID – 19, white water rafting capacity has to be reduced. Before the pandemic, maximum of seven participant can be put in one raft, according to the participant size, but now only four participant are allowed in one raft. This this approach is a must to maintain social distancing and to enhance the safety of the participant. Operator need to used more raft to accommodate more participant in one trip. In other hand, they have to spend more money in providing excellent service to the tourist without compromising safety procedure. On participant side, rafting limitation participant is like private trip for them because they are not crowded in one raft and not mixing with other group. Their privacy is guaranteed.

Participants has to be transport to the rafting check point from the base camp using lorry. Before the pandemic, usually operator will load participants at one time. It was enjoyed because the journey is quiet challenging and that was happening moment to create memories with friends and families. But now, operator still using lorry to transport them, but with limitations of participants. This is for safety procedure purposes in order to maintained social distancing. Some of the operator applies to transport participants within the same group using bigger lorry. Its depends on operator creativities to make adjustment according to the safety procedure.

Social distancing and health screening were conducted upon arrival of the participants to the camp or resort. Operators with the assistance of the staff will make sure all participants wearing mask and check in using Mysejahtera. It is compulsory for them to completed two dose of vaccination. Social distancing apply through out the trip and participant encourage to do hand wash or hand sanitize adequately. Sanitize dispenser available at the specific area such as receptionist counter, dining area, toilet as well as camp site or accommodation facilities. Operator also making sure that participants do sanitize their hand before and after rafting activities. All the equipment such as, raft, paddle, PFD, and helmet were disinfection before and after each trip.

The second objective of this research is to examine the factors of white water rafting operator readiness towards safety procedure during COVID-19. There are three factor that has been identified in term of operator readiness which are operational and staff preparedness, delivering safe experience and trust and confidence. Based on the analysis, all of the three factors were delivered accordingly and operators revealed that they are totally ready to give excellence service to the participants with upmost safety procedure. Level of readiness were at level eight (confirmation) for all operators which mean they are really understood about the procedure and implement them accordingly. Operator readiness were done using Tri – Ethnic Centre for Prevention Rsearch (2006), Fort Berthold Conprehensive Regional Trasportation Plan which outlined 9 level of readiness start with no awareness, denial, vague awareness, Pre-planning, Preparation, Initiation, Stabilization, Confirmation/expansion and the last one is professionalization.

Staffing is crucial during this era especially during pandemic where everyone is concern over safety. Skilled and knowledgeable employee is the asset for operator because there are the one who deal with the tourist. The way they work, react and responds especially upon emergency will portray overall image of the company. Operational process should be smooth, ease and inline with the safety procedure. People are watching and observed what they see and transform it to a reality. All Staff should be well prepareed with any circumstances.

Employee with excellent skill together with good communication skill will be able deliver safe experience to participant. That is the important of rafting briefing before starts the activities. Guide have to explain clearly the technique of rafting activities, communication as well as emergency response to participants. Once participants understand with the technique, they will going to have confident and fell safe trough out the trip. Guide need to have loud and clear voice in giving instruction while participants must pay attention and react and paddle accordingly. These great alignment will create excellent rafting and memorable experience. Participant will observe the whole process from the beginning until end of program. Satisfied participants will always give positive feedback and recommendation to their friend and family. That is why operator need to give their best service especially in term of safety procedure in order to get trust and confident among customers. Operator will get benefit in the long term.

In view of rising health and safety concerns, travellers will increasingly rely on authorities and operator they trust for timely and accurate information before and throughout their journeys. Therefore, tourist will increasingly value access to high-quality information, which they will use to validate their decisions. Operator have to give tourists as much information as possible to promote peace of mind because consumers value recommendations from friends and family over other types of advertising, word-of-mouth marketing will be an useful currency for destinations identified as secure.

The third objective of this research is to understand the challenges of adventure tourism operator in providing safety procedure during COVID -19. Rafting operator in Gopeng, Perak faced difficult time through out the pandemic. During Movement control Order imposed by the government, they have to find alternative income to survive. Some of them have venture to agriculture, food and beverage, consultation service as well as producing souvenir as signature product for their place, mug for instance.

During interview operator revealed that their income was almost zero, they have to do anything to ensure survival. Some of them being a durian collector and sell them to nearby town. Others would be a grab driver even though that is far behind of their expertise. Financial burden is the main challenge of providing safety procedure. Once the business was allowed to run, they have to invest a lot of money to prepare all the equipment and tools as instructed by the government. By time to time, as lot of tourist has started holiday and choose rafting as their preferred activities, operator can absorb the cost and their business was back in track. With the business is blooming, operator can get back their staff .

Recommendation for Future Research

This research focus on the operator readiness toward the safety procedure during Covid – 19. For future research it is suggested that, researcher can look on tourist side on how this safety procedure provided by operator meets their requirement and need. Satisfaction level , risk assessment as well as to monitor the level of safety procedure introduced compliance with the standard operating procedure or not. Finding of the research can be used for operator to improved their safety procedure in order to give excellent service to tourist.

6.0 CONCLUSION

From the finding and the summary of the research, it can be conclude that rafting operator in Gopeng, Perak is ready to deliver rafting activity that in line with the safety procedure during COVID – 19. There were few safeties procedure changes after the pandemic in order to minimize the risk of getting infected by the virus. Operator has already equipped their place with all the necessary measure to enhance safety procedure , and it is also important too for tourist to follow all the guidelines that has been prepared. They have to obey with all the procedure to ensure both parties benefited with the action taken. Operator provide services beyond their expectation while tourist or participants get safe and memorable experienced.

7.0 REFERENCES

Adventure Travel Trade Association. (2016). Adventure tourism development index: An adventure travel scorecard. International Institute of Tourism Studies, The George Washington University and Adventure Travel Trade Association

Camilleri, A. (2019). Adventure tourism in Gozo.
Dickson, T., & Dolnicar, S. (2004). No risk, no fun: The role of perceived risk in adventure tourism.
Dar, H. (2014). Potentials and problems of adventure tourism: a study of Kashmir valley. Abhinav International Monthly Refereed Journal of Research in Management & Technology, 3(9), 77-84.

Foo, L. P., Chin, M. Y., Tan, K. L., & Phuah, K. T. (2021). The impact of COVID-19 on tourism industry in Malaysia. Current Issues in Tourism, 24(19), 2735-2739

Golets, A., Farias, J., Pilati, R., & Costa, H. (2020). COVID-19 pandemic and tourism: The impact of health risk perception and intolerance of uncertainty on travel intentions.

Hilmi, N. (2012). Tourist's Perception of Safety at Gunung Stong State Park, Kelantan Darul Naim (Doctoral dissertation, Universiti Teknologi Malaysia).

Hill, B.J. (1995), "A guide to adventure travel", Parks & Recreation (Arlington), Vol. 30 No. 9, pp. 56-65. Jennings, G. (2010), Tourism Research, 2nd ed., John Wiley & Sons, Milton, Australia
Janowski, I., Gardiner, S., & Kwek, A. (2021). Dimensions of adventure tourism. Tourism Management Perspectives, 37, 100776.

Jovanović, S., Janković–Milić, V., & Ilić, I. (2015). Health and hygiene importance for the improvement of tourism sector competitiveness in Serbia and the South-Eastern Europe countries. Procedia Economics and Finance, 19, 373-382.

Kovačić, S., Mărgărint, M. C., Ionce, R., & Miljković, Đ. (2020). What are the Factors affecting Tourist Behavior based on the Perception of Risk? Romanian and Serbian Tourists' Perspective in the Aftermath of the recent Floods and Wildfires in Greece. Sustainability, 12(16), 6310.

Kusumaningrum, D. A., & Wachyuni, S. S. The Shifting Trends In Travelling After The Covid-19 Pandemic.

Kaushal, V., & Srivastava, S. (2021). Hospitality and tourism industry amid COVID-19 pandemic: Perspectives on challenges and learnings from India. International journal of hospitality management, 92, 102707.

Lou, J. (2014). Analysis of adventure tourist motivation: The case of China-born international students in New Zealand universities (Doctoral dissertation, Auckland University of Technology).

Muller, T.E. and Cleaver, M. (2000), "Targeting the CANZUS baby boomer explorer and adventurer segments", Journal of Vacation Marketing, Vol. 6 No. 2, pp. 154-169

Merriam, S. B. (2002). Introduction to qualitative research. Qualitative research in Mohajan, H. K. (2018). Qualitative research methodology in social sciences and related subjects. Journal of Economic Development, Environment and People, 7(1), 23-48.practice: Examples for discussion and analysis, 1(1), 1-17.

Mackenzie, S. H., & Goodnow, J. (2020). Adventure in the age of COVID-19: Embracing microadventures and locavism in a post-pandemic world. Leisure Sciences, 1-8.

Mohamed, Z., Afandi, S. H. M., Ramachandran, S., Shuib, A., & Kunasekaran, P. (2018). Adventure Tourism In Kampar, Malaysia: Profile And Visit Characteristics Of Domestic VISITORS. International Journal of Business & Society, 19.

Ospina, S. (2004). ARTICLE Qualitative Research. Encyclopedia of leadership.
Palmer, C., & Bolderston, A. (2006). A brief introduction to qualitative research. Canadian Journal of Medical Radiation Technology, 37(1), 16-19.

Ritchie, J. R., Goeldner, C. R., & McIntosh, R. W. (2003). Tourism: principles, practices, philosophies. John Wiley & Son (New Jersey)

Reynolds, Z. (2012). Surfing as adventure travel: Motivations and lifestyles. Journal of Tourism Insights, 3(1), 2.

Shephard, G. and Evans, S. (2007), "Adventure tourism – hard decisions, soft options and home for tea", in Novelli, M. (Ed.) Niche Tourism, Elsevier: Oxford

Swarbrooke, J., Beard, C., Leckie, S. and Pomfret, G. (2003), Adventure Tourism: The New Frontier, Butterworth-Heinemann, London.

Sand, M., & Gross, S. (2019). Tourism research on adventure tourism–Current themes and developments. Journal of Outdoor Recreation and Tourism, 28, 100261.

Tourism, A. (2014). Global Report on Adventure Tourism.
Thomas, S., & Raymond, C. (1998). Risk and provider responsibility in outdoor adventure activities. Teacher Development, 2(2), 265-281.

Terblanche, H. (2012). Travel motives of adventure tourists: a case study of Magoebaskloof Adventure (Doctoral dissertation, North-West University).

Ulak, N. (2020). COVID-19 Pandemic and its Impact on Tourism Industry in Nepal. Journal of Tourism & Adventure, 3(1), 50-75.

Wang, J., Liu-Lastres, B., Ritchie, B. W., & Pan, D. Z. (2019). Risk reduction and adventure tourism safety: An extension of the risk perception attitude framework (RPAF). Tourism Management, 74, 247-257.

Wengel, Y. (2020). The micro-trends of emerging adventure tourism activities in Nepal. Journal of Tourism Futures.

Xie, C., Zhang, J., & Morrison, A. M. (2020). Developing a scale to measure tourist perceived safety. Journal of Travel Research, 0047287520946103.

Yang, E. C. L., Sharif, S. P., & Khoo-Lattimore, C. (2015). Tourists' risk perception of risky destinations: The case of Sabah's eastern coast. Tourism and Hospitality Research, 15(3), 206-221.

Zhan, L., Zeng, X., Morrison, A. M., Liang, H., & Coca-Stefaniak, J. A. (2020). A risk perception scale for travel to a crisis epicentre: Visiting Wuhan after COVID-19. Current Issues in Tourism, 1-18.

Travel With Virtual Reality

Zairul Azrul bin Zakaria, Sharifah Zahidah Binti Sayed Zaidulhar, Muhammad Nasrul Nafis Bin Mohd Nasir, Amir Aqbal Bin Anwar

Tourism and Hospitality Department
Polytechnic METrO Kuantan

Zairulazrul69@gmail.com

ABSTRACT

1.0 INTRODUCTION

In the past few years, using 360-degree video has significantly changed the tourism business. This technology has changed how we look at, plan, and keep track of trips. Virtual Reality (VR), a type of technology, is one of the most essential tools for making 360-degree videos.

Virtual reality is a technology that is built on Industry 4.0. To make dreams come true and develop potential, it is essential to help people become skilled, knowledgeable, and responsible people who have learned a lot. Virtual reality (VR) gives an immersive and all-encompassing setting, which is suitable for tourism activities requiring a higher level of creativity (Buhalis, D. et al., 2023). The project was made with a few main goals and purposes in mind. Its main goal is to improve the overall travel experience for tourists, and it also aims to solve some problems and take advantage of some chances in the tourism industry. It is vital to making travel planning better because it gives travellers immersive previews of destinations, hotels, and attractions that help them make well-informed choices. Also, VR makes travel more accessible and inclusive by letting people with limited mobility or disabilities explore places online. This breaks down barriers to travel. It also helps with sustainability efforts because less physical travel means less damage to the earth from tourism. VR also helps to preserve culture by showing off historical and cultural spots, teaching tourists about places, and fostering cross-cultural exchange. As a marketing tool, it shows potential tourists what a place has to offer in an immersive way and lets tourists remember and talk about their trips. Overall, VR in tourism is a powerful innovation that improves the quality of trips, makes them more accessible, and helps the business grow sustainably.

Problem Statements, Enhancing Travel Planning, Many tourists find it difficult to make informed decisions about their travel destinations and experiences. Traditional travel brochures and websites often lack immersive content and interactivity. Immersive Experiences: While travellers seek immersive and memorable experiences, they may encounter limitations in their ability to physically explore all the places they wish to visit. Accessibility and Inclusivity: Not everyone can easily travel

due to factors like physical disabilities, financial constraints, or time limitations. There's a need to make tourism more inclusive. Resource Conservation: Encouraging travel while minimising its environmental impact is a growing concern. VR can potentially reduce the need for physical travel and contribute to sustainability efforts. Cultural Preservation: As tourism grows, the need to protect and preserve cultural heritage becomes more critical. VR can play a role in showcasing cultural sites without causing physical wear and tear. Researchers try to identify the potential of VR videos as a replacement for real adventures activity or not. This is because Not all tourists are able to do this activity in terms of time, money and most importantly physical ability. Next, Many tourists have problems such as fear of heigh (acrophobia) and water trauma (aquaphobia). Not only that, not everyone can easily travel due to factors like physical disabilities, financial constraints, or time limitationsy: Not everyone can easily travel

Objective, Objectives can be figured as to create safe tourism activities only by seeing virtual reality footage. This is because challenging excursions like skywalks and river cruises aren't suited to everyone, especially those who have issues like trauma from heights or water. Creating VR adventure film records to guarantee visitor safety. This is due to the fact that tourists can experience the actual world through virtual reality. To determine whether this virtual reality experience has a positive impact on trauma in travellers who struggle with fear of heights (acrophobia) and water (aquaphobia). In comparison to the actual action, it is also to determine whether it can offer the same experience or not.

2.0 LITERATURE REVIEW

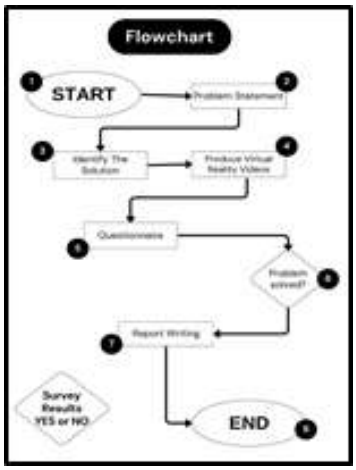
Definition of Tourism Tourism is an activity which cuts across conventional sectors in the economy. It requires inputs of an economic, social, cultural and environ- mental nature. In this sense it is often described as being multi-faceted. Technology advancements, in all of its varied forms, frequently have immediate and long-lasting effects on the tourism industry. Information and communication technology (ICT) advancements have recently changed the tourism industry in a variety of ways, having an impact on everything from customer demand to site management. (Buhalis, 2003, Buhalis and Law, 2008)

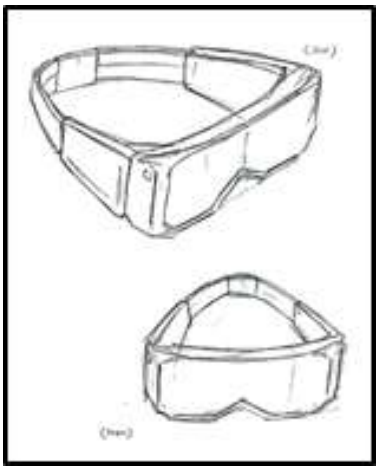
VR in Tourism, Based on the article produced by Emerald Publishing Limited, published in 2019, the potential of VR to revolutionise and redefine the tourism industry has long been recognized (Hobson & Williams, 1995; Williams & Hobson, 1995). Today, as virtual digital worlds increasingly permeate the lives of tourists, their use is becoming pivotal to the tourism industry (Mura et al., 2017). In tourism, VR finds application in multiple areas, including planning and management, marketing and information exchange, entertainment, education, accessibility, and heritage preservation (Guttentag, 2010; Wiltshire & Clarke, 2016). Fully immersive VR in tourism is from now on defined as the following: Fully immersive VR (fiVR) isolates the user entirely from the real world by providing synthetic or 360-degree real-life captured content with a VR headset, facilitating complete visual

immersion and enabling virtual touristic experiences that potentially stimulate additional other senses of the user for planning, management, marketing, information exchange, entertainment, education, accessibility or heritage preservation, either prior to, during, or after travel.

3.0 METHODOLOGY

Research Design, Product development is the entire procedure for bringing a product to market. The topic also includes updating an existing product and presenting an outdated product to a new market. Finding market needs, conceptualising the product, creating the product roadmap, and Product launch and feedback gathering. Giving clients value is the main motivation behind the development of any new product. The desire to innovate and adopt new technology is driven by the growing needs of customers. conceive of and/or create new items. Otherwise, there would be no justification for dumping a massive initial source of funding.





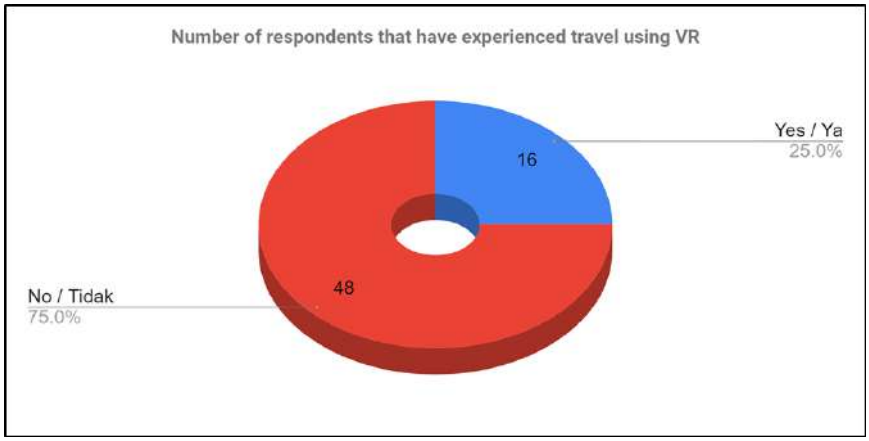
4.0 FINDING (Data analysis)

Demographic Data

	Programme		
Age	**DHF**	**DUP**	**Total**
18-21 years old	30	28	58
22-25 years old	2	3	5
26 years old and above	0	1	1
Total	32	32	64

The data pertains to demographic information gathered from a "Travel With Virtual Reality" survey, the analysis takes on a more nuanced perspective. In this scenario, the dataset becomes a valuable resource for uncovering insights into the demographics of individuals participating in virtual reality travel experiences. The data is stratified into three discernible age categories which are "18-21 years old," "22-25 years old," and "26 years old and above." These categories serve as pivotal demographic markers, offering a snapshot of the age composition within the respondent pool. Notably, the majority of respondents fall within the "18-21 years old" category, with a count of 58 respondents, while the "22-25 years old" category exhibits a lower count of 5 respondents, and the "26 years old and above" category registers a count of 1 respondent. In summary, the data serves as a rich source for understanding the age distribution and preferences of individuals engaging with virtual travel experiences. The analysis of this data can inform targeted strategies for enhancing virtual reality travel platforms, ensuring that they cater to the diverse needs and interests of different demographic segments.

Project Data (Question 1)



In a recent survey conducted to gauge the prevalence of virtual reality (VR) travel experiences among participants, it was revealed that a substantial 75% of the respondents, equivalent to 48 individuals, acknowledged actively participating in virtual travel through various VR platforms. This particular finding highlights the growing trend of utilising immersive technologies to explore different destinations without the need for physical presence, showcasing a shift in the way individuals engage with travel experiences. Conversely, a noteworthy 25% of the surveyed population, comprising 16 respondents, reported not having experienced virtual reality travel. This aspect of the survey draws attention to a discernible disparity in the adoption of VR technology for travel purposes, raising intriguing questions about the factors influencing these diverse responses. Factors such as technological accessibility, personal preferences, or scepticism about the effectiveness of virtual experiences compared to traditional travel may play a role in shaping these varied perspectives. The observed enthusiasm for VR travel experiences extends beyond mere entertainment, as it underscores a broader societal shift towards embracing innovative and tech-driven approaches to exploration.

VR travel is increasingly recognized as a versatile tool with applications in education, cultural exchange, and therapeutic settings, catering to a diverse range of interests and needs among respondents. These survey findings provide insights into the current state of VR travel adoption and prompt considerations about the broader impact of virtual reality on the way individuals perceive and engage with the world. As technology advances and VR experiences become more immersive and accessible, there is a fascinating potential for virtual reality to redefine the traditional travel experience. The data suggests that VR could evolve into an integral facet of global exploration, challenging and expanding conventional notions of adventure and the boundaries of the world around us. The survey, therefore, serves as a valuable snapshot of the present landscape while sparking contemplation about the trajectory of VR travel in the future of global exploration.

Question 2

Impact of Virtual Reality on Perceived Attractiveness of Tourist Destinations	Total Respondents
5 (Strongly Agree)	43
4 (Agree)	14
3 (Natural)	6
2 (Disagree)	0
1 (Strongly Disagree)	1
Grand Total	64

Examining the data concerning the influence of virtual reality (VR) on the perceived attractiveness of tourist destinations reveals noteworthy trends within the respondent cohort. Employing a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), participants were tasked with evaluating the extent to which VR affects their perceptions of diverse travel locales. The majority of respondents, comprising 57.33% or 43 individuals, enthusiastically endorsed the positive impact of VR, opting for the highest rating of 5 (strongly agree). This substantial percentage suggests a prevailing consensus among participants that engaging with VR significantly enhances the allure of tourist destinations.

The immersive qualities inherent in VR experiences seem to resonate strongly with this group, influencing their perceptions and fostering an increased desirability for varied travel locations. Furthermore, 18.67% of respondents, or 14 individuals, expressed a favourable perspective by selecting the rating of 4 (agree). While slightly less emphatic than the highest rating, this subgroup contributes to the overall positive sentiment, indicating that a significant portion of participants acknowledges the value of VR in augmenting the attractiveness of tourist destinations. Conversely, 8% of respondents, or 6 individuals, adopted a neutral stance by choosing the rating of 3. This segment introduces a nuanced perspective, suggesting a degree of variability in how participants perceive the relationship between VR and destination attractiveness.

Their responses highlight a level of ambivalence or uncertainty within the respondent pool. Notably, only 1.33% of participants, or 1 individual, expressed strong disagreement with the statement, choosing the lowest rating of 1 (strongly disagree). While this dissenting viewpoint is a minority within the dataset, it underscores the existence of individuals who do not perceive VR as a positive influencer on the attractiveness of tourist destinations. In summary, the data analysis underscores a predominantly favourable sentiment among respondents regarding the impact of VR on the perceived attractiveness of tourist destinations. The considerable number of individuals strongly agreeing with this notion emphasises the transformative potential of VR technology in shaping and enhancing the appeal of diverse travel experiences.

Question 3

Impact of Virtual Reality on Enhancing Travel Experiences	Total Respondents
5 (Strongly Agree)	29
4 (Agree)	27
3 (Natural)	7
2 (Disagree)	0
1 (Strongly Disagree)	1
Grand Total	64

Analysing the data on the impact of virtual reality (VR) on enhancing travel experiences reveals distinct patterns and sentiments among the respondents. Using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), participants provided insights into the efficacy of VR in augmenting their travel experiences. A significant 38.67% of respondents, totaling 29 individuals, expressed a highly positive sentiment by selecting the highest rating of 5 (strongly agree). This sizable proportion indicates a prevailing consensus among participants that the use of VR substantially enhances the effectiveness of their travel experiences.

The immersive and interactive nature of VR appears to resonate strongly with this group, suggesting that these individuals find value in the technology for augmenting and enriching their journeys.Additionally, 36% of respondents, or 27 individuals, chose the rating of 4 (agree), indicating a positive but slightly less emphatic endorsement of the effectiveness of VR in enhancing travel experiences. This substantial portion further contributes to the overall positive sentiment, emphasising a general acknowledgment among participants of the beneficial impact of VR on the travel journey. On the other hand, 9.33% of respondents, or 7 individuals, selected the neutral rating of 3. This segment introduces a nuanced perspective, suggesting a degree of variability in how participants perceive the effectiveness of VR in travel experiences.

Their responses highlight a level of ambivalence or uncertainty within the respondent pool regarding the transformative impact of VR. It's noteworthy that only 1.33% of participants, or 1 individual, expressed strong disagreement with the statement, choosing the lowest rating of 1 (strongly disagree). While this dissenting viewpoint is a minority within the dataset, it underscores the existence of individuals who do not perceive VR as highly effective in enhancing their travel experiences. In summary, the data analysis underscores a predominantly positive sentiment among respondents regarding the impact of virtual reality on enhancing travel experiences. The substantial number of individuals strongly agreeing with this notion emphasises the potential of VR technology to significantly enrich and improve the overall effectiveness of travel journeys for a majority of participants.

Question 4

Evaluating the Efficacy of VR in Alleviating Acrophobia and Aquaphobia Trauma	Total Respondents
5 (Strongly Agree)	29
4 (Agree)	17
3 (Natural)	16
2 (Disagree)	1
1 (Strongly Disagree)	1
Grand Total	64

Examining the data pertaining to the effectiveness of virtual reality (VR) in mitigating acrophobia and aquaphobia trauma reveals nuanced perspectives among respondents. Employing a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), participants were tasked with articulating their views on the efficacy of VR in addressing fears associated with heights (acrophobia) and water (aquaphobia). A substantial 38.67% of respondents, encompassing 29 individuals, ardently endorsed the therapeutic potential of VR by selecting the highest rating of 5 (strongly agree). This considerable consensus suggests a prevailing belief among participants that VR serves as a powerful intervention to significantly alleviate trauma associated with acrophobia and aquaphobia. Evidently, the immersive qualities of VR experiences resonated strongly with this group, highlighting a widespread recognition of VR as a valuable tool for therapeutic intervention. Furthermore, 22.67% of respondents, constituting 17 individuals, opted for the rating of 4 (agree), indicating a positive albeit slightly less emphatic acknowledgment of the efficacy of VR in mitigating their fears.

This subgroup contributes to the overall affirmative sentiment, emphasising that a noteworthy portion of participants recognizes the potential of VR in addressing acrophobia and aquaphobia trauma. Intriguingly, 21.33% of respondents, totaling 16 individuals, selected the neutral rating of 3. This introduces a layer of complexity, signifying variability in how participants perceive the therapeutic effectiveness of VR. Their responses suggest a degree of ambivalence or uncertainty within the respondent pool regarding the impact of VR on acrophobia and aquaphobia, adding a nuanced perspective to the analysis. It is noteworthy that only 2% of participants, represented by 1 individual, expressed dissent with the statement, choosing the combined ratings of 2 (disagree) and 1 (strongly disagree). While this dissenting viewpoint constitutes a minority within the dataset, it underscores the existence of individuals who do not align with the prevailing sentiment, indicating some scepticism about the efficacy of VR in addressing their specific phobias. In summary, the data analysis underscores a predominantly positive sentiment among respondents regarding the therapeutic efficacy of virtual reality in mitigating acrophobia and aquaphobia trauma. The diverse responses within the dataset highlight the nuanced nature of individual perspectives, contributing to a comprehensive understanding of the potential role of VR as a valuable tool for addressing specific fears related to heights and water.

5.0 DISCUSSION

The concept of "Travel With Virtual Reality" presents an exciting avenue for revolutionising the way individuals engage with travel content. An integral aspect for consideration revolves around the need for continuous improvement, particularly in enhancing the video quality to ensure a more immersive and realistic experience. By investing in cutting-edge filming technologies, such as high-resolution 360-degree cameras, the platform can elevate its visual appeal, providing users with a clearer and more captivating virtual journey. Diversification of attractions is another critical discussion point, as a varied range of destinations, cultural experiences, adventure activities, and historical landmarks can cater to a broader audience. Collaborating with content creators, travel experts, and cultural institutions to curate a diverse array of virtual experiences not only enriches the platform but also makes it more appealing to a global user base. Stability in video footage is paramount to prevent motion sickness and maintain user comfort during exploration. This can be achieved by incorporating advanced stabilisation technologies, such as gimbals or post-production stabilisation software, ensuring that the virtual travels remain smooth and enjoyable. Adding interactive elements to the virtual reality experience, such as clickable points of interest, historical context pop-ups, or user-guided exploration options, further enhances user engagement and personalization. Lastly, the integration of a robust user feedback system within the virtual reality application is crucial for iterative improvements. This feedback loop provides valuable insights into user preferences and concerns, enabling the platform to evolve and refine the overall user experience over time. Through these discussions and strategic improvements, "Travel With Virtual Reality" can position itself as a leading platform, offering users an unparalleled and continuously evolving virtual exploration experience.

6.0 CONCLUSION

TRAVEL WITH VIRTUAL REALITY (Enhancing the Travel Experience for Tourists with Virtual Reality): A Therapeutic Approach to Acrophobia and Aquaphobia. In summary, this research project explores the application of virtual reality (VR) technology to address the challenges faced by tourists with acrophobia (fear of heights) and aquaphobia (fear of water). The ultimate goal is to improve the travel experience for individuals struggling with this specific phobia by using an immersive virtual environment as a therapeutic intervention. This study involved the development and implementation of a VR simulation designed to gradually expose participants to height and water scenarios in a controlled and supportive manner. By leveraging VR technology, researchers aim to create a realistic yet controlled environment that allows users to face and manage their phobias in a safe and controlled environment. Key components of the research project include, Custom VR Environments, The creation of immersive virtual environments that simulate a variety of altitude and water scenarios, from mild exposure to more challenging situations. The environment is adapted to the specific needs and level of phobias of the participants. Therapeutic Protocols, Implementation of evidence-based therapeutic protocols in a VR experience, incorporating gradual exposure therapy techniques. The goal is to help individuals overcome their fears by systematically increasing the intensity of virtual scenarios over time. User Monitoring and Feedback, Integration of monitoring tools in VR systems to track physiological responses and behavioral patterns of users during exposure sessions. This data is then used to assess progress and adjust the virtual experience accordingly. Accessibility and User-Friendly Design Ensure that VR systems are user-friendly and accessible to a wide range of individuals, taking into account factors such as age, cultural background and various levels of technological familiarity. Clinical Validation, Collaboration with mental health professionals to validate the effectiveness of VR interventions through clinical evaluations, surveys and post-experience interviews with participants. This research aims to contribute to the growing body of evidence supporting the therapeutic potential of VR in treating specific phobias. By combining advances in virtual reality technology with established therapeutic principles, this research project seeks to provide a new and effective approach to help travelers with acrophobia and aquaphobia overcome their fears, ultimately improving their overall travel experience and quality of life.

7.0 REFERENCES

Mora-Serrano, J., Muñoz-La Rivera, F., & Valero, I. (2021).Factors for the automation of the creation of virtual reality experiences to raise awareness of occupational hazards on construction sites. Electronics, 10(11), 1355

KANKORIYA, S., & KHATAL, M. (2023). Advance Vehicle Advanced Driver Assistance Systems: Working & Features ADAS A Path towards Intelligent Vehicles..

Yusof, A. A., Adnan, A. H. M., Mustafa Kamal, N. N., Mohd Kamal, M. A., & Ahmad, M. K. (2019, February). Education 4.0 immersive learning with Spherical Videos (360) and Virtual Reality (VR) experiences. In Proceedings of the International Invention, Innovative & Creative (InIIC) Conference, Series (pp. 52-60).

Vinnakota, S., Mohan, M. D., Boda, M. J., Askarzai, W., Devkota, M. P., Shetty, M. S., ... & Choden, M. T. (2023). Venturing into Virtuality: Exploring the Evolution, Technological Underpinnings, and Forward Pathways of Virtual Tourism. Educational Research (IJMCER), 5(6), 08-49.

Burdea, G. C., & Coiffet, P. (2003). Virtual reality technology. John Wiley & Sons.
Buckley, R. (2006). Adventure tourism. Cabi.

Smith, J., & Johnson, A. (2020). "Immersive Travel: Exploring Virtual Reality as a Tool to Enhance the Travel Experience." Journal of Virtual Tourism, 15(2), 45-62.

Anderson, M., & Brown, S. (2018). "Virtual Destinations: A Study of the Effects of Virtual Reality on Tourist Behavior." Journal of Tourism Technology, 7(3), 112-128.

Patel, R., & Garcia, E. (2019). "The Role of Virtual Reality in Destination Marketing: A Case Study of VR-Based Travel Promotion." Journal of International Tourism Management, 25(4), 567-580.
Kim, Y., & Lee, S. (2021). "Exploring the Potential of Virtual Reality in Cultural Tourism: A Case Study of Virtual Heritage Tours." Journal of Cultural Tourism, 18(1), 78-94.

Chen, Q., & Wang, L. (2017). "Virtual Reality and Travel Planning: An Examination of User Preferences and Satisfaction." Journal of Information Technology in Tourism, 12(2), 145-162

eISSN 2976-4084

Politeknik METrO Kuantan
A-5 Jalan Tun Ismail 2
Sri Dagangan II
25000 Kuantan
Pahang Darul Makmur
www.pmku.edu.my

Tel: 09-565 9000
Fax: 09-5173259