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KNOWLEDGE, ATTITUDE AND PRACTICE ON PLASTIC STRAW AMONG SELECTED SECONDARY SCHOOL STUDENT IN SELANGOR

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BY

NOR BAINI BINTI MAT HAZANI

Thesis submitted in fulfilment of the requirement for the degree of Bachelor Science (Environmental and Occupational Health) from the Faculty of Medicine and Health Sciences, Universiti Putra Malaysia.

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ABSTRACT

KNOWLEDGE, ATTITUDE AND PRACTISE ON PLASTIC STRAW AMONG SELECTED SECONDARY SCHOOL STUDENTS IN SELANGOR

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There are about 1,300 plastic manufacturers in Malaysia and one of their product is plastic straw which resulting up to 30 million of plastic straw used per day among Malaysians. The increasing use of plastic straw in the community has caused plastic littering into the environment and the ocean. Plastic pollution can cause a significant impact on the health, wellbeing and environment, especially to marine life**.** However**,** there is limited study conducted on knowledge, attitude and practise on plastic straw especially among secondary school students. The objective of the study is to assess the knowledge, attitude and practice on plastic straw among selected secondary school students in Selangor. A cross-sectional study was carried out among secondary school students in Petaling Jaya, Selangor. In this study, 150 secondary school students from SMK Kelana Jaya were selected as respondents which consist of two groups which were form one (n=75) and form four (n=75). A set of modified questionnaire was used to obtain the information about socio-demographic, knowledge, attitude and practice on plastic straw among secondary school students. As a result, the study found out that, both groups showed moderate level of knowledge which form one students scored 64.0% and form four students reached 58.7%. For attitude, 69.3% of form one and 65.3% of form four students has moderate attitude. Then, both groups had shown moderate practise which 68.0% was form one students and 70.7% was form four students. Next, there was a mean difference in knowledge on plastic straw, ($p<0.05$, $p=0.000$) between form one and form four students. Nevertheless, there was no mean difference in attitude ($p>0.05$, $p=0.552$) and practises ($p>0.05$, $p=0.243$) between form one and form four students. Next, there was an association between attitude with practise level on plastic straw among secondary school students ($p<0.05$, $p=0.000$). However, there was no association between knowledge and practise level on plastic straw among secondary school students ($p>0.05$, $p=0.349$). In conclusion, both groups showed moderate knowledge, attitude and practices on plastic straw. Thus, Ministry of Education needs to consider environmental education as a subject that needs to be part of the education syllabus in order to create more awareness on environmental issues and environmental conservation.

Keywords: Secondary School Students**,** Practice, Attitude, Knowledge, Plastic straw

ABSTRAK

PENGETAHUAN, SIKAP DAN AMALAN MENGENAI PENYEDUT MINUMAN PLASTIK DI KALANGAN PELAJAR SEKOLAH MENENGAH TERPILIH DI SELANGOR

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Terdapat kira-kira 1,300 pengeluar plastik di Malaysia dan salah satu produknya adalah straw plastik yang menyebabkan 30 juta penyedut minuman plastik yang digunakan setiap hari di kalangan rakyat Malaysia. Peningkatan penggunaan pemyedut minuman plastik dalam masyarakat telah menyebabkan pembuangan sampah plastik ke persekitaran dan lautan. Pencemaran plastik boleh menyebabkan kesan ketara terhadap kesihatan, kesejahteraan dan persekitaran, terutama terhadap kehidupan laut**.** Namun begitu, terdapat kajian terhad dijalankan ke atas pengetahuan, sikap dan amalan mengenai penyedut minuman plastik terutama di kalangan pelajar sekolah. Objektif kajian ini adalah untuk menilai pengetahuan, sikap dan amalan mengenai penyedut minuman plastik di kalangan pelajar sekolah menengah terpilih di Selangor. Satu kajian keratan rentas telah dijalankan di kalangan pelajar sekolah menengah di Petaling Jaya, Selangor. Dalam kajian ini, 150 pelajar sekolah menengah dari SMK Kelana Jaya dipilih sebagai responden yang terdiri daripada dua kumpulan iaitu tingkatan satu (n=75) dan tingkatan empat (n=75). Satu set soal selidik yang telah diubah suai digunakan untuk mendapatkan maklumat mengenai sosio-demografi, pengetahuan, sikap dan amalan mengenai penyedut minuman plastik di kalangan pelajar sekolah menengah. Hasilnya, kajian mendapati bahawa, kedua-dua kumpulan menunjukkan tahap pengetahuan yang sederhana yang mana pelajar tingkatan satu mendapat skor 64.0% dan pelajar tingkatan empat mencapai 58.7%. Untuk sikap, 69.3% pelajar tingkatan satu dan 65.3% pelajar tingkatan empat mempunyai sikap sederhana. Kemudian, kedua-dua kumpulan telah menunjukkan amalan sederhana iaitu 68.0% adalah pelajar tingkatan satu dan 70.7% adalah pelajar tingkatan empat. Seterusnya, terdapat perbezaan min dalam pengetahuan mengenai penyedut minuman plastik, ($p<0.05$, $p=0.000$) antara tingkatan satu dan tingkatan empat pelajar. Namun begitu, tiada perbezaan min dalam sikap ($p> 0.05$, $p=0.552$) dan amalan ($p>0.05$, $p=0.243$) antara pelajar tingkatan satu dan tingkatan empat. Seterusnya, terdapat perkaitan antara sikap dengan tahap amalan terhadap penyedut minuman plastik di kalangan pelajar sekolah menengah ($p<0.05$, $p=0.000$). Namun begitu, tiada perkaitan antara pengetahuan dan tahap amalan terhadap penyedut minuman plastik di kalangan pelajar sekolah menengah ($p>0.05$, $p=0,349$). Kesimpulannya, kedua-dua kumpulan menunjukkan pengetahuan, sikap dan amalan yang sederhana mengenai penyedut minuman plastik. Oleh itu, Kementerian Pelajaran perlu mempertimbangkan pendidikan alam sekitar sebagai satu subjek yang perlu menjadi sebahagian daripada silibus pendidikan bagi mewujudkan kesedaran tentang isu-isu alam sekitar dan pemuliharaan alam sekitar.

Kata kunci: Pelajar Sekolah Menengah, Amalan, Sikap, Pengetahuan, Penyedut minuman plastik

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVATIONS

UNEP	United Nations Environment Programme
MESTECC	Ministry of Energy, Science, Technology, Environment and Climate Change
GHG	Greenhouse Gases
CIEL	Center for International Environmental Law
EPA	Environmental Protection Agency

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Rapid growth in human population has caused rapid urbanization and development which lead to increased production in plastic manufacturing. Plastics has been utilizing by people at an enormous scale. Nowadays, plastics can be found in almost everything and one of the by-products of plastic is a plastic straw. Straw is one of the essential components being used in the food and beverage at the foodservice outlets. One of the excellent examples of an item that people take for granted are straws as it gives a simple alternative for drinking drinks easily (Gutierrez *et al*., 2019)

The plastic straw is being used enormously in food and beverage sectors such as café, restaurants, hotels, food trucks and many more because of its advantages which are durable, convenient, cheap and easily available. These advantages properties of plastic somehow bring out the world most problems which is plastic pollution. The increasing use of plastic straw in the community has caused plastic littering into the environment and the ocean. As mention by United Nations Environment Programme in 2018, only 9% of the nine billion tonnes of plastic the world has ever produced have been recycled and many ends up in landfills, dumps, or in the environment. If present consumption patterns and waste management practices remain, there will be about 12

billion tonnes of plastic litter in landfills and the environment by 2050 (United Nations Environment Programme, 2018).

People are using plastic straw daily in everyday life to drink. According to an article that has been released by Kim in 2019, majority of Malaysian acknowledge using plastic straw several times a week. Three in ten (31%) use plastic straw several times a week, and one in eight (13%) use them once a week. Just 4% of Malaysians never use plastic straws.

Figure 1.1: Percentage of plastic straw usage in Malaysia

Source: (Kim, 2019)

1.2 Problem Statement

Production of plastic manufacturing is growing due to the increasing demand to meet the needs of industry and public and same goes for Malaysia. The number of plastic straw has been produced keeps increasing over time. There are about 1,300

plastic manufacturers in Malaysia and one of their products is plastic straw which resulting up to 30 million of plastic straw used per day among Malaysians. Plastic straws are one of the major environmental problems that arise and Malaysia is one of them. Environmental problems related to plastic waste have become the main problem in Malaysia where Malaysia has been placed as 8th among the top ten countries with mismanaged plastic waste in the world (Ministry of Energy, Science, Technology, Environment and Climate Change, 2018).

Countries With The Most Mismanaged Plastic Wastes

Rank	Country	Mass of Mismanaged Plastic Waste, 2010 (in metric tonnes)
1	China	8.82
2	Indonesia	3.22
3	Philippines	1.88
4	Vietnam	1.83
5	Sri Lanka	1.59
6	Thailand	1.03
7	Egypt	0.97
8	Malaysia	0.94
9	Nigeria	0.85
10	Bangladesh	0.79
11	South Africa	0.63

Figure 1.2.1: Countries Putting the Most Plastic Waste Into The Oceans in 2010

Source: (Shehth, 2019)

The plastic straw is a type of single-use plastics. The increasing demand of plastics in the community has causing plastics been designed for 'use and throw' which means these plastics will be discarded after being used for once. Single-use plastic straws had been gaining worldwide attention as it has been recognized causing environmental issues related to plastic waste and plastic pollution. Single-use plastic

can cause a problem as it is meant to be disposed of once, which can result in the accumulation of single-use disposable plastics waste (Ministry Of Energy, Science, Technology, 2018).

Plastic wastes are being generated due to the high consumption of plastic products. People keep using plastic products in their daily life on an unimaginable scale and this plastic is being dumped or litters into the environment and ocean without any concern. Malaysia has serious issues with plastic waste where according to the Ministry of Energy, Science, Technology, Environment and Climate Change (2018) there has been an estimated study that Malaysia produced 0.94 million tons of mismanaged plastic waste, 0.14 to 0.37 million tons have been carry away into the oceans.

Plastic straw is the commonly littered item in the environment, especially in the ocean. According the International Coastal Cleanup Report in 2019, the most common finds during international coastal clean-ups in order of magnitude are cigarette butts, food wrappers, straws and stirrers, plastic forks, knives and spoon, plastic beverage bottles, plastic bottle caps, plastic grocery bags, other plastic bags, plastic lids and plastic cups and plates. Eventually, the number of plastic straws that collected is increasing over the years. Straw and stirrers are the 3rd littered item that collected during the clean-up with 3,668,871 that has been found. According to the International Coastal Cleanup Report, in 2018, straws and stirrers that been found are 409,087 while in 2017, 643,562 straws and stirrers that been found.

Figure 1.2.2: Top 10 Item Collected during Coastal Cleanup in 2016

Source: International Coastal Cleanup 2017 Report, 2017

Figure 1.2.3: Top 10 Item Collected during Coastal Cleanup in 2017

Source: International Coastal Cleanup 2018 Report, 2018

Figure 1.2.4: Top 10 Item Collected during Coastal Cleanup in 2018

Source: International Coastal Cleanup 2019 Report, 2019

Plastic straw issue has become a worldwide concern as it is one of the controversial environmental issues and can lead to plastic pollution which can caused a significant impact on the health, wellbeing and environment, especially to marine life. The endless surge of plastic pollution levels will affect every type of ecosystem, food chain, maximized landfill, and give a direct impact on human health (Lerne et al., 2019).

1.2.1 PLASTIC BAN

PLASTIC-FREE CAMPAIGN

PLASTIC STRAWS BANNED IN SELANGOR

New rule to be implemented from July 1, says state exco member

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FROM July 1, all restaurants, eateries and food operators in Selangor will be barred from providing plastic straws to their customers.

State Environment, Green Technology and Consumer Committee chairman Hee Loy Sian said the decision was made unanimously by the state executive council recently.

He said restaurants and eateries would be barred from providing plastic straws at the counters.

"This condition will be included in local authorities' business licence application requirements, for both first-time applicants as well as those seeking to renew their licences."

Hee said the policy was in line with the state's ongoing plastic-free campaign, which aimed to reduce the use of single-use plastic bags, polysterene containers, plastic covers and disposable plastic material.

"The policy's objective is to educate and boost awareness among the people on the long-term effects of single-use plastic, especially plastic straws, on health and the environment.

"In addition, this policy is expected to help the government tackle environmental pollution, which is becoming more serious, as well as promote recycling."

He said local authorities would monitor the implementation of the policy periodically to ensure its effectiveness.

The ban on plastic straws is in line with Selangor's plastic-free campaign, says state Environment, Green Technology and Consumer Committee chairman Hee Loy Sian (inset). FILE PIC

He said food operators had been urged to cooperate to ensure that the mission of reducing plastic waste was achieved.

"The state government is thankful to some food operators, who have taken the initiative to adopt the move ahead of the directive.

"We encourage the public to share their views on the campaign. They can share them with state departments and agencies or the exco's office.

"Each suggestion will be taken into account and given due consideration so that the campaign is a success."

Source: New Straits Times, 2019

Straw plastik bawa mudarat

Larangan guna penyedut minuman plastik wajar

NUR FARHANA ABDUL MANAN

SHAH ALAM

Berdosa jika penggunaan penyedut minuman plastik boleh menyebabkan kemudaratan alam sekitar.

Pengerusi Pertubuhan Alam Sekitar Sejahtera (Grass) Malaysia, M Yusaimi Md Yusof berkata, larangan penggunaan penyedut minuman tersebut adalah atas sebab maslahah.

Katanya, atas sebab kerosakan yang boleh terjadi dengan penggunaan penyedut minuman atau plastik, larangan dibuat ke atas semua orang sama ada Islam atau tidak.

"Tidaklah jatuh berdosa seandainya penyedut minuman hanya dipegang dan digunakan sehinggalah penggunaannya itu merosakkan atau memudaratkan alam (haiwan, tumbuhan, elemen bumi dan manusia itu sendiri).

"Melihat kepada situasi masa kini dengan fakta dan kesannya, penggunaannya dan pembuangannya merata-rata sudah tentu boleh jatuh berdosa," katanya dalam satu kenyataan kepada Sinar Harian.

M Yusaimi berkata, Grass sudi membantu kementerian dan agensi berkaitan yang berminat mengan-

Penggunaan penyedut minuman plastik boleh memudaratkan alam sekitar.

jurkan program kesedaran dan pendidikan dalam isu melibatkan alam sekitar.

Beliau sebelum itu mengucapkan tahniah kepada Kementerian Wilayah atas cadangan mengharamkan penggunaan penyedut minuman plastik di semua kedai dan restoran makanan di Kuala Lumpur.

Katanya, larangan bermula Januari depan tetapi tindakan penguatkuasaan dimulakan pada 2020.

"Tempoh masa yang ada beri ruang kepada kementerian dan pelbagai pihak untuk didik serta beri kefahaman selain kempen kesedaran berkenaan bahaya penggunaan penyedut minuman serta plastik.

"Antara cadangan boleh dibuat ialah adakan hari tanpa penyedut minuman seperti hari tanpa plastik yang telah dibuat sebelum ini," katanya.

Tambahnya, plastik yang digunakan sekali sahaja seperti penyedut minuman diperbuat daripada plastik jenis 5 atau polypropylene yang tidak boleh dikitar semula.

M YUSAIMI

Kebanyakan produk plastik hanya akan terurai dalam tempoh 200 tahun.

"Tanpa kita sedar, produk plastik ini datangkan banyak kerosakan bukan hanya kepada alam sekitar dan haiwan bahkan kepada manusia.

"Proses perosotan plastik akan melepaskan bahan kimia berbahaya kepada alam dan hidupan. Meskipun melalui proses penguraian, namun proses tersebut tidak mengurai plastik sepenuhnya tetapi hanya mengubah plastik menjadi mikroplastik.

"Bahan kimia dan mikroplastik ini yang cemarkan tanah, laut dan udara yang disedut manusia malah masuk ke dalam makanan manusia seperti ikan," katanya.

Source: Sinar Harian, 2018

Figure 1.2.1.1: News about plastic straw in Malaysia

The viral of the video of a plastic straw in the sea turtle nostril highlight the significant effect of plastic straw to marine life. Many countries and organizations are taking action regarding the plastic straw problem. Before this many countries have banned the usage of plastic bags and encourage the use of the reusable bag and launched the "No Plastic Bag" campaign. Plastic already been banned in many

countries due to its harm and seriousness on the environment, human and marine life. Plastic bans often emphasis on getting rid of plastic bags and abandon many other impactful plastic products like bottles, straws, and cups (Alder, 2016; Molstad et al., 2018). As mention by Wagner & Toews (2018), plastic straw bans are reachable due to accessible options which include anticipation for not using straws.

Many countries are taking action regarding of plastic straw pollution and in line with it, most of the country already started banned of plastic straw. Malaysia is one of the countries that banned of plastic straws. In line with that, The Ministry of Energy, Science, Technology, Environment and Climate Change already introduced the 'Roadmap Towards Zero Single-Use Plastics 2018-2030' program wherein the action plan in 2019, there will 'No straw by default' practice where straw is supplied on request without charge and it will be implemented in fixed premises. Besides, in January 2019, the federal government of Malaysia has started to begin banned of plastic straw in Putrajaya, Kuala Lumpur and Labuan (Kin & Jasmin, 2019).

According to Star Online in 2019, the ban of plastic straw will take effect beginning 1 July in all eateries in Selangor. Providing of a plastic straw in all food and beverages sectors including restaurants will be prohibited. Other than that, No Plastic Straw policy and campaign have been introduced by Selangor state government as their efforts to reduce the single-use plastics. No plastic straw policy is aimed to educate and increase the level of awareness of community in Selangor on the long term effect of plastic use especially effect of plastic straw on environment and health.

On 1 January 2020, banned of plastic straw will be fully enforced by the government which is aimed at food outlet's trader and operator. However, plastic straw only will be given upon request from the customer when ordered drink. Many foods

and beverage sectors such as Starbuck and McDonald's announced to phase out the plastic straw. Starbuck and Ikea has announced to eliminate and ban of plastic straw by 2020.

1.2.2 IMPACT TO THE ENVIRONMENT

Plastic straw is made up of petroleum served-based plastic called polypropylene and also contain colorants and additives. Plasticizers, colorants, antioxidants, ultraviolet light filters, and inert fillers are applied to the plastic straw as additives (Made How, 2018). Persistent chemicals such as PCBs, some flame-retardants, and DDT still mingling in the aquatic environment and chemical properties (hydrophobicity) of these substances it is attached to plastic litter (Aldag, 2019). Plastic straw is non-biodegradable and can persist longer in the environment. Plastic straw can take 200 years to decompose.

Plastic waste generated gives a significant effect on soil, waterways and landfill. Increasing of plastic produced over the years and mismanaged plastic waste cause not enough space to support the waste. Most of the plastic wastes are being dumped into the landfill and this will eventually contribute to soil, water, air and plastic pollution.

Plastic waste being dumped into landfills and it leaches to the water and soil. Eventually, it will enter the food chain and cause health hazards to humans. Plastic waste in landfills generates leachates which contain metals and hazardous organic chemical that will enter the soil and groundwater and it will cause soil and groundwater contamination.

Plastic straw also associated with global warming as mention by Thomas (2018) plastic production associated with resource and greenhouse emissions as they relied on limited fossil fuels. GHG gases such as carbon dioxide, methane, chlorofluorocarbons, nitrous oxide can cause a significant hazard to the environment, human health and can cause global warming as its can trap solar radiation. Several GHG gasses are emitted from landfills, 90% to 98% of which are carbon dioxide and methane. (Bhattacharya et al, 2018). Since the plastic leaks in the ocean are increasing and remain trapped for a long period, the global warming effect further accelerates the plastic breakdown into smaller particles (Kaur & Jaabi, 2017)

Plastic does not biodegrade, but it will photodegrade into smaller pieces of plastic causing pollution. Microplastics are less than 5mm particle size. It causes great concern because it is a smaller size and can easily be ingested by an organism through the marine food chain. Microplastics can be comparable in size to some plankton and are eaten by marine life, including some commercially important species (Aldag, 2019). Microplastic is dangerous because it has the potential to bioaccumulate chemical pollutants. Plastic contains a toxic chemical compound that can cause an effect not only on the environment but on the human and marine life. Microplastic posed a threat to human health since people are consumed seafood and drinking water. The ingestion of polyethylene in fish can bioaccumulate and caused liver toxicity and pathology (Rochman et al., 2013; Fischbach, 2019).

Plastic straw can easily found in the ocean because of its properties which are lightweight, it's easily carried by wind and enter into the ocean. Bhattacharya et al. (2018) mention that plastic waste and microplastic enters into the marine environment by wind transport, drainage or sewage systems or from the land by river. Littering of plastic straw not only cause an effect on the environment and human health but also

marine life. Littering of plastic in the ocean has been reported early1970s somehow in the last 25 years it begins getting attention from the scientific community (Andrady, 2011; Gutierrez et al., 2019). Plastic straws that being litter into the ocean can cause plastic accumulation in the ocean.

Plastic pollution has become greater issues since there are many plastic littering in the ocean. Plastic litter is extremely plentiful a in most coastlines around the world and frequent tourists to the beach and locals appear to be the cause of this litter (Beeharry et al., 2017; Brennan & Portman, 2017; Campbell et al., 2016; Hartley et al., 2018b; Kiessling et al., 2017; Rangel-Buitrago et al., 2018; Santos et al., 2005; Heidbreder et al., 2019).

The threat of plastics and its seriousness especially on marine life just recently been recognized after has been unnoticed by people for a long time. Plastic straw issues and marine animals are getting many concerns since nowadays after the viral video of Olive Ridley sea turtle was found lodged in his nose causing difficulty in breathing. Littering of plastic straw can cause injury to marine life, marine pollution and disturbance to their food chain. Both Bhattacharya et al (2018) and Gutierrez et al (2019) emphasized on hazard posed by plastic debris or plastic straw can cause entanglement and ingestion to the marine life. More than 100,000 animals died from plastic content in the aquatic environment and 1,000,000 seabird deaths each year (Brink & Schweitzer, 2017; West, 2014; Molstad et al., 2018).

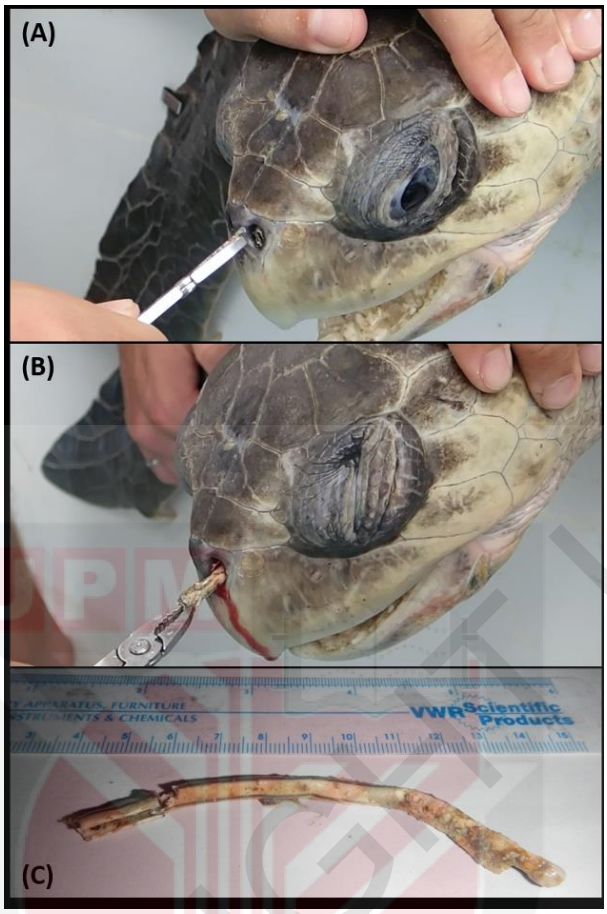


Figure 1.2.2: (A) Plastic straw in the left nostril of an olive ridley sea turtle. (B) Removal of the straw. (C) The straw next to a ruler for scale.

Source: Marine Turtle Newsletter, 2015

Plastic straw comes into 2 types of sizes, small and large plastic straw. Small plastic straws often mistook as food by marine life since they cannot distinguish between food and a plastic straw. Animals who eat plastic frequently starve because they can't digest the plastic and it fills their stomachs, avoiding them from eating genuine nourishment (Earth Day Network, 2018).

1.2.3 IMPACT TO THE HUMAN HEALTH

Disposal of plastic waste has become the main source of environmental pollution where it can cause an effect to human health in terms of human carcinogenic, defects in birth, immunity impairment, disruption of endocrine and effect on development and reproductive(Srinivasan et al., 2019). Plastic are made up of dangerous chemical. The toxic chemical added in the plastic production can transfer into the animal tissue and later on will enter the human food chain. Plastic consumed by marine life and even toxins they absorb from the water accumulate in the food chain, which inevitably poses a danger to humans (Earth Day Network, 2018).

Microplastics are being ingested by much marine life. Sea-life such as fish or other polluted aquatic species are mistakenly eaten plastic as plankton or meal, the chemicals will be transmitted into the tissue of fish (Kaur & Jaabi, 2017). Eventually, it will enter the human food chain since the human consumed the fish. Microplastic ingestion in humans is increasing due to the consumption of bivalves and several species of small fish that are consumed whole (Kaur & Jaabi, 2017). The ingestion of polyethylene in fish can bioaccumulate and lead to liver toxicity and pathology (Fischbach, 2019).

1.3 Study justification

Plastic straw has been used by the community all over the world and by all ages. Plastic straw has become an environmental issue after the plastic bag. Plastic straw posed a very significant impact on the environment, community and animal. An environmental issue that has been gaining huge of recognition is the usage frequency of plastic straws (Smith, 2019).

Plastic straw has been used by all age including school students. Secondary school student has been chosen as a study population to assess their Knowledge, Attitude and Practice (KAP) on plastic straw. However, there is limited study conducted on knowledge, attitude and practise on plastic straw especially among secondary school students. Therefore, there is a need to assess the knowledge, attitude and practise on plastic straw among secondary school students. This study will provide an insight into students' views on this subject and their attitudes and actions related to plastic items (Hammami et al., 2017). In addition, this study will serve as the basis for potential policy policies, public agencies, and private programs that can help minimize the severity of this growing danger (Hammami et al., 2017).

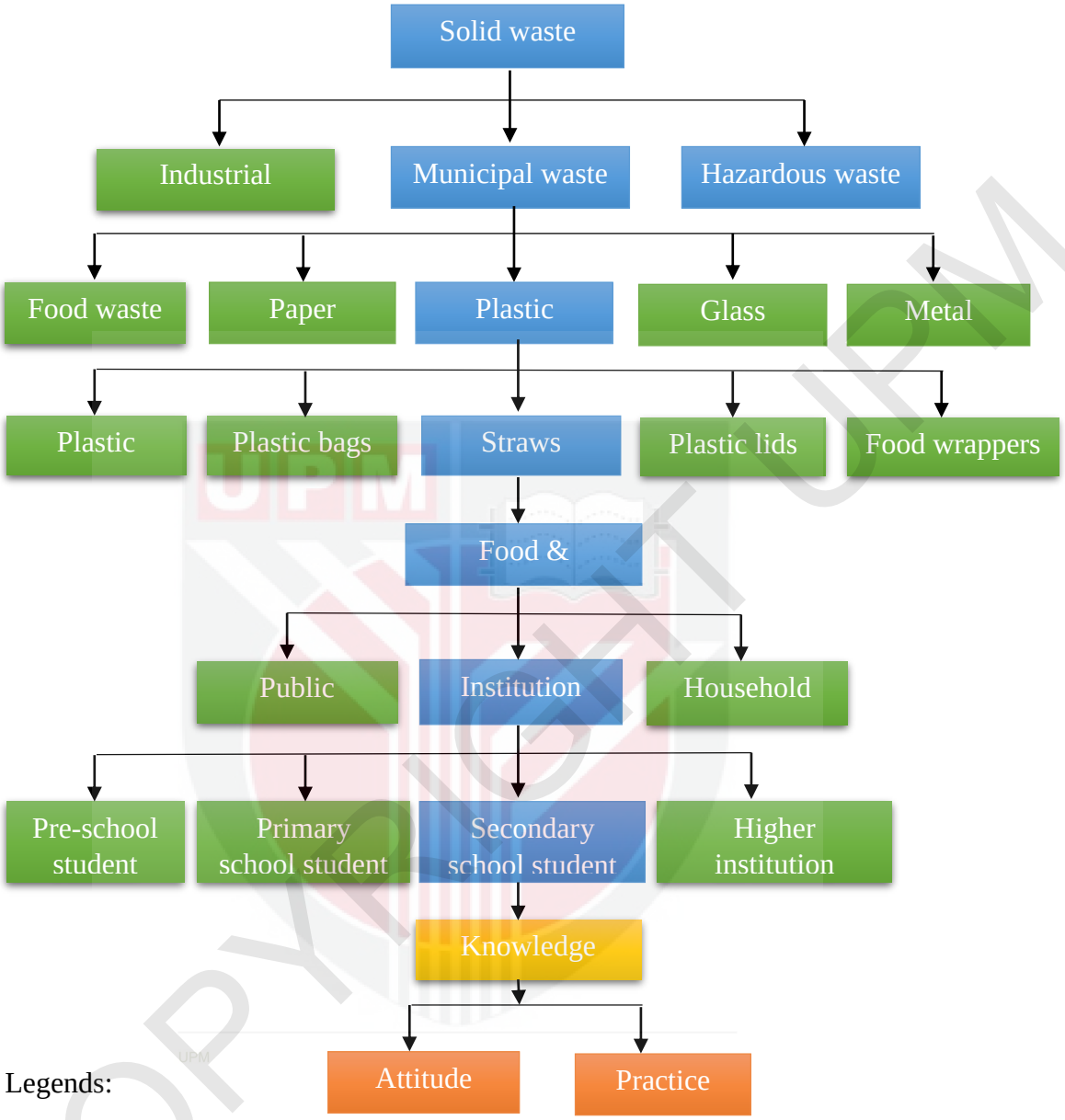
Besides, having a good knowledge can contribute towards great attitude and practice of an individual in daily life. There are strong correlations between positive attitudes, behavior intentions to reduce plastic of the students, besides strong associations between the knowledge of environmental issues and the attitudes towards plastic consumption (Mariani & Ruwaidah, 2018).

Urban areas were selected because people in urban areas tend to produce more plastic waste compared to rural areas. A study conducted by Sarker et al in 2012, the main contributor to domestic waste are urban dwellers (Al-Naggar et al., 2019). Urban areas produce more paper and plastic waste compared to rural areas which generate more organic waste (Jaafar et al., 2018).

Secondary school students that being select are form one and form four students. The lower form consists of form one, two and three meanwhile upper form consists of form four and form five students. Form one and form four students are being selected according to the terms of the application of conducting research at

school or institution under the Ministry of Education, where the research does not involve examination students. Besides, the selected respondents are based on the school's management preference. Other than that, this study is conducted among form one and form four student because higher education leads to higher knowledge which contributes towards better attitude and practice of a student.

1.4 Conceptual framework



Legends:

Dependent variable

Independent variable

Study variable

Figure 1.4: Conceptual Framework

1.5 Research question

1. What is the level of knowledge, attitude and practice (KAP) on plastic straw between 13 and 16 years old students from SMK Kelana Jaya?
2. Does the level of knowledge on plastic straw different between 13 and 16 years old students from SMK Kelana Jaya?
3. Does the level of attitude different between 13 and 16 years old students from SMK Kelana Jaya?
4. Does the level of practice different between 13 and 16 years old students from SMK Kelana Jaya?
5. Is there any association between knowledge and attitude with the practice level of selected secondary school students on plastic straws?

1.6 Objective:

1.6.1 General objective

To assess the knowledge, attitude and practices of plastic straw among secondary school students in Selangor.

1.6.2 Specific objective

1. To obtain sociodemographic data of the secondary school students.
2. To determine the level of knowledge, attitude and practice (KAP) on plastic straw between 13 and 16 years old students from SMK Kelana Jaya.
3. To compare the knowledge on plastic straw between 13 and 16 years old students from SMK Kelana Jaya.

4. To compare the attitude on plastic straw between 13 and 16 years old students from SMK Kelana Jaya.
5. To compare the practice on plastic straw between 13 and 16 years old students from SMK Kelana Jaya.
6. To determine the association between knowledge and attitude with practice level of selected secondary school students on plastic straw.

1.7 Hypotheses

1. There is significant difference of knowledge on plastic straw between 13 and 16 years old students SMK Kelana Jaya.
2. There is significant difference of attitude on plastic straw between 13 and 16 years old students from SMK Kelana Jaya.
3. There is significant difference of practice on plastic straw between 13 and 16 years old students from SMK Kelana Jaya.
4. There is an association between knowledge, attitude and practice on plastic straw among respondents.

1.8 Definition of Terms

1.8.1 Conceptual Definition

Straw

A straw is a prepared tube used to slurp a drink out of a container (Made How, 2018).

Plastic

Plastic is a lightweight, hygienic and resistant material which can be moulded in a variety of ways and utilized in a wide range of applications (United Nations Environment Programme, 2018).

Single-use plastics

Single-use plastics, frequently additionally alluded to as expendable plastics, are ordinarily utilized for plastic bundling and incorporate things proposed to be utilized just once before they are discarded or reused (United Nations Environment Programme, 2018).

Microplastics

Microplastics are plastics that measure less than 5 mm (Peng et al., 2017).

Knowledge

Understanding of information about a subject that you get by experience or study, either known by one person or by people generally (Cambridge, 2020).

Attitude

Attitude can be inferred as a feeling or viewpoint about something, someone or an approach to behave and it contains a person's belief about the positive and negative effect to perform the behavior (Sulaiman et al., 2019).

Practice

Practice as 'methods in which they illustrate their knowledge and attitude through their actions' (Kaliyaperumal, 2004; Mariani & Ruwaidah, 2018).

Knowledge, Attitude and Practice

Knowledge, Attitude and Practice (KAP) show the characteristics in knowledge, attitude, behaviors and the conception of a person on the related subject (Sybille,2019; Mariani & Ruwaidah, 2018).

Aesthetic

Aesthetic relates to the enjoyment or study of beauty (Cambridge, 2020).

1.8.2 Operational Definition

Knowledge

Their knowledge in terms of general aspects, ill effects, reuse and practice in terms of usage and disposal were assessed with a questionnaire.

Attitude

The attitude is defined the perception of the study participants towards plastic straws and how they act towards certain conditions. The level of attitude on the study participants on plastic straws will be determined using the questionnaire.

Practice

Practice is defined as the life-long behavior of the study participants towards the plastic straw. The level of practice will be determined using a questionnaire.

Knowledge, Attitude and Practice (KAP)

Knowledge, Attitude and Practice (KAP) of the study participants towards plastic straws will be assessed using a questionnaire.

CHAPTER 2

Literature Review

2.1 Importance of Plastic Straw

A straw is a prepared tube used to slurp a drink out of a container (Made How, 2018). Straws give a simple alternative for drinking beverages easily, which makes straws brilliant examples of things that people take for granted (Gutierrez et al.,2019). Plastic straw rapidly to produce due to its modest, more durable than paper and it is simply wedged between the crosshairs of a drive-thru eatery to-go lid without ripping or tearing (Gibbens, 2019).

2.2 Impact of Plastic Straw

2.2.1 To The Environment

Plastic manufacture process contributes to global warming and air pollution (Verghese et al. 2006; Ellis et al. 2005; Hammami et al., 2017). Resources and greenhouse gas emissions are linked with plastics production since they relied on limited fossil fuels (Defra, 2018). In fact, laboratory studies show that plastic is a source of anthropogenic climate change, since the most widely used plastics may emit greenhouse gasses when exposed to sunlight (Royer et al., 2018).

The raw materials used to produce almost all plastics are resulting from fossil fuels, with carbon emissions throughout their lifecycle, including during extraction, pipeline and refinery operations, production and conversion, through to end-of-life treatment, such as incineration (Center for International Environmental Law,2017). GHG gases can trap solar radiation which leads to global warming (Roy & Khan,

2018). Several GHG gasses are emitted from landfills, 90% to 98% of which are carbon dioxide and methane. (Bhattacharya et al, 2018). The Environmental Protection Agency (EPA) estimates that the manufacture of plastic products account for an estimated 8% of worldwide oil production (Earth Day Network, 2018).

Plastic debris posed a significant hazard to marine life which is entanglement and ingestion where it results in injury and death of marine animals and birds (Bhattacharya et al., 2018). Sealife can be choked and entangled by the plastic straw that being littered in the ocean (Hammami et al., 2017). Besides, it is also related to the disease on coral reefs, as well as declines in the reproduction and population growth of zooplankton (Ocean Conservancy, 2017; Hammami et al., 2017). The rising amount of plastic debris in the oceans causes an increasing risk to marine life (Derraik 2002, Cózar et al. 2014; Robinson et al., 2015). A large number of species are known to be harmed or killed in addition to dumping plastic material into the marine environment which could jeopardize their survival, particularly because many are already threatened by other types of anthropogenic activity (Pavani and Rajeswari, 2014). Among the 267 animals most affected by plastic ingestion are seabirds, marine turtles and cetaceans (Haetrakul et al.2009; Simmonds 2012; Eagle et al.2016; Gutierrez et al.,2019).

If fish or other marine life ingested plastic waste and microplastics, it can enter our food chain (United Nations Environment Programme, 2018). Organisms consume microplastics are of concern, as they have the potential to bioaccumulate chemical pollutants (Fischbach, 2019).

2.2.2 Human Health

Plastic waste which is the main cause of environmental pollution becomes carcinogenic to humans, birth defects, impaired immunity, endocrine disruption, development and reproductive effect (Srinivasan et al., 2019). Bisphenol A (BPA) are a common plastic additive, can cause severe health effects such as infertility, breast and prostate cancer, and polycystic ovary syndrome when absorbed through oral, transdermal or by inhalation (Lister & Schierow, 2010; Konieczna et al., 2015; Molstad et al., 2018). Through impacting the respiratory, nervous, and reproductive systems, the toxic chemicals along with their carcinogenicity can cause social and health impacts (Srinivasan et al., 2019). Therefore, the probable danger to human health may result from the ingestion of food products that were in contact with plastic or contain microplastic (Heidbreder et al., 2019).

2.3 AESTHETIC

Aesthetic relates to the enjoyment or study of beauty (Cambridge, 2019). Aesthetic values are important criteria in the public's perception of places. Plastic waste not only affects marine life, human health but also can damage the aesthetic value of the ocean and beach. The aesthetic value of tourist destinations is being damaged by plastic waste which leads to lessened tourism-related incomes and major financial costs related to the cleaning and maintenance of the sites (International Union for Conservation of Nature, 2018). The aesthetic and recreational values of rivers, beaches and marine resources are being reduced by the aquatic trash (Environmental Protection Agency, 2017).

2.4 Knowledge, Attitude and Practice (KAP)

Assessing the knowledge and practice of the student community, especially of the professional courses, in this matter is considered as a significant one (Srinivasan et al.,2019). Student's practice in terms of disposal was less even though they have good knowledge on the ill effects of plastics (Srinivasan et al., 2019). Increased knowledge and awareness about environmental issues are believed to improve environmental behaviors, and this in return is presumed to have a significant impact on environmental actions and to minimize reckless human activities against nature (Kollmuss and Agyeman 2002; Hammami et al., 2017).

Raising consciousness of such a dominant condition issue is a very significant step towards improving people's behaviour, as the knowledge of the participants very clearly influenced their attitudes and willingness to change (Hammami et al., 2017). A study conducted by Universiti Putra Malaysia students where they used the Theory of Planned Behavior to find out what determines the plastic consumption behaviors of the students. According to their findings, there are strong correlations between positive attitudes, behavior intentions to reduce plastic consumption of the students, besides strong associations between the knowledge of environmental issues and the attitudes towards plastic consumption (Mariani & Ruwaidah, 2018). Consumers are likely to change their attitudes and following practices according to their newly gained knowledge since they gain more information on environmental issues (Polonsky et al., 2012; Mariani & Ruwaidah, 2018).

CHAPTER 3

Methodology

3.1 Study design

Cross-sectional study design will be used in this study to determine the knowledge, attitude and practice (KAP) on plastic straw among selected secondary school students in Selangor.

3.2 Study location

The study will be conducted in Selangor. Selangor is located in the right and west of Peninsular Malaysia with an estimated 6.53 million populations in 2019 (Department of Statistic Malaysia, 2019). Selangor consists 10 district which includes Klang, Kuala Langat, Kuala Selangor, Hulu Langat, Hulu Selangor, Sabak Bernam, Gombak, Petaling Perdana, Petaling Utama and Sepang. The study was conducted at Petaling Jaya, Selangor. Petaling Jaya were located in Petaling Utama. There are 23 secondary schools located in Petaling Jaya. SMK Kelana Jaya was chosen based on simple random sampling.

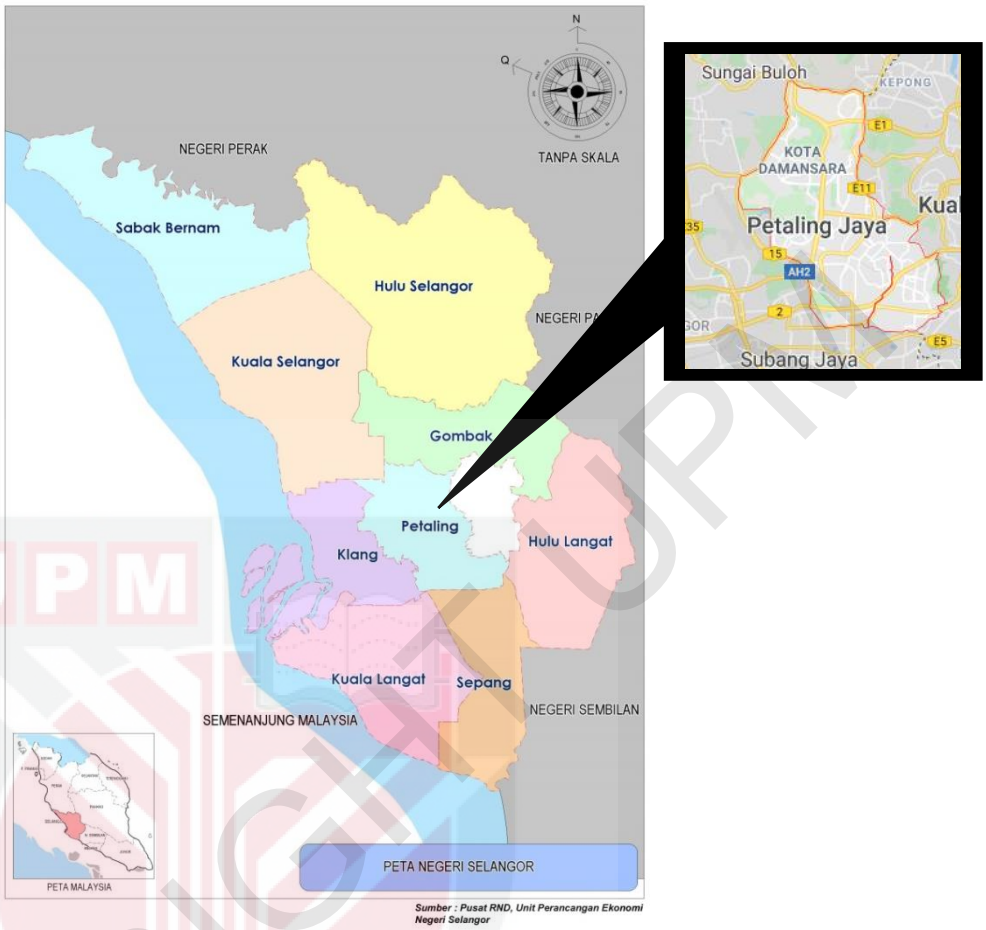


Figure 3.2: Map of Selangor

Source: Official Portal Selangor State Government, 2019

3.3 Sampling

3.3.1 Sample population

The sample population of this study is secondary school students in SMK Kelana Jaya, Petaling Jaya, Selangor. Form one and form four students from the school were chosen as the respondents and the comparison between these two groups was analyzed.

3.3.2 Sampling Frame

The sampling frame of the respondents were secondary school students in an urban area in Selangor.

3.3.3 Sampling Unit

The sampling unit were secondary school students that meet with the inclusion criteria of the study. Secondary school students that being select were form one and form four students. The lower form consists of form one, two and three meanwhile upper form consists of form four and form five students. Form one and form four students were being selected according to the terms of the application of conducting research at school or institution under the Ministry of Education, where the research does not involve examination students. Besides, the selected respondents were based on the school's management preference. The selection of the criteria was followed:

Inclusion criteria

1. Respondents from selected secondary schools.
2. Respondents age 13 and 16 years old.
3. Respondents who can read, write and communicate in Bahasa Melayu and English.

Exclusion criteria

1. Respondents who are not from selected secondary schools.
2. Respondents who are not in the range of age.
3. The respondent who cannot read, write and communicate in Bahasa Melayu and English.

3.3.4 Sampling Method

Simple random sampling was used to select the district. For the selection of the urban areas, simple random sampling was used. The list name of the schools in Petaling Jaya district was obtained from Official Portal Selangor State Government. After selecting the district, the researcher further selects the school in the selected areas using simple random sampling.

3.3.5 Sampling Procedure

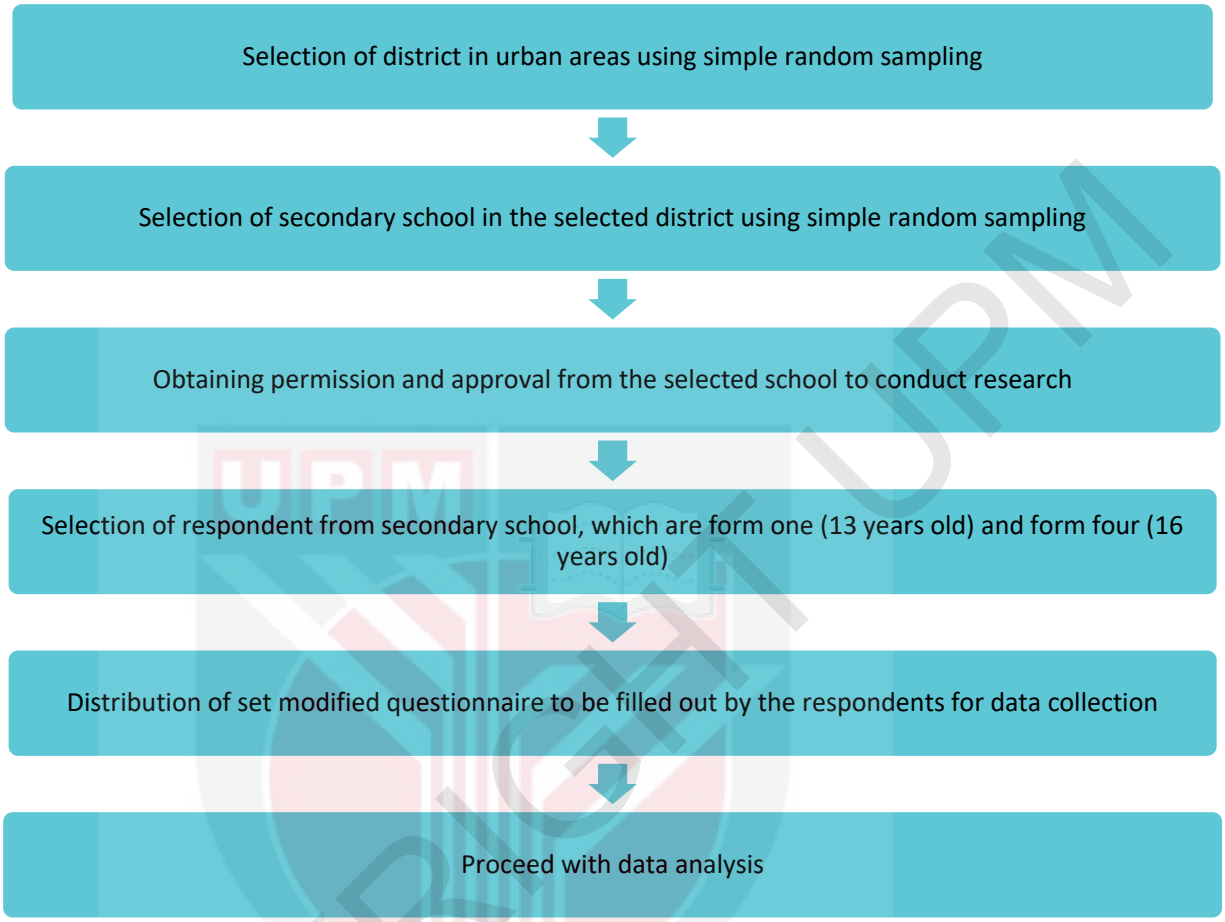


Figure 3.3.5: Flowchart of the sampling procedure

3.4 Sample Size

A study done by Srinivasan (2019) stated that students in Malaysia had a 74.4% level of knowledge on plastic. The sample size was calculated based on the proportion for one group formula.

$$\boldsymbol{n = \frac{Z^2{}_{1-\alpha/2}\, P(1-P)}{d^2}}$$

Where:

n = Sample size

$Z^2{}_{1-\alpha/2}$ = Standard errors associated with confidence interval = 1.96

P = Prevalence of estimated proportion

d = Desired precision

$$n = \frac{(1.96)^2\,(0.744)(1-0.744)}{(0.09)^2}$$

$$n = 90$$

Thus, the sample size calculated was 90. However, another 10% of the sample size will be added in case of any likelihood of drop out respondents to occur.

$$\frac{10}{100} \times 90 = 9$$

Therefore, the total sample size required for this study will be 99 respondents. Since this study involves two groups which includes form one form and form four, the total respondents for each group will be 50. However, due to the school's management preference, in order to meet the required number of respondents, participants that involved were selected according to the classes. Due to this condition, the number of participants involved exceeds the sample size required.

3.5 Study Instrument

A modified version of the questionnaire from Ashton-Graham, 2017 was used in this research. The first section (Section A) were on the socio-demographic characteristics of the respondents. The second section (Section B) were a general question on the respondents regarding plastic straw. The third section (Section C) were questions on the respondents' knowledge about plastic straw. The fourth section (Section D) were on the respondents' attitude towards plastic straw. The fifth section (Section E) were questions based on the respondents' practice. The Sixth section (Section F) were recommendations where the respondents are encouraged to choose and suggest any improvement in their daily life regarding of plastic straw problem.

i) **Section A: Socio-demographic Characteristics**

The respondent was asked on their socio-demographic status, for example, age, gender and race. There were 3 question included in this section. Respondents were required to tick the answer.

ii) Section B: General question on plastic straw

For this part, there were 6 questions that comprise of frequency and reason of the respondents using plastic straw and whether straw can cause a problem or not.

iii) Section C: Knowledge on Plastic Straw

For this part, there were 20 questions that comprised of knowledge regarding of plastic straw production, the effect of plastic straw on humans,

marine life, and the lifecycle of straw. The respondents were guided and are required to answer the questions through Yes or No options.

iv) Section D: Attitude on Plastic Straw

There were 20 questions about the attitude of the respondents towards plastic straw. The respondents were required to answer the questions based on the Likert-scale comprised of Strongly Disagree, Disagree, Agree and Strongly Agree

v) Section E: Practice on Plastic Straw

In this part, there were 20 questions that will be comprised of questions regarding respondents practice on plastic straw. This questions required answers from respondents based on the Likert-scale comprised of Strongly Disagree, Disagree, Agree and Strongly Agree.

vi) Section F: Recommendations

In the recommendations part, the respondents were encouraged to suggest any improvements to be made in their daily life to minimize plastic straw problems.

3.6 Variables

3.6.1 Dependent Variables

The dependent variables were the knowledge on plastic straw**.**

3.6.2 Independent Variables

The independent variables were the attitude and practices on plastic straw.

3.7 Data Collection

After all the application process has been accepted, all the selected students were gathered at the provided room. A short briefing on the purpose of the research were given to the respondents before the distribution of the questionnaire. The respondent required to fill in the form of agreement to participate in this study and were informed that their individual response would remain anonymous and protected by the research investigator. The students were given 20 minutes to answer the entire questionnaire given. A token of appreciation was given to the respondent when they completed the questionnaire.

Supposedly all of the respondents were gathered at the hall during the data collection. However, due to some problems which hall cannot be used on that day and all respondents cannot be gathered together. First session was the researcher with form four students and in-charged teacher. Two sessions has been conducted. This session was a guided questionnaire where the respondents were guided by the researcher where researcher instruct to fill out the questionnaire and consent form during the session. For the next session with form one students, the in-charged teacher took charge. The researcher explained the same instruction to the in-charged teacher. The researcher handed the questionnaire and consent form to the in-charged teacher and the respondents were given one week to complete it. After one week, the researcher collected the consent form and questionnaire

3.8 Data analysis

Data analysis was done using "Statistical Package for Social Sciences (SPSS)" Version 25.

3.8.1 Descriptive Analysis

1. Knowledge Assessment

There were 20 questions in the knowledge section. These questions were used to assess the knowledge of the respondents on plastic straw. Each correct answer was given a score of 1 and 0 score for wrong answer. The overall score was converted in term of score level and were classified into 3 levels (low, moderate, and good knowledge). A mean of score of 15.4867 and standard deviation of 2.59513 was used to classify the subjects into 3 groups as follows (Ajit, 2010):

Low level: score of 0 -13

Moderate level: score of 14 - 17

Good level: score of 18 -20

2. Attitude Assessment

The questions on attitude towards plastic straw comprised of 20 questions and following scoring criteria was followed:

Strongly agree answer : 4 points

Agree answer : 3 points

Disagree answer : 2 points

Strongly disagree answer : 1 points

The obtained score was converted into score level and were classified into 3 levels (low, moderate and good attitude). A mean of score of 59.7467 and standard deviation of 7.09966 was used to classify the subjects into 3 groups as follows (Ajit, 2010):

Low level : score of 53 and below

Moderate level : score of 54 - 67

Good level : score of 68 or above

3. Practice Assessment

There were 20 questions consist on practise sections. The practice scoring method followed these scoring criteria:

Strongly agree answer : 4 points

Agree answer : 3 points

Disagree answer : 2 points

Strongly disagree answer : 1 points

The obtained score was converted in term of score level and were classified into 3 levels (low, moderate and good practices). A mean of score of 56.2733 and standard

deviation of 8.94720 was used to classify the subjects into 3 groups as follows (Ajit, 2010):

Low level	: score of 47 and below
Moderate level	: score of 48 - 64
Good level	: score of 65 or above

3.8.1 Analytical Analysis

Chi Square test were used to identify the association between knowledge and attitude with practice level among respondents. Chi square test was preferred to analyse the association between two categorical data. Besides, Independent Sample T-test was used to compare knowledge, attitude and practice on plastic straw between 13 and 16 years old students from SMK Kelana Jaya.

3.9 Quality Control

A modified version of the questionnaire from Ashton-Graham, 2017 was used in this research. A pilot study was done to test the validity and time taken for respondents to complete the questionnaire. A sample of the questionnaire were distributed to 9 students as the representative of respondents from the study population to observe their ability and understanding to answer the questionnaire in order to produce a good research result. A reliability test was then done by using SPSS to get the Cronbach alpha of 0.7 or is more acceptable for reliability test. For this study, the Cronbach alpha value for knowledge part was 0.792 while for attitude part was 0.858 and practice part was 0.895.

3.10 Ethical consideration

The approval from Ethics Committee of University Putra Malaysia (UPM) was obtained before the study was conducted. A formal letter from the Department of Environmental and Occupational Health, Faculty of Medicine and Health Science UPM was obtained for the application process to the Ministry of Education through the official portal of Ministry of Education. After application had been approved by Ministry of Education, the approval letter then was forwarded to the Selangor State Education Department.

This research was conducted voluntary basis where all respondents were given a brief in how the study was conducted and all respondents were asked to give their written permission using agreement consent form provided. All identities and personal information that were given by the respondents were remained confidential in this study. Ethics reference number for this study was JKEUPM-2019-496.

3.11 Study Limitation

Several things contribute to the limitation of this study which includes times and people. Some of the students were not able to participate in this study due to absent from school or involved with a class or school activities. Supposedly, all respondents were gathered at hall for researcher to conduct data collection and give a briefing to all respondents. However due to some problems, hall cannot be used and all respondents cannot be gathered all at once during that day, there were two sessions of the respondents answering the questionnaire. Besides, this research only involved one school instead of more school due to movement control order (MCO) has been

implemented because of Covid-19. Other than that, data collection for all respondents could not be done simultaneously at the same place since there was a problem that happens on the day of data collection where hall cannot be used to gather all of the respondents together.

CHAPTER 4

Results

This chapter includes descriptive and analytical findings on demographic, knowledge, attitude and practice. For descriptive statistics, information on sociodemographic, general question on plastic straw, knowledge, attitude and practice of students on plastic straw were presented. Analytical findings on the comparison between group and association of all independent variables and dependent variable was present later in this section.

In order to complete this study, 150 copies of questionnaire were distributed to both secondary school students. Out of 150 copies, 150 (100% response rate) were completed and were returned to the researcher.

4.1 General Socio-Demographic Characteristics

Socio-demographic characteristics of the respondents consist of information on gender, age and race. In terms of gender, the respondents comprise of 45 (60%) males and 30 (40%) females for form one students. Meanwhile, the respondents for form four students comprises 36 (48%) males and 39 (52%) females. Regarding ethnicity, the dominant race was Malay with 128 participants (85.3%) followed by Indian that comprise of 14 participants (9.3%), Chinese students 7 (4.7%) and lastly other races students which 1 (0.7%).

Table 4.1: Socio-demographic data of the respondents

Socio-demographic characteristics	Number (n)	Percentage (%)
Age		
13 years old	75	50
16 years old	75	50
Gender		
Male	81	54
Female	69	46
Ethnicity		
Malay	128	85.3
Indian	14	9.3
Chinese	7	4.7
Other races	1	0.7

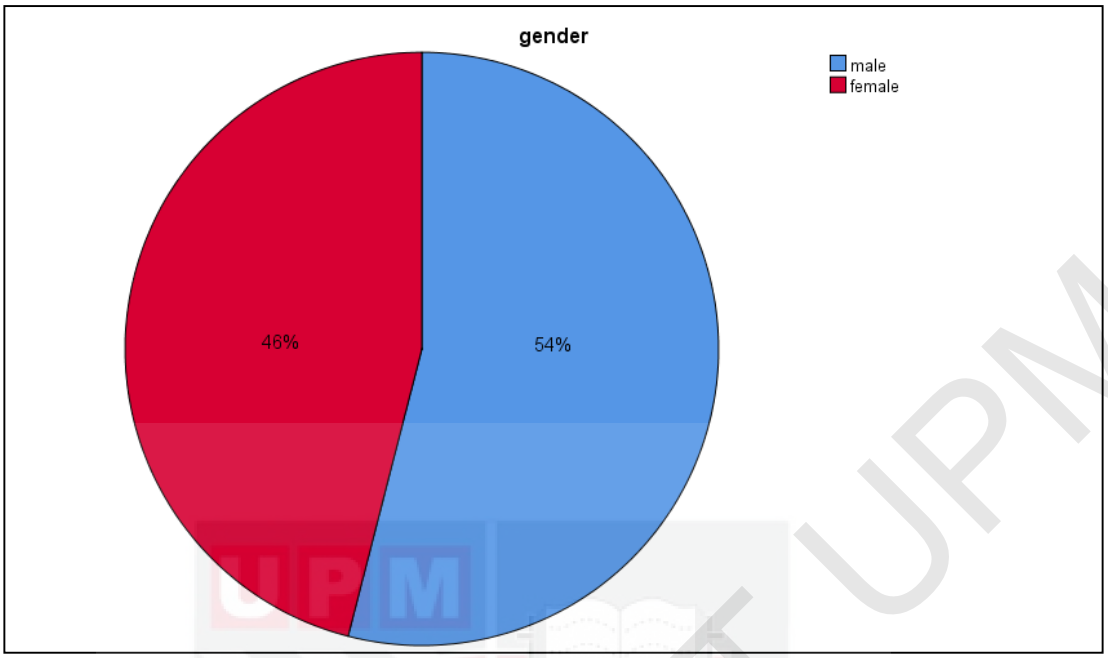


Figure 4.1: Distribution of gender of the respondents (N=150)

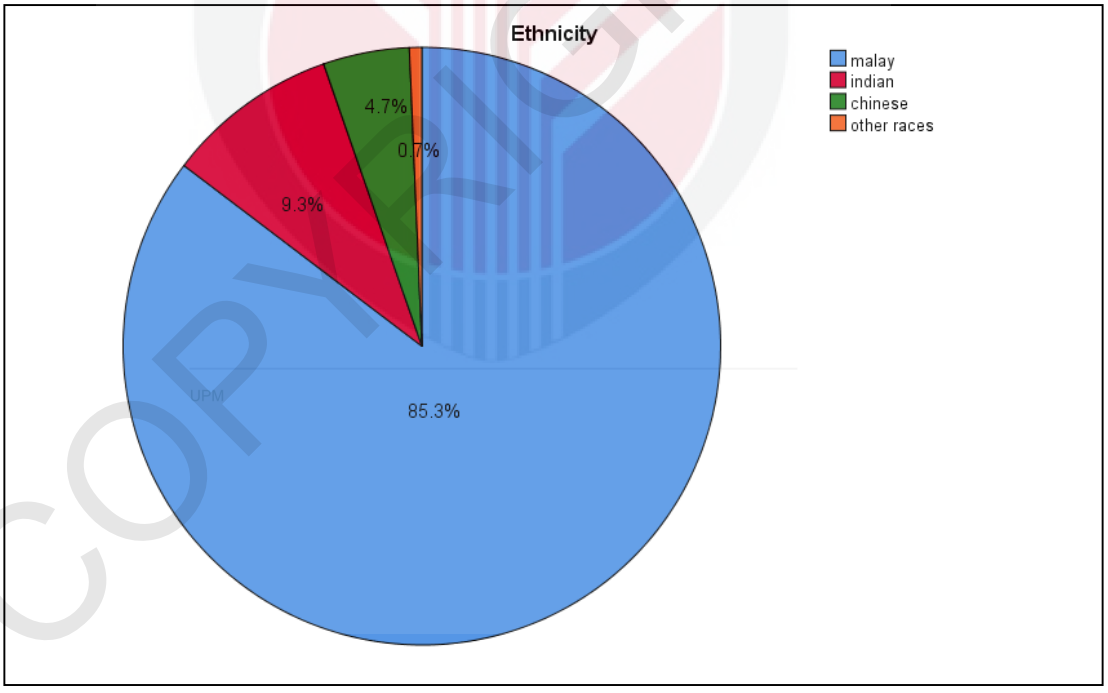


Figure 4.2: Distribution of races of the respondents (N=150)

4.2 Descriptive statistic on general question

Table 4.2 illustrated the second part in the questionnaire which is the general question on plastic straw. The respondents had been asked with five questions. Descriptive statistics was done to get the frequency and percentage of the respondents chosen answer based on students' age. Out of 81.3% of form one students and 84% of form four students were using plastic straw. Out of 18.7% form one students and 16% form four students saying no of using plastic straw. For the frequency of using plastic straw, form one students answering always (20%), followed by seldom (28%), sometimes (49.3%) and never (2.7%). For form four students, they answering always (5.3%), followed by seldom (23%), sometimes (48%) and none of them answering never (2.7%) for frequency of using plastic straw. For third question, 44% of form one students and 49.3% of form four students were preferred using straws when taking drink while the other 56% respondents of form one students and 50.7% in form four students said no. Moreover, 72% of form one students and 65.3% of form four students used plastic straw for taking a drink, particularly in the past week while the rest of 28% of form one students and 34.7% of form four students did not used it in the past weeks. Besides, majority of form one students prefer using plastic because easily available (38.7%) followed by lightweight (20%), others (17.3%), norm/habits (16%) and cheap (8%). For form four students, majority of them prefer using plastic straw because easily available (41.3%), norm/habits (30.7%), others (16%), cheap (8%)and lightweight (4%). Lastly, 86,7% of form one and 93.3% of form students agreed that plastic straw can cause a problem. Meanwhile, 13.3% of form one and 6.7% of form four students did not agreed that plastic straw can cause a problem.

Table 4.2: General question on plastic straw

Variable	Form one students	Form four students
Do you use plastic straw?		
Yes	61 (81.3%)	63 (84%)
No	14 (18.7%)	12 (16%)
How often do you use plastic straw?		
Always	15 (20%)	4 (5.3%)
Seldom	21 (28%)	23 (30.7%)
Sometime	37 (49.3%)	48 (64%)
Never	2 (2.7%)	-
Do you prefer using straws when taking drinks?		
Yes	33 (44%)	37 (49.3%)
No	42 (56%)	38 (50.7%)
Have you ever used plastic straw for taking a drink , particularly in the past week?		
Yes	54 (72%)	49 (65.3%)
No	21 (28%)	26 (34.7%)
Why do you prefer to use plastic straw?		
Cheap	6 (8%)	6 (8%)
Easily available	29 (38.7%)	31 (41.3%)
Lightweight	15 (20%)	2 (4%)
It becomes norm/habits	12 (16%)	23 (30.7%)
Others	13 (17.3%)	12 (16%)
Do you think plastic straw can cause a problem?		

Yes	65 (86.7%)	70 (93.3%)
No	10 (13.3%)	5 (6.7%)

4.3 Knowledge on Plastic Straw

There were 20 questions had been asked to the respondents in order to identify respondents' knowledge on plastic straw. For every correct answer, 1 point was obtained while for wrong answer, 0 point was given. The obtained score was converted in term of score level and was classified into 3 levels (low, moderate and high knowledge). Table 4.3 showed the frequency and percentage for level of knowledge between form one and form four students in SMK Kelana Jaya.

Table 4.3: Level of knowledge of respondents on plastic straw

Knowledge level	**Form one students**		**Form four students**	
	Frequency	**Percentage (%)**	**Frequency**	**Percentage (%)**
Low	19	25.3	8	10.7
Moderate	48	64.0	44	58.7
High	8	10.7	23	30.7

Generally, there were a bit of difference level of knowledge on plastic straw between form one and form four students in SMK Kelana Jaya. Form four students had shown that they have a high knowledge on plastic straw compared to form one student which is 23 (30.7%) score level for form four students and 8 (10.7%) for form one students. Majority of the respondents from both groups shown moderate level of knowledge on plastic straw which were 48(64.0%) and 44(58.7%) for form four students. There were 19 (25.3%) of form one students and 8(10.7%) of form four

students having low knowledge of plastic straw. Basically, form one students have a low knowledge on plastic straw compared to form four students.

The following tables show the detailed findings on percentage of answer of knowledge on plastic straw among the respondents. The information could give us sight to what extent the students knew about plastic straw.

Table 4.3.1: Knowledge on plastic straw among respondents

No	Questions	N (%)	
		True	False
1	Plastics can be recycled	107 (71.3%)	43 (28.7%)
2	Plastic don't compost or breakdown in landfill	112 (74.7%)	38 (25.3%)
3	Plastic straw are made of from harmful chemical	85 (56.7%)	65 (43.3%)
4	Plastics straw use oil resources and contribute to global warming	72 (48.0%)	78 (52.0%)
5	Plastic straw can take up to 200 years to decompose	115 (76.7%)	35 (23.3%)
6	The increasing use of plastic straw can lead to environmental problem	143 (95.3%)	7 (4.7%)
7	Plastics straw are harmful to human health	70 (46.7%)	80 (53.3%)
8	Plastic straw can endangered marine life	136 (90.7%)	14 (9.3%)
9	Plastic straw end up polluting waterways and ocean	141 (94.0%)	9 (6.0%)

10	I know about environmental-friendly straw	103 (68.7%)	47 (31.3%)
11	Many countries already ban the plastic straw	135 (90%)	15 (10%)
12	Malaysia already not encourage the use of plastic straw	128 (85.3%)	22 (14.7%)
13	Banning of plastic straw is good	133 (88.7%)	17 (11.3%)
14	In the ground, plastic materials are sustain long time and decrease the soil quality	117 (78.0%)	33 (22.0%)
15	To keep the environment beautiful, clean and not threatened, we need to be free of plastic products	139 (92.7%)	11 (7.3%)
16	Plastic straw can reached the food chain	70 (46.7%)	80 (53.3%)
17	There is too much plastic straw being used	136 (90.7%)	14 (9.3%)
18	Plastic straw have harmful effects on the atmosphere.	104 (69.3%)	46 (30.7%)
19	Plastic straw is not environmental friendly	131 (87.3%)	19 (12.7%)
20	Banning of plastic straw can reduce the amount of plastic-based waste at the landfill	144 (96.0%)	6 (4.0%)

From the result, it was found that the questions with highest score were question number 6, where 95.3% of the sample population agreed that the increasing use of plastic straw can lead to environmental problem, question number 8 in which 90.7% of the sample population perceived that plastic straw can endangered marine life, question number 9 where 94% agreed that plastic straw end up polluting waterways and ocean followed by question number 11 where 90% of the respondents knew that many countries already ban the plastic straw and question number 15 where they believed that to keep the environment beautiful, clean and not threatened, we need

to be free of plastic products. Next, 90.7% of the respondents agreed on question number 17 where there is too much plastic straw being used. Moreover, question number 20 also got the highest correct response where 96% of the respondents believed that banning of plastic straw can reduce the amount of plastic-based waste at the landfill. The question that respondents scored less was question number 12 in which 11.3% of the respondents knew that Malaysia already not encourage the use of plastic straw. The next question that the respondents scored less was question number 13 in which only 11,3% of the respondents did not believe that banning of plastic straw is good. Lastly, question number 19 also one of the question that the respondents scored least in which only 12.7% knew that plastic straw is not environmental friendly.

4.4 Attitude on Plastic Straw

For attitude part, the respondents' attitude was assessed in which they could either agree or disagree with the statements given in the questionnaire. there were 20 questions in attitude part. For strongly agree answer, 4 points were given, while score for agree answer is 3, 2 points for disagree answer and lastly 1 points for strongly disagree answer.

Table 4.4: Level of attitude of respondents on plastic straw

Attitude level	Form one students		Form four students	
	Frequency	**Percentage (%)**	**Frequency**	**Percentage (%)**
Low	17	22.7	13	17.3
Moderate	52	69.3	49	65.3
Good	6	8.0	13	17.3

Table 4.4 shown the level of attitude of the respondents on plastic straw and its distribution. Majority of the respondents from both form was having moderate attitude level on plastic straw which were 52 (69.3%) for form one students and49 (65.3%) for form four students. For good level attitude, there were 6(8%) of form one students and 13 (17.3%) of form four students level. Lastly, there were 17(22.7%) of form one and 13 (17.3%) of form four students having a low attitude level.

Table 4.4.1: Attitude on plastic straw among respondents

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

No	**Questions**	**N (%)**			
		1	**2**	**3**	**4**
1	I am willing to refuse the use of plastic straw when buying drink	7 (4.7%)	25 (16.7%)	78 (52.0%)	40 (26.7%)
2	I support the ban use of plastic straw	2 (1.3%)	17 (11.3%)	61 (40.7%)	70 (46.7%)
3	I support the government initiatives to reduce the plastic straw	4 (2.7%)	14 (9.3%)	63 (42.0%)	69 (46.0%
4	I am ready to spread awareness about plastic pollution to friends and family members	8 (5.3%)	17 (11.3%)	77 (51.3%)	48 (32.0%)

5	I am ready to use and bring environmental-friendly straws when buying a drink	5 (3.3%)	26 (17.3%)	67 (44.7%)	52 (34.7%)
6	I am concerned about what happen to marine life	2 (1.3%)	9 (6.0%)	57 (38.0%)	82 (54.7%)
7	I will ask the workers to give me straw if the restaurant does not provide me straw when I am purchasing their drink	46 (30.7%)	54 (36.0%)	38 (25.3%)	12 (8.0%)
8	I don't mind to use plastic straw even though it can cause environmental problem	54 (36.0%)	48 (32.0%)	31 (20.7%)	17 (11.3%)
9	I believe environmental-friendly straw can help prevent pollution to the environment	16 (10.7%)	15 (10.0%)	49 (32.7%)	70 (46.7%)
10	It is not right to throw plastic straw anywhere after use	9 (6.0%)	6 (4.0%)	33 (22.0%)	102 (68.0%)
11	Everyone needs to aware the negative effect use of plastic straw	5 (3.3%)	7 (4.7%)	59 (39.3%)	79 (52.7%)
12	School environment can be plastic straw free	9 (6.0%)	19 (12.7%)	59 (39.3%)	63 (42.0%)
13	I think I can live without plastic straw.	8 (5.3%)	24 (16.0%)	57 (38.0%)	61 (40.7%)
14	I am responsible for the problems caused by the use of plastic straw	12 (8.0%)	47 (31.3%)	72 (48.0%)	19 (12.7%)
15	I am concerned about plastic straw pollution	4 (2.7%)	14 (9.3%)	84 (56%)	48 (32.0%)
16	Environmental education should be taught in schools	3 (2.0%)	7 (4.7%)	62 (41.3%)	78 (52.0%)
17	The purchase decision that I make can increase or decrease the amount of plastic straw that I must get rid of	8 (5.3%)	12 (8.0%)	76 (50.7%)	54 (36.0%)
18	I don't care that throwing plastic straw can be bad for the environment and human health	82 (54.7%)	35 (23.3%)	20 (13.3%)	13 (8.7%)

19	People throw plastic straw everywhere because they have no other means of getting rid of (disposing) of their waste	39 (26.0%)	53 (35.3%)	34 (22.7%)	24 (16.0%)
20	Correct plastic waste management should be taught in schools	8 (5.3%)	6 (4.0%)	58 (38.7%)	78 (52.0%)

Table 4.4.1: Shows the detailed findings on percentage of answers of attitude on plastic straw among respondents. Based on the result shown in the table above, there were some statements where most of the respondents mostly agreed with. For example, question number 10 in which 68% of the respondents strongly agreed that the it is not right to throw plastic straw anywhere after use and 6.0% of the respondents strongly disagree with the statements. Next question that the respondents largely agree with was question number 6 where 54.7% of the respondents are concerned about what happen to marine life. Besides, 52.0% of the respondents strongly agreed with question number 16 and 20 in which environmental education should be taught in schools and correct plastic waste management should be taught in schools.

However, there were also few question that the respondents not agreed with. In question number 8, 36.0% of the respondents strongly disagreed with I don't mind to use plastic straw even though it can cause environmental problem. Apart from that, 54.7% and 23.3% of the respondents answered strongly disagree and disagree with question number 18 in which I don't care that throwing plastic straw can be bad for the environment and human health. This shows that 78%of the respondents failed to perceive that throwing plastic straw can be bad for the environment and human health.

4.5 Practise on Plastic Straw

For practice on plastic straw. All of the respondents were asked 20 questions regarding their practice on plastic straw. The respondents were given strongly agree, agree, strongly disagree and disagree as answer choice to indicate their practice on plastic straw. The scores of 4, 3, 2, and 1 were given respectively. The practise score were converted in term of attitude score level and was classified into 3 levels (low, moderate and high practices).

Table 4.5: Level of Practise on plastic straw

Practise level	Form one students		Form four students	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Low	6	8.0	11	14.7
Moderate	51	68.0	53	70.7
Good	18	24.0	11	14.7

The distribution of level of practice on plastic straws was shown in table 4.5. Majority of the respondents from both forms had moderate practice level which is 51(68%) for form one and 53 (70.7%) for form four students. For high practice level, form one students had better practice than form four students where there were 18(24%) form one students and 11(14.7%) for form four students.

Table 4.5.1: Practise on plastic straw among respondents

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

No	Questions	N(%)			
		1	**2**	**3**	**4**
1	I don't use plastic straw when taking a drink	9 (6.0%)	50 (33.3%)	65 (43.3%)	26 (17.3%)
2	I refused plastic straw when being offered	10 (6.7%)	56 (37.3%)	54 (36.0%)	30 (20%)
3	I always educate my family and friend to not use plastic straw when buying drinks	13 (8.7%)	47 (31.3%)	61 (40.7%)	29 (19.3%
4	I will prevent if my family or friend want to get plastic straw when buying drinks	11 (7.3%)	56 (37.3%)	54 (36.3%)	29 (19.3%)
5	I always bring environmental-friendly straw when buying a drink	15 (10.0%)	46 (30.7%)	63 (42.0%)	26 (17.3%)
6	I will recommend to my family and friend to use environmental-friendly straw when buying a drink	10 (6.7%)	23 (15.3%)	70 (46.7%)	47 (31.3%)
7	Plastic straw should be replaced with environmental friendly straw such as metal straw, bamboo or paper straw	8 (5.3%)	14 (9.3%)	55 (36.7%)	73 (48.7%)
8	It is not essential to give plastic straw when we buy drink from the shop	10 (6.7%)	29 (19.3%)	63 (42.0%)	48 (32.0%)
9	Shop should stop using plastic straw and introduce bringing environmental friendly straw	8 (5.3%)	18 (12.0%)	64 (42.7%)	60 (40.0%)
10	I'll pay for the plastic straw if it's charged	61 (40.7%)	39 (26.0%)	31 (20.7%)	19 (12.7%)
11	I will reduce the consumption of using plastic straw	7 (4.7%)	15 (10.0%)	82 (54.7%)	46 (30.7%)

12	I'm not interested to bring the environmental friendly straw along because its troublesome me	50 (33.3%)	45 (30.0%)	43 (28.7%)	12 (8.0%)
13	I always get the information about the negative impact of plastic straw disposal and its effect towards the environment	11 (7.3%)	31 (20.7%)	68 (45.3%)	40 (26.7%)
14	The success banning of plastic straw depends on the attitudes and practices of the person	8 (5.3%)	19 (12.7%)	68 (45.3%)	55 (36.7%)
15	If I found the plastic straw litters everywhere, I will take it and throw it according to the designated recycling bins category	14 (9.3%)	27 (18.0%)	70 (46.7%)	39 (26.0%)
16	I will purchase the environmental friendly straw to replace the plastic straw	7 (4.7%)	21 (14.0%)	64 (42.7%)	58 (38.7%)
17	I will take care the environment to prevent it from deteriorate	5 (3.3%)	9 (6.0%)	70 (46.7%)	66 (44.0%)
18	I will join or participate in the environmental program that being held at school or home area	14 (9.3%)	35 (23.3%)	74 (49.3%)	27 (18.0%)
19	I will deliver the negative impacts of plastic straw to others	18 (12.0%)	23 (15.3%)	76 (50.7%)	33 (22.0%)
20	I am not interested to purchase the environmental friendly straw	58 (38.7%)	46 (30.7%)	25 (16.7%)	21 (14.0%)

Table 4.5.1: Shows the detailed findings on percentage of answers of practise on plastic straw among respondents**.** Based on the result shown in the 4.5.1, there were 82 respondents (54.7%) agreed to reduce the consumption of using plastic straw and 46 (30.7%) strongly agreed. 9 people (6.0%) answered strongly disagree, 50 people (33.3%) answered disagree,65 people (43.3%) answered agree and 26 people (17.3%) answered strongly agree when the respondents asked about using of plastic straw.

Besides, 64 (42.7%) and 58 (38.7%) of the respondents agreed and strongly agreed to purchase the environmental friendly straw to replace the plastic straw.

4.6 Comparison of Knowledge on Plastic Straw between Form One and Form Four Students in SMK Kelana Jaya

Table 4.6 shows the differences in knowledge between form one and form four students in SMK Kelana Jaya. The p-value of Kolmogorov-Smirnov (KS) for knowledge score was 0.001. It was not normally distributed, hence Mann-Whitney test was used instead of Independent Sample T Test. For the knowledge score, the mean rank for form one students was 62.35, while the mean rank for form four students was 88.65. Based on the Mann-Whitney Test, the Z-statistics was -3.740 and p value was 0.000 which is less than 0.05. therefore, the null hypothesis was rejected and the results was significant.

Table 4.6: Comparison of Knowledge on Plastic Straw between Form One and Form Four Students in SMK Kelana Jaya

	Age	N	Median (IQR)	Mean rank	Z-Statistics	p-value
Knowledge level	13 years old	75	15.00	62.35	-3.740	0.000
	16 years old	75	17.00	88.65		

****significance at p<0.05**

4.7 Comparison of Attitude on Plastic Straw between Form One and Form Four Students in SMK Kelana Jaya

Table 4.7 indicates that the result of independent sample t test for attitude level in form one and form four students in SMK Kelana Jaya. The p-vale for the Levene's test for equality of variances was 0.716. Since the p-value was more than 0.05, equality of the variances is assumed. The mean different was -0.693 and the standardized difference, t = -0.597. The p-value of the test was 0.552 which was more than 0.005. The 95% CI for the mean difference was [-2.989, 1.602]. Table 4.8 shows the standard deviation and mean for attitude score.

Table 4.7.1: The result of independent sample t test for attitude

Attitude Score	**Levene's Test for Equality of Variances**		**t-test for Equality of Means**					
	F	**Sig.**	**T**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**95% Confidence Interval of the Difference**	
							Lower	**Upper**
Equal variances assumed	.133	.716	-.597	148	.552	-.69333	-2.98936	1.60269

****significant at p<0.05**

Table 4.7.2: The descriptive data for attitude score

Variable	**Age**	**N**	**Mean**	**SD**
Attitude score	13 years old	75	59.4000	0.76004
	16 years old	75	60.0933	0.87881

4.8 Comparison of Practise on Plastic Straw between Form One and Form Four Students in SMK Kelana Jaya

Table 4.8 shows the differences in practice between form one and form four students in SMK Kelana Jaya. The p-value of Kolmogorov-Smirnov (KS) for practice score was <0.05. It was not normally distributed, hence Mann-Whitney test was used instead of Independent Sample T Test. For the practise score, the mean rank for form one students was 79.63, while the mean rank for form four students was 71.37. Based on the Mann-Whitney Test, the Z-statistics was -1.166 and p-value was 0.243 which is more than 0.05. Therefore, the null hypothesis was accepted and the results was insignificant.

Table 4.8: **Comparison of Practise on Plastic Straw between Form One and Form Four Students in SMK Kelana Jaya**

	Age	N	Median (IQR)	Mean rank	Z-Statistics	p-value
Practise level	13 years old	75	56.00	79.63	-1.166	0.243
	16 years old	75	56.00	71.37		

****significance at p<0.05**

4.9 Association between Knowledge Level with Practise Level Among Secondary School Students in SMK Kelana Jaya

Fisher's Exact Test was used to identify the association between knowledge and practice on plastic straw among secondary school students in SMK Kelana Jaya. Table 4.13 shown that there was no significant difference for the association between

knowledge and practice on plastic straw among secondary school students in SMK Kelana Jaya as the exact significance (2 sided) which was the p-value for Fisher's Exact Test was 0.349. the p-value which was more than 0.05 indicates no significant association between both variables. Fisher's Exact Test has been utilized as there were 2 cells (22.2%) have expected count less than 5. The minimum expected count is 3.06.

Table 4.9: Association between knowledge with practice level on practice straw among secondary school students in SMK Kelana Jaya

	Value	df	Exact Significance (2 sided)
Fisher's Exact Test	4.370	4	0.349
N of Valid Cases	150		

4.10 Association between Attitude Level with Practise Level Among Secondary School Students in SMK Kelana Jaya

Fisher's Exact Test was used to identify the association between attitude and practice on plastic straw among secondary school students in SMK Kelana Jaya. Table 4.14 shown that there was significant difference for the association between attitude and practice on plastic straw among secondary school students in SMK Kelana Jaya as the exact significance (2 sided) which was the p-value for Fisher's Exact test was 0.000. This indicates that there was an association between attitude and practice on plastic straws among secondary school students in SMK Kelana Jaya. The p-value which was less than 0.05 indicates there were significant association between both variables. Fisher's Exact Test has been utilized as there were 3 cells (33.3%) have expected count less than 5. The minimum expected count is 2.15.

Table 4.10: Association between attitude with practice level on practice straw among secondary school students in SMK Kelana Jaya

	Value	df	Exact Significance (2 sided)
Fisher's Exact Test	27.976	4	0.000
N of Valid Cases	150		

CHAPTER 5

DISCUSSION

5.1. Respondents Sociodemographic

A total of 150 secondary students from SMK Kelana Jaya took part in this study. In term of ages, all of the students were 13 and 16 years old which were form one and form four. The respondents consist of 81 males and 69 females.

5.2 Level of Knowledge, Attitude and Practice on Plastic Straw Among Secondary School Students

5.2.1 Level of Knowledge

In this survey, it was found 61.3% of secondary school students had moderate knowledge on plastic straw, 20.7% of them possessed high knowledge and 18.0% of the rest possessed low knowledge on plastic straw. Survey showed that the mean score of 2.0267 with standard deviation of 0.6233 This shows that most of the respondents having a moderate knowledge followed by high knowledge and low knowledge on plastic straw.

Most of the respondents have the information regarding of plastic straw issues. But, they may have less exposure on specific information about plastic straw. The finding of this study is similar with previous study that being conducted among the professional course students of Annamalai University, Tamil Nadu in which it was

found that majority of the students had moderate knowledge followed by good knowledge (Srinivasan et al., 2019). However, the finding of our study is different with study about attitude of grade eight students for the use of plastic which the students have good knowledge about how to protect their land form the hazards of plastic (Ferdous & Das, 2014). Their survey found that transferring knowledge to behaviour would take some time. Transferring knowledge to behavior cause lost some knowledge due to mode and instrument of transfer (Ferdous & Das, 2014). Hammami et al. (2017) indicates that students with higher percentages of knowledge showed more positive attitude towards changing plastic pollution.

5.2.2 Level of Attitude

The attitude is an important indicator to practice of the respondents on plastic straws as environmental attitudes one of the factor influencing plastic consumption behaviour. Our findings found that 12.7% of the respondents had high attitude, 67.3% having moderate attitude and 20.0% of the rest respondents having low attitude on plastic straw. This shows that majority of the respondents having moderate attitude on plastic straw. The mean score was 1.9267 with standard deviation, 0.56872. A study of environmental knowledge and attitude among students in Sabah shows different finding where level of environmental knowledge and attitude of students in Sabah particularly from Form 4 are good (Harun et al., 2011). This present study, it was shown that majority of the respondents agree on willing to refuse the use of plastic straws when buying drinks. Besides, previous study on Knowledge, Attitudes, and Practices on Solid Waste Management among Undergraduate Students in a Philippine

State University indicates that most of the students had satisfactory level for attitudes (Barloa et al., 2016).

5.2.3 Level of Practise

Based on our findings, majority of the respondents had moderate practice on plastic straws. This is maybe due to the lack of knowledge regarding of plastic straw issues. Based on the survey, 20% of the respondents strongly agreed to refuse plastic straws when being offered and 6.7% of the respondents strongly disagree with it. A study of assessment of knowledge and practice on plastics among the professional course students of Annamalai University, Tamil Nadu showed similar findings where majority of the students showed moderate level of practise (Srinivasan et al., 2019).

5.3 Comparison of Knowledge, Attitude and Practise on Plastic Straw Between Form One and Form Four Students in SMK Kelana Jaya

5.3.1 Comparison of Knowledge on Plastic Straw Between Form One and Form Four students in SMK Kelana Jaya

Based on our findings, knowledge on plastic straw in form four students higher than form one students. About 30.7% of the respondents from four students have high knowledge compared to 10.7% in form one students. The findings on this study similar with previous study conduct by (Das et al., 2015) indicate that higher secondary students are more aware towards plastic pollution compared to secondary students which may be due to their age, more knowledge and practical experiences. There was significance different in mean of knowledge level between form one and form four

students, where it shows that form four students have more knowledge on plastic straws compared to form one students. This finding shows that difference level of age and duration of exposure to environmental knowledge influence the knowledge of the students. Form four students might have higher exposure and long duration towards environmental knowledge regarding plastic pollution, plastic issue, plastic waste and plastic straw. Meanwhile, for form one students, they already have the knowledge on plastic straw but they might have lesser exposure and less duration on certain information regarding of plastic pollution, plastic issue, plastic waste and plastic straw. Previous study conduct by Sevencan et al., (2017) showed that there were huge gap of knowledge among secondary and high school students about some harmful effects of environmental factors.

5.3.2 Comparison of Attitude on Plastic Straw Between Form One and Form Four students in SMK Kelana Jaya

Based on our findings, form four students had higher good attitude level compared to form one students. Out of 17.3% of form four students had good attitude compared to 8.0% of form one students which only 8.0%. However, there was no significant difference in mean of attitude level between form one and form four students. Artvinli et al., (2018) indicates the significant of understanding attitudes necessity towards the environment for develop environmentally conscious behaviour since the behavioural change are the objective of Environmental Education. Changes of attitudes due to education point out that the current education system strongly influences life of students and their thinking (Ferdous & Das, 2014). Besides, other factor that contribute to person's attitude was the habits of the person itself. Heidbreder

et al., (2019) mention that although there was willingness of participant to reduce their consumption of plastic, they were partially fail due to apply change of new habits.

5.3.3 Comparison of Practise on Plastic Straw Between Form One and Form Four students in SMK Kelana Jaya

From this study, the good practice level of the respondents was higher in form one compared to form four students. This finding indicate that difference of age does not influence the practice of person. High level of knowledge among students may not necessarily leads to good practice and practice could not be predict by using students' attitude towards the environment Ahmad et al., (2015). Students attitudes, subjective norm and perceived behavioral control have a important effect on their favorable intention toward biodegradable drinking straw (Kadir et al., 2020). This finding somehow difference from previous study which causes of behind positive awareness among higher secondary students compared to secondary students may be due to age, more knowledge and more practical experiences (Das et al., 2015). There was no significant difference in mean of practise level between form one and form four students. The right exposure of consumers to those practices, they will easily change their habits of environmentally unsustainable purchasing practices with more sustainable ones (Asmuni et al., 2015).

5.4 The Association between Knowledge, Attitude with Practise Levels on Plastic straw among Secondary School Students in SMK Kelana Jaya

There was an association between attitude and practise on plastic straws among secondary school students in SMK Kelana Jaya. However, it was found that there was

no association between knowledge and practise on plastic straw among secondary school students in SMK Kelana Jaya. This finding somehow contradict with other KAP survey as mention by Ahmad et al., (2015) that KAP survey basic principles are knowledge forms attitude, which both knowledge and attitude are the building blocks for practise. Level of knowledge about environment influence respondents attitude towards environment (Harun et al., 2011). Study conducted by Adeolu et al., (2014) on assessment of secondary school students' knowledge, attitude and practice towards waste management in Ibadan, Oyo State, Nigeria found that there was no significant relationship between knowledge and practice and there is a need to increase student's knowledge level on waste management practices. It proves that, knowledge does not necessarily lead to practise.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This study indicates that majority of the respondents having moderate level in terms of knowledge, attitude and practise on plastic straw. Form four students showed higher knowledge and good attitude level on plastic straw compared to form one students. However, in terms of practice, form one showed that they had good level on plastic straw compared to form four students. This shows that, regarding of individual's age, it does not necessarily influence the practise of themselves.

Next, there was a mean difference in knowledge on plastic straw between form one and form four students. Nevertheless, there was no mean difference in attitude and practices between form one and form four students. However, there was no association between knowledge and practice level on plastic straw among secondary school students. Besides, this study also indicates there was an association between attitude and practice level on plastic straw among respondents. But, there was no association between knowledge and practice level on plastic straw among secondary school students. This study indicates that knowledge does not necessarily influence the practice of individuals.

6.2 Recommendation

The facts that government already come out with list of effort to mitigate the impacts of plastic straw through thee policy, campaign, as well as awareness program are undeniable. However, this information did not reach into the community especially the secondary students. Ministry of Education needs to consider environmental education as a subject that needs to be part of the education syllabus in order to create more awareness on environmental issues and environmental conservation.

Next, media had biggest influence in everyday life. Media could take part in raising awareness among public especially secondary students regarding of plastic straw issues. Further studies could be done to assess knowledge, attitude and practice of the respondents on plastic straw before and after intervention of the study. All parties are responsible to take care of environment and reduce the impact regarding of our action. The individuals itself need to educate themselves and change their habits in order to produce good attitude towards preserving environment.

REFERENCES

Aesthetic: meaning in the Cambridge English Dictionary. (n.d.). Retrieved January 14, 2020, from https://dictionary.cambridge.org/dictionary/english/aesthetic

Adeolu, A. T., Enesi, D. O., & Adeolu, M. O. (2014). *Assessment of Secondary School Students ' Knowledge , Attitude and Practice towards Waste Management in Ibadan , Oyo State , Nigeria*. *3*(5), 66–73.

Ahmad, J., Md. Noor, S., & Ismail, N. (2015). *Investigating Students' Environmental Knowledge, Attitude, Practice and Communication. Asian Social Science, 11(16).* doi:10.5539/ass.v11n16p284

Ahamad, N. R., & Ariffin, M. (2018). Assessment of knowledge, attitude and practice towards sustainable consumption among university students in Selangor, Malaysia. Sustainable Production and Consumption, 16, 88–98. doi:10.1016/j.spc.2018.06.006

Aldag, J. (2019). *LAST STRAW: TURNING THE TIDE ON PLASTIC POLLUTION IN CANADA* [Ebook]. Retrieved 15 November 2019, from https://www.ourcommons.ca/Content/Committee/421/ENVI/Reports/RP10583500/envirp21/envirp21-e.pdf.

Al-Naggar, R. A., Abdulghani, M. A. M., & Al-Areefi, M. A. (2019). Effects of inappropriate waste management on health: Knowledge, attitude and practice among Malaysian population. Malaysian Journal of Public Health Medicine, 19(1), 101–109.

Ajit, S. & Chapman, R. Knowledge, Attitude, Practice on Disposal of Sharp Waste, Used for Home Management on Type-2 Diabetes Mellitus, in New Delhi, India.

Journal of Health Research, 25 (3), 135 -140.

Artvinli, E., Demir, Z. M., & A, Z. M. (2018). *A Study of Developing an Environmental Attitude Scale for Primary School Students To cite this article : A Study of Developing an Environmental Attitude Scale for Primary School Students*. https://doi.org/10.21891/jeseh.387478

Ashton-Graham, C. (2017). *Survey Report: Western Australian Households Views on Plastic Waste 2017* [Ebook]. Retrieved 15 November 2019, from https://www.der.wa.gov.au/images/documents/ourwork/consultation/Plastic_bag_ban/Attachment_1_Plastics_Survey_FINAL.pdf.

Asmuni, S., Hussin, N. B., Khalili, J. M., & Zain, Z. M. (2015). Public Participation and Effectiveness of the no Plastic Bag Day Program in Malaysia. *Procedia - Social and Behavioral Sciences, 168, 328–340*. doi:10.1016/j.sbspro.2014.10.238

Barloa, E. P., Lapie, L. P., Paul, C., & Cruz, P. De. (2016). Knowledge , Attitudes , and Practices on Solid Waste Management among Undergraduate Students in a Philippine State University. *Enviornment and Earth Science*, *6*(6), 146–153.

Bhattacharya, R. R. N., Chandrasekhar, K., Roy, P., & Khan, A. (2018). Challenges and opportunities: plastic waste management in India.

Center for International Environmental Law, Fueling Plastics: Fossils, Plastics, & Petrochemical Feedstocks, 2017.Available at http://www.ciel.org/wp-content/uploads/2017/09/Fueling-Plastics- Fossils-Plastics-Petrochemical-Feedstocks.pdf.

Das, D., Teacher, A., & Paninala, S. P. R. S. (2015). *Awareness of Plastic Pollution among School Students and its relation to Academic Achievement Bijan Sarkar*.

6(5), 110–116.

Earth Day Network. (2018). *Plastic Pollution Primer and Action Toolkit* [Ebook]. Retrieved from https://www.earthday.org/wp-content/uploads/Plastic-Pollution-Primer-and-Action-Toolkit.pdf

Fischbach, E. (2019). Evaluating Environmental Concern and Willingness to Pay for Plastic Alternatives in the Gulf of Mexico (Doctoral dissertation, University of South Alabama).

Gutierrez, J. N., Royals, A. W., Jameel, H., Venditti, R. A., & Pal, L. (2019). Evaluation of Paper Straws versus Plastic Straws: Development of a Methodology for Testing and Understanding Challenges for Paper Straws. BioResources, 14(4), 8345-8363.

Ferdous, T., & Das, T. (2014). A study about the attitude of grade eight students for the use of plastic in Gwarko , Balkumari , Lalitpur district. *Procedia - Social and Behavioral Sciences, 116,* 3754-3759. https://doi.org/10.1016/j.sbspro.2014.01.8396

Hammami, M. B. A., Mohammed, E. Q., Hashem, A. M., Al-Khafaji, M. A., Alqahtani, F., Alzaabi, S., & Dash, N. (2017). Survey on awareness and attitudes of secondary school students regarding plastic pollution: implications for environmental education and public health in Sharjah city, UAE. Environmental Science and Pollution Research, 24(25), 20626–20633. doi:10.1007/s11356-017-9625-x

Harun, R., Hock, L. K., & Othman, F. (2011). *Environmental Knowledge and Attitude among Students in Sabah*. *14*, 83–87.

Heidbreder, L. M., Bablok, I., Drews, S., & Menzel, C. (2019). Tackling the plastic

problem: A review on perceptions, behaviors, and interventions. Science of The Total Environment. doi:10.1016/j.scitotenv.2019.02.437

International Union for Conservation of Nature. (2018). Marine Plastics: What is the issue? Why is this important? What can be done? *International Union for Conservation of Nature Issues Brief*, 1–2.

Jaafar, I., Azmina Ibrahim, T., Awanis Ahmad, N., Abdul Kadir, A., & Razali Md Tomari, M. (2018). Waste generation and characteristization: Case study of Seberang Takir, Kuala Nerus, Terengganu, Malaysia. Journal of Physics: Conference Series, 1049, 012029. doi:10.1088/1742-6596/1049/1/012029

Kadir, J. M. A., Hassan, N. N. N. M., & Abd Aziz, N. N. (2020). Investigating Students' Attitude and Intention to Use Biodegradable Drinking Straw in Emerging Country. *International Journal of Science and Research (IJSR) 9(1):418 – 425*. https://doi.org/10.21275/ART20203982

Kaur, C., & Jaabi, A. (2017). Sea Views. *Marine Plastic Pollution and Fisheries: Making Sense of The Environmental Issue And Implication*.

Knowledge: meaning in the Cambridge English Dictionary. (n.d.). Retrieved January 14, 2020, from https://dictionary.cambridge.org/dictionary/english/knowledge.

Kin, W., & Jasmin, A. (2019). Plastic: An Undegradable Problem [Ebook]. Khazanah Research Institute. Retrieved 13 March 2020, from http://www.krinstitute.org/assets/contentMS/img/template/editor/Views_Plastic%20An%20Undegradable%20Problem.pdf.

Lerner, A., Gordian, F., & Gonzalez, L. (2019). Turn Away From Plastic.

Made How. (2018). Drinking Straw. How Products are Made, Vol. 4. Retrieved from

http://www.madehow.com/Volume-4/Drinking-Straw.html.

Ministry of Education Malaysia. (2019). Malaysia Educational Statistics. Quick Facts 2019.

Ministry of Energy, Science, Technology, Environment & Climate Change (MESTECC). (2018). *Malaysia's Roadmap Towards Zero Single-Use Plastics 2018-2030* [Ebook] (pp. 2-5). Retrieved from https://www.mestecc.gov.my/web/wp-content/uploads/2019/03/Malaysia-Roadmap-Towards-Zero-Single-Use-Plastics-2018-20302.pdf

Molstad, E. P., Heyer, K. P., Martin, K., & Sardi, P. (2018). Reducing Single-Use Plastic in a Thai School Community: A Sociocultural Investigation in Bangkok, Thailand.

Ocean Conservancy. (2017). *International Coastal Cleanup 2017 Report* [Ebook]. Retrieved from https://oceanconservancy.org/wp-content/uploads/2017/06/International-Coastal-

Pavani, P., & Rajeswari, R. (2014). Impact of plastics on environmental pollution. *Journal of Chemical and Pharmaceutical Sciences*, *3*, 87-93.

Peng, G., Zhu, B., Yang, D., Su, L., Shi, H., & Li, D. (2017). Microplastics in sediments of the Changjiang Estuary, China. Environmental Pollution, 225, 283–290. doi:10.1016/j.envpol.2016.12.064

Plastic straw ruling needs public support. (2019, April 26). Retrieved from https://www.thestar.com.my/metro/metro-news/2019/04/26/plastic-straw-ruling-needs-public-support.

Robinson, N. J., Figgenerl, C., We, A., Mcdonal, J., Gomez, V., Maccarthy, A. C., … Koleff, V. (2015). Plastic Straw Found Inside the Nostril of an Olive Ridley Sea

Turtle. Marine Turtle Newsletter, 1–4.

Royer, S. J., Ferron, S., Wilson, S. T., & Karl, D. M. (2018). Production of methane and ethylene from plastic in the environment. PloS one, 13(8), e0200574.

Sánchez-Llorens, S., Agulló-Torres, A., Del Campo-Gomis, F. J., & Martinez-Poveda, A. (2019). *Environmental Consciousness Differences Between Primary And Secondary School Students. Journal of Cleaner Production.* doi:10.1016/j.jclepro.2019.04.251

Sarker, B. C., Sarker, S. K., Islam, M. S., & Sharmin, S. (2012). Public awareness about disposal of solid waste and its impact: a study in Tangail Pourashava, Tangail. Journal of Environmental Science and Natural Resources, 5(2), 239-244.

Sevencan, F., Yavuz, C. I., & Acar Vaizoğlu, S. (2017). Environmental consciousness of students from secondary and high schools in Bodrum, Turkey. *Environmental Science and Pollution Research, 24*(3), 3045–3053. https://doi.org/10.1007/s11356-016-7969-2

Sheth, Khushboo. (2019, September 18). *Countries Putting The Most Plastic Waste Into The Oceans*. Retrieved from https://www.worldatlas.com/articles/countries-putting-the-most-plastic-waste-into-the-oceans.html

Smith, E. (2019). *A Pilot Qualitative Evaluation: Youth Perception on Plastic Straws Before and After Education Intervention.*

Srinivasan, N., Swarnapriya, V., Felix, A. J. W., & Pravin, T. (2019). Assessment of knowledge and practice on plastics among the professional course students of Annamalai University, Tamil Nadu. International Journal of Community Medicine adefrand Public Health, 6(2), 510-514.

Sulaiman, N., Chan, S. W., & Ong, Y. S. (2019). Factors influencing recycling

intention among University students. International Journal of Innovative Technology and Exploring Engineering, 8(8), 336–340.

Sullivan, K. M., Dean, A., & Soe, M. M. (2009). On Academics: OpenEpi: A Web-Based Epidemiologic and Statistical Calculator for Public Health. Public Health Reports, 124(3), 471–474. doi:10.1177/003335490912400320

Thomas, B. (2019). *A preliminary assessment of the economic, environmental and social impacts of a potential ban on plastic straws, plastic stem cotton buds and plastics drinks stirrers.* [Ebook] (p. 5). Resource Futures.

United Nations Environments Programme (UNEP). (2018). Single-Use Plastics: *A Roadmap for Sustainability*

Wagner, T. P., & Toews, P. (2018). Assessing The Use of Default Choice Modification To Reduce Consumption *Of Plastic Straws. Detritus, (4), 113.*

Wilson, S. T., Karl, D. M., Royer, S., & Ferro, S. (2018). *Production of methane and ethylene from plastic in the environment*. 1–13.

APPENDICES

ETHICS COMMITTEE FOR RESEARCH INVOLVING HUMAN SUBJECTS (JKEUPM)
UNIVERSITI PUTRA MALAYSIA

Research title	:	**Knowledge, Attitude and Practise on Plastic Straw among Secondary School Students in Selangor.**
Study Site	:	**Secondary high school, Selangor.**
JKEUPM Ref No.	:	**JKEUPM-2019-496**
Researcher	:	**Nor Baini Mat Hazani**
Supervisor	:	**Assoc. Prof. Haliza Abdul Rahman**

Documents received and reviewed with reference to the above study:

1. Ethics Application Form, Version 1 dated 29/11/2019
2. Respondent Information Sheet & Consent (English), Version 1 dated 29/11/2019
3. Respondent Information Sheet & Consent (Malay), Version 1 dated 29/11/2019
4. Respondent Information Sheet & Guardian's/Parent's Consent (English), Version 1 dated 29/11/2019
5. Respondent Information Sheet & Guardian's/Parent's Consent (Malay), Version 1 dated 29/11/2019
6. Proposal (English), Version 2 dated 15/1/2020
7. Questionnaires/ Interviews (English), Version 1 dated 29/11/2019
8. Questionnaires/ Interviews (Malay), Version 1 dated 29/11/2019
9. Curriculum Vitae of:
    a. Assoc. Prof. Haliza Abdul Rahman

The University Research Ethics Committee, Universiti Putra Malaysia (JKEUPM) operates in accordance to the ICH-GCP Guidelines.

Decision by JKEUPM:

[X] Approved

[X] **Permission MUST BE OBTAINED from the respective hospitals/ institutions before conducting the research**

[ ] Disapproved

Please note that the approval is **VALID UNTIL 22 JANUARY 2021**

Researchers should comply with the following:

I. Complete a Study Final Report upon study completion (Form 3.2).

II. Ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.

FORM 2.5: RESPONDENT'S INFORMATION SHEET AND GUARDIAN'S/PARENT'S CONSENT

Please read the following information carefully. Do not hesitate to discuss any questions you may have with the researcher.

1. STUDY TITLE : KNOWLEDGE, ATTITUDE AND PRACTISE ON PLASTIC STRAW AMONG SECONDARY SCHOOL STUDENT IN SELANGOR

2. INTRODUCTION:

You are welcome to participate in this study. Your involvement is voluntary. This study aimed to investigate knowledge, attitude and practise on plastic straw among secondary school student in Selangor. Straw is one of the essential components being used in the food and beverage sectors at the foodservice outlets.People are using plastic straw daily in everyday life to drink. Most of the plastic straws are being thrown away by the people after once they have used it after drink. The increasing use of plastic straw in the community has caused plastic littering into the environment and the ocean. Plastic pollution can cause a significant impact on the health, wellbeing and environment, especially to marine life.

3. WHAT WILL YOU HAVE TO DO?

Respondents should respond to the questionnaire provided by the researcher to obtain information related to this study. respond to the questionnaire provided by the researcher to obtain information related to this study. The questionnaire consist of 6 sections in which respondents will be asked about socio-demographics, general questions, knowledge, attitudes and practices as well as reccomendation on plastic straw. Respondents are required to mark and fill in the answers to questions in each section in the questionnaire. Subjects have freedom to withdraw from the study.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?

Students who are not from selected secondary school, students not in age 13 and 16 years old and respondent who cannot read, write and communicate in Bahasa Melayu and English.

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

Information from this study will determine knowledge, attitude and practice on plastic straw among secondary school student in Selangor. Information and research findings can serve as a source for Ministry of Education in Malaysia.

(b) TO THE INVESTIGATOR?

The findings from the study can help researchers in knowledge, attitude and practice on plastic straw. In addition, the data reviewed can serve as a reference to other researchers interested in making further research related to the subject of this study under the field of environmental health

6. WHAT ARE THE POSSIBLE RISKS?

No risk was expected to be included in this study.

7. WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

The information we collect from this study will remain confidential and your data will not be disclosed. This is for research purposes only.

8. WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

If you have any questions or questions, you can contact the supervisor for this research, Prof. Madya Dr. Haliza binti Abdul Rahman, at 03-89472643 and email dr.haliza@upm.edu.my or contact the researcher, Nor Baini binti Mat Hazani at 016-9338295 and email hazanybaini@gmail.com.

*Please initial here if you have read and understood the contents of this page*_____

9. GUARDIAN'S/PARENT'S CONSENT

I …… Identity Card No. …… address…… …….. ……..hereby voluntarily agree to allow my *son / daughter / ward..... to take part in the research stated above *(clinical/ questionnaire/drug trial/video recording/ focus group/interview).

I have been informed about the nature of the research in terms of methodology, possible adverse effects and complications (as written in the Respondent's Information Sheet). I understand that my *son / daughter / ward has the right to withdraw from this research at any time without giving any reason whatsoever. I also understand that this study is confidential and all information provided with regard to the identity of my* son / daughter / ward will remain private and confidential.

I* wish / do not wish to know the results related to my my *son's / daughter's / ward's participation in the research

I agree/do not agree that the images/photos/video recordings/voice recordings related to my son/daughter/ward be used in any form of publication or presentation. (if applicable).

* delete where necessary

Signature ……..…… (*Parent/Guardian*)

Signature ……..……..... (*Witness*)

Date :……..

Name :……..…..

I/C No. :……..…..

I confirm that I have explained to the respondent's parent/guardian the nature and purpose of the above-mentioned research.

Date ……..……

Signature ……..…… (*Researcher*)

FORM 2.4: RESPONDENT'S INFORMATION SHEET AND INFORMED CONSENT FORM

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

1. STUDY TITLE : KNOWLEDGE, ATTITUDE AND PRACTISE ON PLASTIC STRAW AMONG SECONDARY SCHOOL STUDENT IN SELANGOR.

2. INTRODUCTION:

You are welcome to participate in this study. Your involvement is voluntary. This study aimed to investigate knowledge, attitude and practise on plastic straw among secondary school student in Selangor. Straw is one of the essential components being used in the food and beverage sectors at the foodservice outlets.People are using plastic straw daily in everyday life to drink. Most of the plastic straws are being thrown away by the people after once they have used it after drink. The increasing use of plastic straw in the community has caused plastic littering into the environment and the ocean. Plastic pollution can cause a significant impact on the health, wellbeing and environment, especially to marine life.

3. WHAT WILL YOU HAVE TO DO?

Respondents should respond to the questionnaire provided by the researcher to obtain information related to this study. The questionnaire consist of 6 sections in which respondents will be asked about socio-demographics, general questions, knowledge, attitudes and practices as well as reccomendation on plastic straw. Respondents are required to mark and fill in the answers to questions in each section in the questionnaire. Subjects have freedom to withdraw from the study.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?

Students who are not from selected secondary school, students not in age 13 and 16 years old and respondent who cannot read, write and communicate in Bahasa Melayu and English.

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

Information from this study will determine knowledge, attitude and practice on plastic straw among secondary school student in Selangor. Information and research findings can serve as a source for Ministry of Education in Malaysia.

(b) TO THE INVESTIGATOR?

The findings from the study can help researchers in knowledge, attitude and

practice on plastic straw. In addition, the data reviewed can serve as a reference to other researchers interested in making further research related to the subject of this study under the field of environmental health.

6. WHAT ARE THE POSSIBLE RISKS?

No risk was expected to be included in this study.

7. WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

The information we collect from this study will remain confidential and your data will not be disclosed. This is for research purposes only.

8. WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

If you have any questions or questions, you can contact the supervisor for this research, Prof. Madya Dr. Haliza binti Abdul Rahman, at 03-89472643 and email dr.haliza@upm.edu.my or contact the researcher, Nor Baini binti Mat Hazani at 016-9338295 and email hazanybaini@gmail.com.

*Please initial here if you have read and understood the contents of this page*_____

9. CONSENT

I …… Identity Card No. …… address…… ……... ……..hereby voluntarily agree to take part in the research stated above *(clinical /drug trial/video recording/ focus group/interview-based/ questionnaire-based).

I have been informed about the nature of the research in terms of methodology, possible adverse
effects and complications (as written in the Respondent's Information Sheet). I understand that I have the right to withdraw from this research at any time without giving any reason whatsoever. I also understand that this study is confidential and all information provided with regard to my identity will remain private and confidential.

I* wish / do not wish to know the results related to my participation in the research

I agree/do not agree that the images/photos/video recordings/voice recordings related to me be used in any form of publication or presentation (if applicable)

* delete where necessary

Signature ……..…… (Respondent)

Date :……..

Signature ……..…… (Witness)

Name :……..…..

I/C No. :……..…..

I confirm that I have explained to the respondent the nature and purpose of the above-mentioned research.

Date ……..……

Signature ……..…… (Researcher)

Date/*Tarikh*: ____ ID No.: ____

UNIVERSITI PUTRA MALAYSIA
BERILMU BERBAKTI

QUESTIONNAIRE/*BORANG KAJI SELIDIK*

NO.	RESEARCH TITLE/*TAJUK KAJIAN*	RESEARCHER NAME/*NAMA PENGKAJI*
1	KNOWLEDGE, ATTITUDE AND PRACTICE ON PLASTIC STRAW AMONG SECONDARY SCHOOL STUDENT IN SELANGOR	NOR BAINI BINTI MAT HAZANI

Instructions/*Arahan*

This questionnaire contains 6 sections:
Borang kaji selidik ini mengandungi 6 bahagian:

1. Section A: Socio-demographic
   Bahagian A: Sosio-demografik
2. Section B: General question on plastic straw
   Bahagian B: Soalan umum mengenai penyedut minuman plastik
3. Section C : Knowledge on plastic straw
   Bahagian C: Pengetahuan mengenai penyedut minuman plastik
4. Section D: Attitude on plastic straw
   Bahagian D: Sikap mengenai penyedut minuman plastik
5. Section E: Practice on plastic straw
   Bahagian E: Praktis mengenai penyedut minuman plastik
6. Section F : Recommendation
   Bahagian F: Cadangan

Please be informed that you have been chosen as the study respondent. Kindly answer all questions and follow the given instructions. All data obtained from this questionnaire will only be used for study purpose. Thank you for your cooperation If you have any questions, please reach out to this research coordinator, Associate Professor Dr Haliza Abdul Rahman, at 03-89472643 and email.haliza@upm.edu.my./ *Dimaklumkan bahawa anda telah dipilih sebagai responden di dalam kajian ini. Sila jawab semua soalan dan ikut arahan yang telah ditetapkan. Semua data yang diperolehi hanya akan digunakan bagi tujuan pembelajaran sahaja. Terima kasih atas kerjasama anda. Sekiranya anda mempunyai sebarang pertanyaan, sila kemukakan kepada penyeliabagi penyelidikan ini, Prof Madya Dr Haliza Abdul Rahman, di talian 03-89472643 dan emel dr.haliza@upm.edu.my*

SECTION A: SOCIO-DEMOGRAPHIC
BAHAGIAN A: LATARBELAKANG SOSIO-DEMOGRAFIK

INSTRUCTIONS: Please tick your answer and fill in the blanks for the questions below
ARAHAN: *Sila tandakan jawapan anda dan isi jawapan di ruangan yang disediakan untuk soalan dibawah*

1. Gender/*Jantina*: ☐ Male/*Lelaki*
   ☐ Female/*Perempuan*

2. Race/*Bangsa:*
   ☐ Malay/*Melayu* ☐ Indian/*India*
   ☐ Chinese/*Cina* ☐ Others/*Lain-lain*
   Specify/*Nyatakan:* _____

3. Age/*Umur:*
   ☐ 13 years old/ *13 tahun* ☐ 16 years old/ *16 tahun*

SECTION B: GENERAL QUESTION ON PLASTIC STRAW
BAHAGIAN B : SOALAN UMUM MENGENAI PENYEDUT MINUMAN PLASTIK

INSTRUCTIONS: Please tick your answer based on the questions below
ARAHAN: *Sila tandakan jawapan anda untuk soalan di bawah*

1. Do you use plastic straw?
   Adakah anda menggunakan penyedut minuman plastik?

   ☐ Yes/*Ya*

   ☐ No/*Tidak*

2. How often do you use plastic straw?
   Berapa kerap anda menggunakan penyedut minuman plastik?

   ☐ Always/*Selalu* ☐ Seldom/*Jarang*

   ☐ Sometime / *Kadang-kadang* ☐ Never/*Tidak pernah*

3. Do you prefer using straws when taking a drink?
   Adakah anda lebih memilih menggunakan straw apabila mengambil minuman?

   ☐ Yes/*Ya* ☐ No/*Tidak*

4. Have you ever used a plastic straw for taking a drink, particularly in the past week?
   Pernahkah anda menggunakan penyedut minuman plastik untuk minum, terutamanya pada minggu lalu?

   ☐ Yes/*Ya* ☐ No/*Tidak*

5. Why do you prefer to use plastic straw?
   Kenapa anda lebih suka menggunakan penyedut minuman plastik?

   ☐ Cheap /*Murah* ☐ Easily available/*Mudah didapati*

   ☐ Lightweight/ *Ringan* ☐ its becomes norm/habits/ *menjadi kelaziman/ tabiat*

   ☐ Others/*Lain-lain*
   Specify/*Nyatakan*:_____

6. Do you think plastic straw can cause problem?
Adakah anda rasa penyedut minuman plastik boleh menyebabkan masalah?

☐ Yes/*Ya* ☐ No/*Tidak*

SECTION C: KNOWLEDGE ON PLASTIC STRAW

BAHAGIAN C: PENGETAHUAN MENGENAI PENYEDUT MINUMAN PLASTIK

INSTRUCTIONS: Please tick your answer based on the questions below
ARAHAN: *Sila tandakan jawapan anda untuk soalan di bawah.*

No.	Questions/*Soalan*	True/ *Betul*	False/ *Salah*
1.	Plastics can be recycled *Plastik boleh dikitar semula*		
2.	Plastics don't compost or breakdown in landfill. *Plastik tidak terhurai atau terurai di tapak pelupusan.*		
3.	Plastic straw are made of from harmful chemical *Penyedut minuman plastik diperbuat daripada bahan kimia yang berbahaya*		
4.	Plastics straw use oil resources and contribute to global warming *Penyedut minuman plastik menggunakan sumber minyak dan boleh menyumbang kepada pemanasan global*		
5.	Plastic straw can take up to 200 years to decompose *Penyedut minuman plastik mengambil masa 200 tahun untuk terurai*		
6.	The increasing use of plastic straw can lead to environmental problem *Peningkatan penggunaan penyedut minuman plastik akan menyebabkan masalah alam sekitar*		
7.	Plastics straw are harmful to human health *Penyedut minuman plastik adalah merbahaya kepada kesihatan manusia*		
8.	Plastic straw can endangered marine life *Penyedut minuman plastik boleh membahayakan hidupan marin.*		

9.	Plastic straw end up polluting waterways and ocean *Penyedut minuman plastik akhirnya mencemarkan laluan air dan lautan.*		
10.	I know about environmental-friendly straw *Saya tahu mengenai penyedut minuman mesra alam*		
11.	Many countries already ban the plastic straw. *Banyak negara telah melarang penggunaan penyedut minuman plastik.*		
12.	Malaysia already not encourage the use of plastic straw *Malaysia telah tidak menggalakkan penggunaan penyedut minuman plastik.*		
13.	Banning of plastic straw is good *Larangan penyedut minuman plastik adalah baik.*		
14.	In the ground, plastic materials are sustain long time and decrease the soil quality. *Di dalam tanah, bahan plastik bertahan lama dan mengurangkan kualiti kesuburan tanih.*		
15.	To keep the environment beautiful, clean and not threatened, we need to be free of plastic products. *Untuk memastikan alam sekitar cantik , bersih dan tak terancam kita perlu bebas daripada produk plastik.*		
16.	Plastic straw can reached the food chain. *Penyedut minuman plastik boleh mencapai rantaian makanan.*		
17.	There is too much plastic straw being used. *Terdapat terlalu banyak penyedut minuman plastik yang digunakan.*		
18.	Plastic straw have harmful effects on the atmosphere. *Penyedut minuman plastik mempunyai kesan buruk terhadap atmosfera.*		
19.	Plastic straw is not environmental friendly *Penyedut minuman plastik tidak mesra alam sekitar*		

20.	Banning of plastic straw can reduce the amount of plastic-based waste at the landfill. *Larangan penggunaan penyedut minuman plastik dapat mengurangkan jumlah sisa berasaskan plastik di tempat pelupusan sampah.*		

SECTION D: ATTITUDE ON PLASTIC STRAW

BAHAGIAN D: SIKAP MENGENAI PENYEDUT MINUMAN PLASTIK

NSTRUCTIONS: Please tick your answer based on the questions below

ARAHAN: Sila tandakan jawapan anda untuk soalan dibawah

Strongly Disagree/ Sangat Tidak Setuju	Disagree/ Tidak Setuju	Agree/ Setuju	Strongly Agree/ Sangat Setuju
1	2	3	4

No.	Questions/*Soalan*	Scale/*Skala*			
		1	2	3	4
1.	I am willing to refuse the use of plastic straw when buying drink *Saya sanggup menolak penggunaan penyedut minuman plastik semasa membeli minuman*				
2.	I support the ban use of plastic straw *Saya menyokong larangan penggunaan penyedut minuman plastik*				
3.	I support the government initiatives to reduce the plastic straw *Saya menyokong inisiatif kerajaan untuk mengurangkan penyedut minuman plastik*				
4.	I am ready to spread awareness about plastic pollution to friends and family members *Saya bersedia untuk menyebarkan kesedaran mengenai pencemaran plastik kepada rakan-rakan dan ahli keluarga*				
5.	I am ready to use and bring environmental-friendly straws when buying a drink *Saya bersedia untuk menggunakan dan membawa penyedut minuman yang mesra alam apabila membeli minuman*				
6.	I am concerned about what happen to marine life *Saya mengambil berat mengenai apa yang terjadi kepada haiwan marin*				
7.	I will ask the workers to give me straw if the restaurant does not provide me straw when I am purchasing their drink *Saya akan meminta pekerja untuk memberikan saya straw jika restoran tidak menyediakan straw apabila saya membeli minuman mereka*				

8.	I don't mind to use plastic straw even though it can cause environmental problem. *Saya tidak kisah untuk menggunakan penyedut minuman plastik walaupun ia boleh menyebabkan masalah alam sekitar*				
9.	I believe environmental-friendly straw can help prevent pollution to the environment *Saya percaya penyedut minuman mesra alam dapat membantu mencegah alam sekitar daripada tercemar*				
10.	It is not right to throw plastic straw anywhere after use. *Ia tidak betul untuk membuang penyedut minuman plastik di merata-rata selepas digunakan.*				
11.	Everyone needs to aware the negative effect use of plastic straw. *Setiap ahli masyarakat perlu menyedari kesan negatif/ buruk penggunaan penyedut minuman plastik.*				
12.	School environment can be plastic straw free. *Persekitaran sekolah boleh menjadi bebas penyedut minuman plastik.*				
13.	I think I can live without plastic straw. *Saya fikir saya boleh hidup tanpa penyedut minuman plastik.*				
14.	I am responsible for the problems caused by the use of plastic straw. *Saya bertanggungjawab terhadap masalah yang diakibatkan oleh penggunaan penyedut minuman plastik.*				
15.	I am concerned about plastic straw pollution. *Saya mengambil berat tentang pencemaran penyedut minuman plastik.*				
16.	Environmental education should be taught in schools. *Pendidikan alam sekitar harus diajar di sekolah.*				
17.	The purchase decision that I make can increase or decrease the amount of plastic straw that I must get rid of. *Keputusan pembelian yang saya buat dapat meningkatkan atau menurunkan jumlah penyedut minuman plastik yang harus saya singkirkan.*				
18.	I don't care that throwing plastic straw can be bad for the environment and human health. *Saya tidak peduli bahawa membuang penyedut minuman plastik boleh menjadi buruk kepada alam sekitar dan kesihatan manusia.*				

19.	People throw plastic straw everywhere because they have no other means of getting rid of (disposing) of their waste. *Orang membuang penyedut minuman plastik merata kerana mereka tidak mempunyai cara lain untuk menyingkirkan (membuang) sisa mereka.*				
20.	Correct plastic waste management should be taught in schools. *Pengurusan sisa plastik yang betul harus diajar di sekolah.*				

SECTION E: PRACTICE ON PLASTIC STRAW

BAHAGIAN E: PRAKTIS MENGENAI PENYEDUT MINUMAN PLASTIK

INSTRUCTIONS: Please tick your answer based on the questions below
ARAHAN: Sila tandakan jawapan anda untuk soalan dibawah

Strongly Disagree/ Sangat Tidak Setuju	Disagree/ Tidak Setuju	Agree/ Setuju	Strongly Agree/ Sangat Setuju
1	2	3	4

No.	Questions/*Soalan*	Scale/*Skala*			
		1	2	3	4
1.	I don't use plastic straw when taking a drink *Saya tidak menggunakan penyedut minuman plastik apabila mengambil minuman.*				
2.	I refused plastic straw when being offered. *Saya menolak penyedut minuman plastik apabila ditawarkan.*				
3.	I always educate my family and friend to not use plastic straw when buying drinks. *Saya sering mendidik ahli keluarga dan kawan untuk tidak menggunakan penyedut minuman plastik apabila membeli minuman.*				
4.	I will prevent if my family or friend want to get plastic straw when buying drinks. *Saya akan menghalang jika ahli keluarga atau kawan ingin mendapatkan penyedut minuman plastik semasa membeli minuman.*				
5.	I always bring environmental-friendly straw when buying a drink *Saya selalu membawa penyedut minuman mesra alam semasa membeli minuman.*				
6.	I will recommend to my family and friend to use environmental-friendly straw when buying a drink *Saya akan mencadangkan kepada keluarga dan kawan saya untuk menggunakan penyedut minuman yang mesra alam sekitar*				
7.	Plastic straw should be replaced with environmental friendly straw such as metal straw, bamboo or paper straw. *Penyedut minuman plastik harus diganti dengan penyedut minuman mesra alam seperti penyedut minuman logam, buluh atau kertas.*				
8.	It is not essential to give plastic straw when we buy drink from the shop. *Ia tidak penting untuk memberikan penyedut minuman plastik apabila kita membeli minuman dari kedai.*				

9.	Shop should stop using plastic straw and introduce bringing environmental friendly straw. *Kedai harus berhenti menggunakan penyedut minuman plastik dan memperkenalkan membawa penyedut minuman mesra alam.*				
10.	I'll pay for the plastic straw if it's charged *Saya akan membayar untuk penyedut minuman plastik jika ia dikenakan bayaran.*				
11.	I will reduce the consumption of using plastic straw *Saya akan mengurangkan penggunaan penyedut minuman plastik.*				
12.	I'm not interested to bring the environmental friendly straw along because its troublesome me. *Saya tidak berminat untuk membawa penyedut minuman mesra alam sekitar kerana ianya menyusahkan saya*				
13.	I always get the information about the negative impact of plastic straw disposal and its effect towards the environment. *Saya selalu mendapatkan maklumat mengenai kesan negatif pelupusan penyedut minuman plastik dan kesannya terhadap alam sekitar*				
14.	The success banning of plastic straw depends on the attitudes and practices of the person. *Kejayaan larangan penggunaan penyedut minuman plastik bergantung kepada sikap dan amalan individu.*				
15.	If I found the plastic straw litters everywhere, I will take it and throw it according to the designated recycling bins category. *Sekiranya saya menjumpai penyedut minuman plastik dibuang di merata tempat,saya akang mengambilnya dan membuang mengikut kategori tong sampah kitar semula yang ditetapkan.*				
16.	I will purchase the environmental friendly straw to replace the plastic straw. *Saya akan membeli penyedut minuman mesra alam sekitar untuk menggantikan penyedut minuman plastik.*				
17.	I will take care the environment to prevent it from deteriorate *Saya akan menjaga alam sekitar untuk mengelakkannya daripada merosot.*				
18.	I will join or participate in the environmental program that being held at school or home area. *Saya akan menyertai atau mengambil bahagian di dalam program alam sekitar yang di adakan di sekolah atau kawasan rumah.*				

19.	I will deliver the negative impacts of plastic straw to others *Saya akan menyampaikan kesan negatif penyedut minuman plastik kepada yang lain.*				
20.	I am not interested to purchase the environmental friendly straw. *Saya tidak berminat untuk membeli penyedut minuman mesra alam sekitar.*				

SECTION F: RECOMMENDATIONS
BAHAGIAN F: CADANGAN

INSTRUCTION: Please tick and fill your answer based on the questions below ARAHAN: *Sila tanda dan isikan jawapan anda untuk soalan dibawah*

What do you think the most appropriate ways that can be taken to reduce the plastic straw waste?
Apakah cara yang paling sesuai yang boleh dilakukan anda bagi mengurangkan masalah berkaitan penyedut minuman plastik?

	Purchasing environmental friendly straw/ *Membeli penyedut minuman mesra alam*
	Bring along environmental friendly straw when purchasing straw/ *Bawa bersama penyedut minuman mesra alam apabila membeli minuman*
	Environmental education should be taught in schools/ *Pendidikan alam sekitar harus diajar di sekolah*
	Increasing awareness among the community through education/ *Meningkatkan kesedaran kalangan masyarakat melalui pendidikan*

If any other recommendation, please specify:
Jika terdapat cadangan lain, sila nyatakan

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_____
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