DRIVERS OF ENVIRONMENTAL SUSTAINABILITY PRACTICES AMONG UNDERGRADUATE STUDENTS IN UTAR

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DECLARATION

We hereby declare that:

1) This undergraduate FYP is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

2) No portion of this FYP has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

3) Equal contribution has been made by each group member in completing the FYP.

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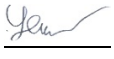
2)	Tan Kian Yew	2001439	

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
CSS	Community Service Society
DOE	Department of Environment
ESG	Environmental, Social, and Governance
GHK	Geweke-Hajivassiliou-Keane
MAREA	Malaysian Recycling Alliance
MUDA	Malaysian United Democratic Alliance
PLS-SEM	Partial Least Squares Structural Equation Modeling
PM	Particulate matter
SDGs	Sustainable Development Goals
SPSS	Statistical Package for the Social Sciences
UHI	Urban Heat Island
UiTM	Universiti Teknologi MARA
USSDC	UTAR Soft Skills Development Certificate
UTAR	Universiti Tunku Abdul Rahman
UUM	Universiti Utara Malaysia
VIF	Variance Inflation Factor
ZWM	Zero Waste Malaysia

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PREFACE

This dissertation is essential for the partial fulfilment of the requirement of Bachelor of Economics (Honours) Financial Economics, Faculty of Business and Finance offered by Universiti Tunku Abdul Rahman. The researchers are content with the completion of this study titled "Drivers of Environmental-Sustainability Practices towards Undergraduates in UTAR as the final thesis for UBEZ 3026 Undergraduate Project.

The research study has shown five important independent variables: social norms, personal norms, environment awareness, environmental knowledge, and social media. Social norms, personal norms, and environmental knowledge have significant relationship towards environmental-sustainability practices towards undergraduates in UTAR. Environmental awareness and social media have insignificant relationship towards environmental-sustainability practices undergraduates in UTAR.

This research has been segregated into five chapters: Chapter 1(Introduction of the research in), Chapter 2(Literature Review and Theoretical Framework), Chapter 3(Methodology), Chapter 4 (Data analysis) and Chapter 5 (Discussion).

ABSTRACT

Environmental sustainability practices are actions taken to reduce the harmful effects of operations on the environment. Recently, sustainability development has faced a lot of obstacles due to many believe that there is a contradiction between environmental sustainability development and economic growth. Therefore, this research project aims to study what factors are affecting UTAR undergraduates' decision in taking actions to protect the environment. In addition, the purpose of conducting this study is to study the influences of social norms, personal norms, environmental awareness, environmental knowledge, and social media on environmental sustainability practices. To perform this study, online questionnaires were distributed to 387 undergraduate students at UTAR Kampar. The sampling method chosen for this study is simple random sampling. After that, Statistical Package for the Social Sciences (SPSS) version 29.0 was used to conduct multiple linear regression analysis. The results of the analysis showed that social norms, personal norms, and environmental knowledge have a significant relationship with environmental sustainability practices. These findings indicate the need for integration of environmental sustainability practices into the curriculum activities by the university and the government.

Keywords: Environmental Sustainability Practices, Social Norms, Personal Norms, Environmental Awareness, Environmental Knowledge, Social Media.

CHAPTER 1: INTRODUCTION

1.0 Introduction

This chapter will begin with a research background. Then, problem statements will be discussed after the research background. After that, the research objectives will include general objectives and specific objectives. Moving on, this chapter will include research question, hypotheses of study, and significance of study. Finally, this chapter will provide chapter layout.

1.1 Research Background

The definition of sustainability is the ability of natural systems to support and improve the quality of social systems (Sakalasooriya, 2021). The United Nations has defined the purpose of sustainability as meeting the demands of the current generation without jeopardizing the demands of future generations (Dixit & Chaudhary, 2020). Environmental sustainability refers to the operation of human society within ecological borders and within the environment's constraints (Weinstein, 2010). Lately, the growing population, along with a massive increase in human-induced activities, has prompted various concerns about the sustainability of our planet's natural resources (Arora, 2018).

Environmental sustainability practices can be defined as the actions that have been taken to reduce the harmful effects of operations on the environment (Jansson et al., 2010). Environmental sustainability practices play an important role in minimizing the consequences of harming the environment (Mijatovic et al., 2019). Examples of environmental sustainability practices are environmentally preferable purchasing, green supply chain management (GSCM), and green logistics (Shaharudin et al., 2018). Besides, there is an interrelationship between living things and their environment (Haraway, 2015). Hence, a good environment acts as a critical component of survival for living things.

The history of the 'environmental sustainable practices' concept can be traced back to 1948 with the establishment of the International Union for the Protection of Nature which fosters a unique collaboration between government and non-government organizations (Warmenbol & Smith, 2016). After that, sustainability started to get noticed in the Stockholm Declaration in 1972 as a vision that recognised the interdependence of social, economic, and environment (Purvis et al., 2019). The Rio Declaration was then held in 1992, 20 years after the Stockholm Declaration to concentrate on environmental protection and economic development (Shelton, 2008). The 2030 Agenda for Sustainable Development was adopted by the United Nations and contains thorough practices for attaining sustainable goals (Pichon, 2023).

The Sustainable Development Goals (SDGs) for 2030 were introduced by the United Nations in 2015 to achieve environmental sustainability, and 193 countries have signed the agreement (Jones et al., 2017; Pedersen, 2018). There are 17 primary SDGs with 169 specific goals and over 1000 indicators in the framework that support sustainable development. There are many issues to be highlighted in the agreement, including climate degradation, marine protection, energy consumption, and water pollution (Jones et al., 2017). Many nations have incorporated the SDGs into their domestic policies. The examples of countries are Brazil, Finland, India, Philippines, and Switzerland and so on (Saxena et al., 2021).

In the recent era of booming globalization, society has emphasized economic prosperity rather than cultivating environmental sustainable practices that lead to one of the most vigorous global issues. Many are obsessed with economic development but neglected the exploitation of natural resources that will be depleted sooner or later (Ahmad et al., 2021). A group of researchers has argued that a strong emphasis on economic growth not only leads to an apparent deterioration of sustainable resource use, but also works against the goal of reducing overall resource consumption (Eisenmenger et al., 2020). However, another group of researchers has contended that economic growth could minimize environmental problems through the adjustment of macroeconomic policies that balance economic growth and environmental sustainability (Mustafa & Lengyel, 2022).

Malaysia has also signed the agreement to achieve the SDGs and implemented them in three principles through its National Road Map (Joseph et al., 2021). The three principles are economy, resources and environment (Mahdi et al., 2022). Apart from these three principles, governance and education also contribute to the SDGs by promoting environmental sustainability practices among the local civil society (Joseph et al., 2021). The initial stage of the SDGs in Malaysia was going on from 2016 to 2020 with the sharing of certain policies and

focusing practices (Jayasooria, 2016). The gaps that appear during the initial stage will be overcome during the next 15 years from 2016 to 2030 (Jayasooria, 2016).

There are several initiatives that have been taken to protect the environment in Malaysia. One of the initiatives is known as Local Agenda 21 (LA 21). Local Agenda 21 was introduced by the United Nations through a conference in 1992, and Malaysia is one of the 178 countries that have attended the conference (Abidin et al., 2016). The first initiative of Local Agenda 21 was started in Selangor with Agenda 21 Selangor as Selangor is the most developed state in Malaysia (Pereira et al., 2005; Habibullah et al., 2018). There are a total of 103 indicators in Agenda 21 Selangor which consist of 14 economic sustainability, 16 environmental sustainability, 11 natural resource sustainability, 52 social sustainability, and 10 other sustainability indicators (Zan & Ngah, 2012). Furthermore, the initiative of Local Agenda 21 has been implemented in Kuala Lumpur and emphasizes a balance between economic development and the environment (Abidin et al., 2016). Moreover, there are 649 green initiatives to be taken in Iskandar, Johor (Abidin et al., 2016).

1.2 Problem Statement

The unsuccessful efforts of humans to integrate environmental sustainability have changed the ecosystems of the world and led to life-threatening consequences (Morelli, 2011). Environmental degradation is one of the severe challenges that has resulted from Malaysia's fast industrialization during the 1980s (Hasnu & Muhammad, 2022). Environmental issues such as climate change, natural resource pollution, deforestation, and species extinction have become more serious as a result of rapid industrialization in Malaysia (Hasnu & Muhammad, 2022).

As the greediness of money and ignorance of mankind towards environmental protection have taken control, Mother Nature has responded to human irresponsible actions towards nature (Koul, 2022). Pollution is happening everywhere on the globe, from India to Brazil, even in Malaysia (Zhang et al., 2021; Ahmad & Ali, 2020).

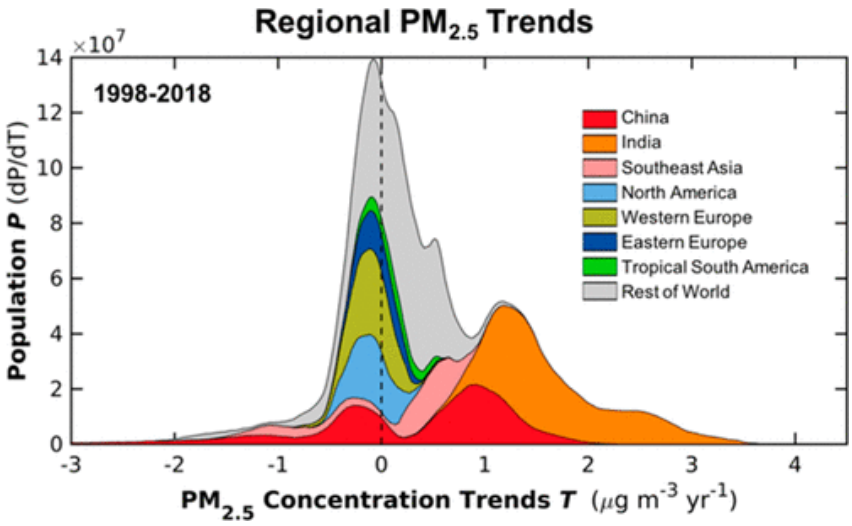


Figure 1 Regional PM2.5 Trends

Due to the thriving wave of economic prosperity, the process of continuous global urbanization is inevitable as the risk of pollution and climate change is spiking horrendously. For example, developing countries such as India, China, and Malaysia are concerned about the quality of the lives of their citizens after different kinds of pollution happen (Macke et al., 2018; Manisalidis et al., 2020). India has been tackling the air pollution issue, where particulate matter (PM) (PM 2.5 and PM10) has been increasing and has caused 16,200 premature deaths and asthma attacks in recent years (Singh et al., 2023). Figure 1 shows the regional PM2.5 trends where India and China reside in the top 2 emissions trends of PM 2.5 in the world from 1998 to 2018. India and China have to allocate a significant burden to treating air pollution-related illnesses (Manisalidis et al. 2020). Both countries are labour-intensive countries, and the citizens are getting sick and unable to manage high work capacity because of the health issues from air pollution, which can cause lower productivity in the workforce and an overall deterioration in the economy. Chen and Zhang (2021) reported that every 10-unit increase in the air pollution index will lead to a 4% decrease in labour productivity in China, proving air pollution has a negative externality on labour productivity. According to Goswami (2021), large production and high productivity caused industrial pollution.

As pollution gets worse, ecological degradation becomes a bigger issue for countries trying to sustain their ecosystems and wildlife. Activities like logging, agriculture expansion, and illegal mining have caused habitat loss in one of the world's most biodiverse ecosystems, the Amazon rainforest, for flora and fauna species, bringing biodiversity loss (Lapola et al., 2023). According to Hoegh-Guldberg et al. (2017), in the next 30 years, 88% of coral reefs in Asia will vanish due to the types of climate changes mentioned above, causing a huge impact

on biodiversity. In developing countries such as Indonesia, there are huge declines in fish larvae abundance and large-scale changes in fish habitats, such as skipjack tuna, that live in the equatorial Pacific, within the strait of Indonesia. Moreover, Indonesia's coastal mangroves will be affected by reduced freshwater flows and saltwater intrusion. Appannagari (2017) argued that the speed of environmental pollution is faster than the progress of environmental sustainability practices. Moving on, increasing population is one of the reasons for increasing environmental pollution to fulfil the basic needs of humans.

According to The World Wide Fund (2018), Malaysia's environmental issues are pollution, logging, waste disposal, biodiversity loss, and global warming. Urban Heat Island (UHI) can be used to measure the increase in temperatures due to the existence of air pollution and the absence of vegetation in rural surroundings. Kuala Lumpur, the main city of Malaysia has a UHI range of 4-6 degree Celsius, which contributes to haze pollution events that have an indirect impact on the economy. It was estimated that the haze damage in Kuala Lumpur was RM1.41 billion. (CodeBlue, 2022).

Global warming has been the primary environmental issue in Malaysia. According to The Star (2023), Kuantan, Temerloh, and Bentong are experiencing the El Nino phenomenon, which is the temperature of 38 degrees Celsius for two to three days in a row. Many people have had heat stroke because of the weather. According to The Star (2022), Malaysia is experiencing an increment of 0.20-0.32 degrees Celsius per decade on the surface minimum temperatures. Besides, the Ministry of Natural Recourses, Environment & Climate Change (n.d.) reported that acid rains have caused damage to the acidification of soil in Malaysian forests, leading to malnutrition and reduced tree growth.

Suki et al. (2020) found that Malaysia has always experienced the consequences of environmental issues such as ecological degradation, and it has seriously affected Malaysians' standard of living and economy. According to Hsu et al. (2014), Malaysia encountered 51 natural catastrophe incidents such as floods on the East Coast of Malaysia, Segamat in Johor, landslides at Gua Tempurung, haze around Peninsular Malaysia and "Red Bauxit Road" in Kuantan. All these incidents have clearly caused significant damage to our economy, health and mental well-being, the loss of economic sources, and the loss of living habitat for living things. The ignorance of environmental sustainability practices will only lead to worsening environmental conditions (Auzzir, 2018). In addition, the forest ecosystems in Pahang such as Hutan Lipur Ulu Jeransang, Gunung Siku, and Mossy Forest are gradually becoming weaker as well as vulnerable to pest infestations and wildfires (Omar et al., 2021). The Star (2022) reported that Pahang, Sabah and Sarawak had the highest tree cover losses of 1.19Mha, 1.74

Mha, 3.11 Mha respectively, compared to Malaysia's average tree cover loss of 542 kilo hectares.

Even though a lot of efforts and practices on environmental sustainability have been made by the people and government, the environmental condition has not improved much. This can be proven by the fact that humanity consumes 1.7 times more resources and generates the same amount of garbage as the world can replenish (Montt & Fraga, 2018). In Malaysia, the country's waste output outperforms the country's recycling rate, making waste management a significant issue over the past decades. According to the International Trade Administration (2022), more than 30,000 tons of municipal solid waste (MCW) have been disposed of by Malaysia every day, amounting to 1.17kg of rubbish per capita. According to research done by Jusoh et al. (2018), the percentage of Malaysians involved in recycling activities was only 5%, which is way lower than other countries such as Singapore (56%), Switzerland (52%), German (48%), USA (33%), and Philippines (12%). Besides, 31% of university students have poor drainage systems in their neighborhoods which leads to water pollution and 35% of university students admit that they have a practice of throwing litter due to laziness (Makhtar et al., 2021).

The world has faced decades of environmental issues; however, they have not been resolved and are yet to worsen. Many of the disasters can be avoided by just altering the correct behaviour of environmental sustainability practices. In this situation, many individuals are experiencing environmental inertia, where they struggle to convert their attitudes into actions as a gap exists between their intention and action (Beermann et al., 2023).

Thus, environmental sustainability practices have to be executed before the environment deteriorates to the point of being completely destructed. Ahmad et al. (2010) mentioned that by adopting environmental sustainability practices, the correct mindset of conserving mother nature and efforts of restoration will prevail with the cooperation of regulatory bodies and individual participation. Environmental education can influence a person's environmental behaviour to help them adopt a positive outlook, take ownership of their actions, and help maintain a more sustainable environment. (Heyl et al., 2013). To alter the correct behaviour of environmental sustainability practices, universities can play a fundamental role in teaching undergraduates about environmental sustainability practices (Khalil et al., 2011). According to Demircioglu and Audretsch (2019), universities are centres for new ideas and innovation. It is the perfect setting for introducing the principles of sustainable development, which help raise awareness of sustainability practices in daily life. The adoption of sustainable development on campus has provided universities with the ability to teach undergraduate students on a larger scale (Abd Razak et al., 2011). According to Lozano

(2006), university students are the future thinkers, leaders, and decision-makers of the social, political, economic, and academic sectors because these sectors are created, formed, and shaped within the world's higher education institutions. As a result, universities are the best place among all societies to conserve and preserve the environment.

However, there is an argument that the Malaysian undergraduate students lack commitment and awareness about green practices (Mojils, 2019). The level of behaviours, knowledge, and involvement of Malaysian undergraduate students towards environmental sustainability practice remains a huge space for improvement (Micheal et al., 2022).

There are some relevant studies in Malaysian public universities, despite the fact that there are few past studies in the field of environmental sustainability practice in domestic public universities. To put it into some examples, Kamarudin et al. (2015) have carried out a survey on environmental awareness level at Universiti Kebangsaan Malaysia, while Baba-Nalikant et al. (2023) have conducted their research at Universiti Sains Malaysia regarding the zero-waste campus framework. Besides, Tiong et al. (2021) also did research about environmental sustainability practices at Universiti Teknologi MARA. However, it is hard to find journals and articles about environmental sustainability practices among Malaysian private universities in past research. Therefore, the private universities' contribution to environmental sustainability practice cannot be disregarded as the private universities constitute about 42% of Malaysia's tertiary education institutions (Chao, 2023).

Hence, this research seeks to examine environmental sustainability practices among the undergraduates at UTAR. According to UTAR (2023), UTAR is one of the top 350 universities in the Times Higher Education (THE) Asia University Rankings 2023 and ranked 91 as one of the world's most sustainable universities in the UI GreenMetric World University Ranking 2022. According to the UTAR SDG Report (2021), UTAR (2021), and UTAR (n.d.), UTAR has engaged SDG tightly as our main focus on Goal 12 has reached 45 publications, 208 course units, and 16 activities with a total number of 1,384 participants in 2021. As the primary campus of UTAR, Kampar campus was the main focus of this study. The UTAR Kampar campus has the size of a 1300-acre area that encourages higher involvement in environmental sustainability practices. An article published by UTAR (2023) states that UTAR Kampar Campus has always been proactively practicing green environmental conservation such as at the UTAR Bird Sanctuary to conserver the herons, and at UTAR Agricultural Park, which promoted '1 Student 10 Trees' Campaign in March 2022. UTAR also promoted UTAR Green Campus, Green Mania Campaign, UTAR Green Bank, and going green with solar energy practices located in Kampar Campus to promote green practices and conserve the green

environment (UTAR, 2021). News reported by The Star Online (2017) stated that other organisations in Kampar such as Kampar District Council, Built Environment Society (BES), and the Sustainable Development Society, seek to build awareness among the public to start initiatives on green practices for environmental sustainability. These actions have nurtured the undergraduate students in UTAR in adopting environmental sustainability practice.

Previous studies have identified various drivers that affect environmental sustainability practices. However, the impact of certain variables, such as social media, personal norms, environmental knowledge, environmental awareness, and social norms could be significant or insignificant. The impact of one of the independent variables, social norms could be either positive, negative or insignificant.

The evidence stated in past literature has shown that an individual's social norms significantly affect environmental sustainability practices (Zibenberg et al., 2018). Moving on, Zheng et al. (2019) mentioned that social interactions promoted environmental protection behavior among people. However, Sparkman et al. (2020) suggest that some studies on social norms may not show any impact. Supporting it, Saracevic and Schlegelmilch (2021), found that social norms had no effect on sustainable behavior.

Moreover, personal norms have a positive impact on environmental sustainability practices (Jang & Kim, 2023). Collado et al. (2017) found that there is a higher chance for university students to engage in environmental sustainability practices when they feel morally obligated to do so because they are seen as the world's future leaders who uphold the balance of ecosystems. However, Perera et al. (2022) conclude that personal norms have no influence on environmental sustainability practices. They mentioned that personal norms do not usually reflect sustainability practices. Wu et al. (2020) suggest that personal norms might show no relationship.

According to Agrawal et al. (2023), the lack of environmental awareness hampers environmental sustainability practices in real life. People with environmental awareness are more willing to participate in green electricity programs and support ecotourism projects in their regions (Blankenberg & Alhusen, 2019; Meleddu & Pulina, 2016). However, Junita et al. (2023) found that environmental awareness has no significant effect on pro-environmental behaviors.

Holison (2023) found that the connection between environmental knowledge and environmental sustainability practices is positive. They proposed that people who are knowledgeable about environmental issues are more likely to support policies and programmes

regarding environmental sustainability practices. According to Erdil (2018), there is an insignificant influence of environmental knowledge on environmental sustainability practices.

Nekmahmud et al. (2022) found a positive correlation between social media and environmental sustainability practices. Social media can increase the involvement of environmental sustainability practices if used correctly. According to Gelashvili et al. (2022), social media will have no effect as the users have selective engagement with their content, which might not influence those who are not environmentally inclined.

The results of the previous studies on the influence of social norms, individual norms, environmental awareness, environmental knowledge, and social media on environmental sustainability practices were inconsistent. Therefore, this study's purpose is to close this gap between the variables.

Thus, the purpose of this research is to examine the effect of social norms, personal norms, environmental awareness, environmental knowledge and social media on environmental sustainability practices among UTAR undergraduate students .

1.3 Research Objectives

1.3.1 General Objectives

The main goal of this research is to study the drivers of environmental sustainability practices among undergraduates at UTAR.

1.3.2 Specific Objectives

i. To examine the significant relationship between social norms and environmental sustainability practices.

ii. To examine whether there is a significant relationship between personal norms and environmental sustainability practices.

iii. To examine whether there is a significant relationship between environmental awareness and environmental sustainability practices.

iv. To examine whether there is a significant relationship between environmental knowledge and environmental sustainability practices.

v. To examine whether there is a significant relationship between social media and environmental sustainability practices.

1.4 Research Questions

i. Is there a significant relationship between social norms and environmental sustainability practices?

ii. Is there a significant relationship between personal norms and environmental sustainability practices?

iii. Is there a significant relationship between environmental awareness and environmental sustainability practices?

iv. Is there a significant relationship between environmental knowledge and environmental sustainability practices?

v. Is there a significant relationship between social media and environmental sustainability practices?

1.5 Hypothesis of the Study

H1: There is a significant relationship between social norms and environmental sustainability practices among undergraduate students in UTAR.

H2: There is a significant relationship between personal norms and environmental sustainability practices among undergraduate students in UTAR.

H3: There is a significant relationship between environmental awareness and environmental sustainability practices among undergraduate students in UTAR.

H4: There is a significant relationship between environmental knowledge and environmental sustainability practices among undergraduate students in UTAR.

H5: There is a significant relationship between social media and environmental sustainability practices among undergraduate students in UTAR.

1.6 Significance of Study

First, it is vital to conduct this research because it could enhance the current literature on environmental sustainability practices from a theoretical standpoint. The study utilizes a newly developed framework that integrates theory of planned behaviour, knowledge-belief-norm theory, norm activation theory, and social information processing theory to provide a more comprehensive understanding of environmental sustainability practices in Malaysia. This could benefit students and academics conducting future research by encouraging them to be more creative in selecting their theoretical framework. By using this enhanced framework, researchers can potentially gain new insights into environmental sustainability practices, which can contribute to the development of more effective interventions to influence more adoptions of environmental sustainability practices.

Secondly, the findings of the research could be used as a reference for universities. Universities can develop policies on more effective environmental sustainability policies and initiatives on campus based on the findings. As the findings provide valuable insights into the current situation of environmental sustainability practices on campus, universities can emphasize areas where improvements can be made in terms of sustainable infrastructure, waste management, energy efficiency, and eco-friendly practices on campus.

Fourthly, the study's findings may be used by governments, organisations and politicians to create targeted policies and campaigns that encourage young people and students

to adopt sustainable lifestyles, therefore advancing larger regional, national, and international environmental objectives.

The government plays a vital role in implementing policy and legislation to ensure the achievement of sustainable development objectives and enhance environmental sustainability. According to Kementetrian Ekonomi (2020), there are three priorities to strategize including strengthening governance, combating climate change, and conserving natural resources. The Environmental Protection Act should be reviewed to ensure coherence and improve coordination with the current waste management issue in Malaysia. Other policies such as the National Forestry Policy 1978, the National Policy on Environment 2002, and the National Water Resources Policy 2012 have been revised to ensure updated remedies from time to time (Twelfth Malaysia Plan, n.d.).

Organizations play a significant role in addressing the environmental issues happening in Malaysia. Organizations such as MAREA, Zero Waste Malaysia, Malaysian Climate Change Organization, Greenpeace are taking the initiative to educate the public about environmental sustainability practices. Zero Waste Malaysia has introduced a platform called "Trashpedia", an online educational resources on proper waste management and recycling in households. According to Trashpedia (2023), it provides an accessible and convenient source for the public to learn about environmental sustainability practices. The mission of Zero Waste Malaysia is to be the largest and most influential based environmental community to promote social and general revolution for a sustainable future in Malaysia. (Zero Waste Malaysia, n.d.)

Politicians play a huge role in city development that influences citizens's environmental practices in a sustainable manner. According to Yusry (2023), Abe Lim, a politician who represents the Malaysian United Democratic Alliance (MUDA) in Bandar Utama, has a manifesto for establishing people-first urban planning and a holistic environment for the city. As an environment advocate and the CEO of Purpose Plastics, a recycling firm, she is enthusiastic about promoting sustainable practices such as improving the collection of recyclables, reducing plastic use, empowering a zero-waste community, and building more green spaces for citizens to jog and garden (Parkaran, 2023). She has also collaborated with Zero Waste Malaysia on how to reduce pollution and carbon footprint by adopting urban resilience-related policies (Focus Malaysia, 2023).

1.7 Chapter Layout

The first chapter offers an outline of the background of the research and the problem statements. The outline has highlighted the reasons for selecting the research area. Additionally, the first chapter summarizes the objectives and questions of this research while emphasizing the significance of conducting this study.

The second chapter reviews previous studies on environmental sustainability practices, including the variables and theoretical frameworks used in those studies. It also provides definitions of the variables and logically presents the findings of other researchers in the research area.

The third chapter explains the methodology of research, covering research pattern, ways to collect data, sampling pattern and technique, and research instrument. The chapter also explains the steps involved in data processing and analysis.

Chapter four presents the results of the findings, which is an essential part of accomplishing the goals of research. The chapter includes descriptive analysis, scale measurement, and inferential analysis.

Chapter five summarizes the study and explains the research results precisely. It discusses the limitations of the study and offers suggestions for overcoming them, as well as advice on how politicians can use the findings.

1.8 Conclusion

In conclusion, environmental concerns are without a doubt among the most important challenges that people in the modern world must deal with. This is because of the negligence in sustaining environmental development and the over-obsessed urbanization and industrialization of globalizing the world economy. The loss of balance between environmental sustainability and economic prosperity has caused the public, the government, and the people to lose their participation in fostering an environmentally sustainable society. In this case, universities are also tertiary education institutions that greatly influence environmental sustainability practices among the public.

Overall, the main goal of this research is to study the drivers of environmental sustainability practices among undergraduates at UTAR. To better understand the factors that affect environmental sustainability practices among undergraduates, a further review of the other literature will be done in chapter three regarding environmental sustainability practices.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

A literature review will be established in chapter two. We will review the past studies and study the dependent variable and the five independent variables. The theory is going to be discussed in a theoretical framework. After that, the conceptual framework and hypothesis development will be presented in chapter two.

2.1 Review of Literature

2.1.1 Environmental Sustainability Practices

Environmental sustainability practices are the efforts made to lessen the negative effects that operations have on the environment (Jansson et al., 2010). Besides, environmental sustainability practices are also frequently viewed as precursors to environmental performance (Kim, 2018). The reason for studying practices of environmental sustainability is that previous research has shown environmental sustainability practices have been supported within several aspects that facilitate debates for boosting sustainable development at higher education institutions (Filho et al., 2021). Environmental sustainability practices are performed when a person tries to maintain, sustain, and protect the environment (Mustapha et al., 2021).

While environmental sustainability practices have received numerous attentions from corporations, consumers have given them less attention (Agrawal et al., 2023). Furthermore, despite quick advances for sustainable development in Asia, there is a scarcity of studies about to what extent sustainability practices have been performed by higher education institutions in Asia (Filho et al., 2021). Therefore, more reviews of literature with surveys provided on

environmental sustainability practices are needed to study the initiatives taken by university students today to protect the environment. Moreover, there is a lack of comprehensive tools for measuring environmental sustainability practices at higher education institutions and designed surveys that help fill the gap in research frameworks (Filho et al., 2021).

Global warming, climate change, and sustainability have been trending on social media platforms recently, which points to a rising recognition of the need for environmental sustainability practices in developed and emerging economies (Agrawal et al., 2023). This shows that people started to pay attention to environmental issues and ways to improve environmental conditions. Besides, students are becoming more demanding that their future or present institutions be more ecologically friendly. This is demonstrated by the fact that 92% of those surveyed have answered that the universities should actively promote and address sustainable development through the 2020 international survey by Students Organizing for Sustainability International (Roca-Barceló et al., 2021).

2.1.2 Social Norms

According to Schwartz (1977), norms are common ideas that serve as vague guidelines for behaviour in real-world settings. While social norms are derived from a nation's cultural standards and principles that guide the way of behaviour among the people in a society (Saracevic & Schlegelmilch, 2021). According to previous research, social norms influence environmental sustainability practices by affecting the pro-environmental behaviour of people positively and negatively (Blankenberg & Alhusen, 2019). Apart from that, social norms are an important element to be studied due to although people are aware of positive norms such as environmental sustainability practices, they are prone to polluting the environment if others do so (Blankenberg & Alhusen, 2019).

Different outcomes can be found in previous studies about the impact of social norms on environmental sustainability practices. There are some studies that have asserted that there is a significant relationship between social norms and environmental sustainability practices. The evidence stated in past literature has shown that an individuals' moral value has a considerable influence on environmental behaviour (Zibenberg et al., 2018). Additionally, several studies have found that individual's behaviour towards solving environmental pollution problems is influenced by public pro-environmental behaviour (Zheng et al., 2019; Rabinovich

et al., 2011). Therefore, the environmental protection behaviours of individuals are more readily impacted when they are under pressure from others around them and thereby making similar changes (Bai & Bai, 2020). Besides, Zheng et al. (2019) discovered that social interactions promoted environmental protection behaviour among people.

However, there are some studies that have asserted the relationship between social norms and environmental sustainability practices is not significant. According to Sparkman et al. (2020), the existing social norms could influence sustainable behaviours among people, but social norms could not work when the people who perform environmental sustainability practices are limited. Apart from that, the major hurdle is that many people think that the changes in environmental conditions are the norm so that they do not consider starting environmental sustainability practices such as conserve energy, opt for available renewable energy, and purchase disposable products (Sparkman et al., 2020). Besides, social norms are differentiated into two sub norms which are descriptive norms that represent others' behaviour and injunctive norms that represent others' approval on this behaviour (Zou & Savani, 2019). According to Saracevic and Schlegelmilch (2021), they found that injunctive norms do not affect sustainable behaviour.

Moreover, there are different scales and sample sizes were used by the researchers to study the relationship between social norms and environmental sustainability practices respectively. According to Bai and Bai (2020), they have used 3-point Likert scales and 5-point Likert scales to measure its dependent variable and independent variables. Furthermore, the samples taken by Bai and Bai (2020) was 731 valid responses from China Besides, Han (2018) has taken 7-point Likert scales as measurement for its dependent variable and independents. Apart from that, the samples taken by Han (2018) was 334 valid responses from Korea and United States.

In conclusion, past studies have come up with two conclusions that there is a significant and insignificant relationship between social norms and environmental sustainability practices. The reason may be different sample sizes and different scales of measurement that affect environmental sustainability practices.

2.1.3 Personal norms

The definition of personal norms is the self-assumption of how an individual should behave in a specific social circumstance while also experiencing a sense of moral obligation (Jansson & Dorrepaal, 2015). According to Kim and Seock (2019), personal norms are also aligned with internal reasons, such as internal values and perceptions of good or bad, correct or wrong, so called internalized social norms. The Norm Activation Model, founded by Schwartz, explains altruistic and environmentally friendly behaviour. He further elaborated that personal norms are determined by the awareness of consequences caused by performing or not performing certain behaviours, and the responsibility for them in that state of situation (Onwezen et al., 2013). Moreover, the value-belief-norm model is believed to be a direct measurement of personal norms towards environmental sustainability practices. The theory founded by Stern, explains that personal norms are influenced by value, awareness of concerns, and acknowledgement of responsibility (Hiratsuka et al., 2018). These models conclude that an individual feels a greater sense of moral obligation to act when values and norms that are relevant to particular practices are more important to them.

There are growing arguments about the relationship between personal norms and environmental sustainability practices. Significant results have been revealed in developed countries. Jang and Kim (2023) found that there is a significant relationship between personal norms and environmental sustainability practices. Their study was conducted in Korea, which is a developed country. They researched that the stronger the personal norms felt, the higher the probability of performing environmental sustainability practices. Moreover, Gifford and Nilsson (2014) found that personal norms have positive influence on environmental sustainability practices. The study was conducted in Canada, which is a developed country. They highlighted that personal norms only depend on a person's sense of moral obligation to perform environmental sustainability practices, but not the influence of social surroundings. As such, an individual's ethical sense of right or wrong follows their personal norms. In the context of universities, Collado et al. (2017) have conducted their study in Canada, which is a developed country. Their study showed that there are higher chances that an undergraduate student will perform environmental sustainability practices as they have a great sense of moral obligations.

However, insignificant results have been revealed in developed countries and developing countries. Perera et al. (2022) conducted their study in Australia, which is a developed country concluded that personal norms have no influence on environmental sustainability practices. They mentioned that personal norms do not usually reflect

sustainability practices. A negative-minded person will not care about the consequences of environmental destruction; therefore, they are unfazed to practice environmental sustainability practices. Furthermore, the research that investigated a developing country, which is China revealed that personal norms might show no relationship (Wu et al., 2020). Studies found that there is a contradiction between personal norms and environmental sustainability practices, where tourists have dilemmas about adopting environmental sustainability practices and the convenience of littering. This is called cognitive dissonance, where two or more cognitive states are inconsistent with each other and moral obligations are not aligned with environmental sustainability practices.

Furthermore, there are also various hypothesis testing methods that have been developed by the researchers and adopted in different studies to study the relationship between personal norms and environmental sustainability practices. The partial least square structural equational modeling (PLS-SEM) method was used by Jang and Kim (2023) for hypothesis testing in their research, while the numerical Geweke-Hajivassiliou-Keane (GHK) method was used by Wu et al. (2020) for hypothesis testing in their research. In addition, there are different sample sizes to study the relationship between personal norms and environmental sustainability practices. Jang and Kim (2023) have collected 488 respondents for their questionnaire, while Wu et al. (2020) have collected 413 respondents for their questionnaire.

In conclusion, different outcomes on the effect of personal norms on environmental sustainability practices were revealed in past literature. The reason for different outcomes may be that the countries of respondents are different, hypothesis testing methods are different, and the sample size of the study is different.

2.1.4 Environmental Awareness

Environmental awareness is the understanding of the environmental impacts by an individual (Pinho & Gomes, 2023). It also relates to a person's view and knowledge about environmental concerns, as well as how concerned they are about the threats and how much they would try to solve the environmental issues (Lin & Niu, 2018). Moreover, environmental awareness is a green trigger for environmental concern and consciousness (Rustam et al., 2020). Environmental awareness is an important assumption to study whether people's level of

environmental awareness is significant in influencing their behaviour in environmental sustainability practices (Bamberg, 2015).

Mixed results can be found in past studies on the influence of environmental awareness on environmental sustainability practices. One of the mixed results is that environmental awareness has a significant relationship with environmental sustainability practices (Agrawal et al., 2023). According to Agrawal et al. (2023), a lack of awareness hampers the adoption of environmental sustainability practices in real life. They explained that when humans recognize the worth of the environment and the negative impacts they have caused, they may change their actions to protect it. According to Qu et al. (2015), environmental awareness positively influences environmental sustainability practices. Furthermore, people with environmental awareness are more willing to participate in green electricity programs and support ecotourism projects in the regions they visit (Blankenberg & Alhusen, 2019; Meleddu & Pulina, 2016).

However, some studies have shown that there is no significant relationship between environmental awareness and environmental sustainability practices. Junita et al. (2023) found that environmental awareness has no significant effect on pro-environmental behaviours. According to Yusof et al. (2020), environmental awareness does not influence the action of a person as the person may be aware of environmental issues, but awareness does not determine his act. According to Yusliza et al. (2020), they found that the environmental behaviour of an individual is impacted by other factors such as cost-savings and convenience. The example given by researchers is that an individual may choose to dispose of garbage illegally and burn it due to convenience, although he knows that his action will lead to air pollution and poor waste management (Yusof et al., 2020). Therefore, individuals are aware of the consequences of their acts, yet they choose to overlook them for convenience reasons.

Furthermore, there are several scales and methods that have been used by the researchers to study the relationship between environmental awareness and environmental sustainability practices. According to Agrawal et al. (2023), they have used the partial least square structural equational modeling (PLS-SEM) method for hypothesis testing. In addition, Agrawal et al. (2023) have used 5-point Likert scales for their questionnaire rating. Besides, Yusof et al. (2020) have used the analysis of variance (ANOVA) method for hypothesis testing. Apart from that, Yusof et al. (2020) have used 10-point Likert scales for their questionnaire rating.

In conclusion, different outcomes on the effect of environmental awareness on environmental sustainability practices were revealed in past literature. The reason for different

outcomes may be that the countries of respondents are different, the hypothesis testing methods are different, and the scales of measurement used are different.

2.1.5 Environmental Knowledge

Environmental knowledge is defined as an individual's general knowledge of environmental concepts, relationships, and information about the environment (Jaiswal & Kant, 2018). Understanding the effects on the environment and the strategy for preserving Mother Earth are key components of environmental knowledge about environmental sustainability practices (Erdil, 2018). Besides, environmental knowledge can also be known as ecological or green knowledge in empirical research (Amoako et al., 2020; Zhang & Chabay, 2020; Wu et al., 2022; Chaihanchanchai & Anantachart, 2022). According to Anderson (2012), the New Ecological Paradigm (NEP) is the measurement of environmental knowledge introduced by Riley Dunlap. It's a scale to measure how the public perceives environmental paradigms based on their knowledge. Gansser and Reich (2023) studied that NEP serves as a guideline for researchers and policymakers to study public information on environmental knowledge. As a fundamental metric of progress toward environmental sustainability, it assists in the revised sustainability education campaign to promote environmental sustainability practices publicly. Sarkawi et al. (2017) introduce two forms of knowledge: actual knowledge and abstract knowledge. Concrete knowledge is factual information about the environment, such as theories and policies, whereas abstract knowledge is information related to environmental problems, causes, and solutions.

There are growing arguments for the relationship between environmental knowledge and environmental sustainability practices. Significant results have been revealed in developed countries and developing countries. Holison (2023) conducted their study in the United States, which is a developed country. The research investigated the positive relationship between environmental knowledge and environmental sustainability practices. They reported that people who are knowledgeable about environmental issues are more likely to support policies and programmes regarding environmental sustainability practices. Moreover, Mohamed et al. (2020) conducted their study in Malaysia, which is a developing country. Their research has found that environmental knowledge has a positive influence on environmental sustainability

practices. They highlighted that the higher the environmental knowledge the citizens have, the easier environmental sustainability practices will be adopted. Other than that, Peng & Zhang (2022) conducted their study in China, which is a developing country. They found that citizens who are knowledgeable about environmental topics will have a high level of openness to change. As a result, it is easier for them to practice environmental sustainability practices as it is a new habit for them to practice. Past studies from Fu et al. (2018) also conducted their study in China, which is a developing country. They found that the better environmental knowledge of a person leads to more adoption of environmental sustainability practices. The essence of this is that environmental knowledge is not an individual's perception and opinion on environmental factors; it is detailed information that must be learned to understand the definitions of environmental issues and regulations.

However, insignificant results have been revealed in developed countries and developing countries. Salas-Zapata et al. (2018) conducted their study in Colombia, which is a developing country. Their research concluded that environmental knowledge has no influence on environmental sustainability practices. This shows that even when a person understands the environment, they may not necessarily act in a sustainable manner. According to Erdil (2018), the insignificant influence of environmental knowledge on environmental sustainability practices is due to a lack of knowledge about environmental practices, which causes them to believe that environmental sustainability practices are a high-cost lifestyle that is specific to aniche population that is willing to spend a significant amount. They believe practices like installing solar energy panels, and driving electric vehicles are the main category of environmental sustainability practices as the majority could not afford the high increment in living costs caused by the debut of environmental sustainability practices. Little do they know, environmental sustainability practices are about conserving energy, practicing 3R methods, carpooling vehicles, and that little changes in their lifestyle. This is consistent with Jaiswal and Kant (2018) who stated that the insignificant impact of environmental knowledge on environmental sustainability practices in India, a developing country. This is because the citizens have a low level of environmental knowledge, including the young and the educated.

Furthermore, there are different sample sizes to study the relationship between environmental knowledge and environmental sustainability practices. Besides, the samples taken by Holison (2023) had 233 valid responses, while Salas-Zapata et al. (2018) had 344 valid responses. Moreover, there are also various scales that have been developed by the researchers and adopted in different studies to study the relationship between environmental knowledge and environmental sustainability practices. Holison (2023) has taken a 4-point

measure as measurement, while Salas-Zapata et al. (2018) have taken Likert scales and scores ranging from 0-100 as measurement.

In conclusion, past studies have come up with two different conclusions on the significance of the relationship between environmental knowledge and environmental sustainability practices. The reasons may be different countries of respondents, different sample sizes, and different scales of measurement that affect them in environmental sustainability practices.

2.1.6 Social Media

Social media is defined as an internet-based application, a channel for everyone around the globe to share information and interact without any boundaries (Kaplan & Mazurek, 2018). Besides, social media is defined as the backbone of the internet as most academics prefer social media over the internet as a source of information for their studies (Kapoor et al., 2017).

There are growing arguments about the relationship between social media and environmental sustainability practices. Significant results have been revealed in developed countries and developing countries. Nekmahmud et al. (2022) have conducted their study in Hungary, which is a developed country. They found a positive relationship between social media and environmental sustainability practices. They showed that social media is the most influential communication tool to promote environmental sustainability practices to their targeted audience, which is undergraduate students. Therefore, social media can increase the involvement of environmental sustainability practices if used correctly. Moreover, Zhang and Skoric (2018) conducted in their study in Hong Kong, China which is a developing country. They found that social media has a positive influence on environmental sustainability practices. They highlighted that social media could nurture the participation of society without boundaries and facilitate sustainable behaviour to adopt environmental sustainability practices.

However, insignificant results have been revealed in developed countries and developing countries. Gelashvili et al. (2022) conducted their study in Spain, which is a developed country. They concluded that social media has no influence on environmental sustainability practices. Social media only acts as a medium, but the sources viewed are still dependent on the user's favourites. This indicates that even though there is a lot of educational content on the platform, users will not approach it if they choose to be ignorant of an environmental topic. Cybersurfs has selective engagement on their social media, whereas

content exposure will be aligned with the user's preference, and environmental content on social media will not reach users who are not environmentally inclined. Besides, the study of Luo et al. (2020) was conducted in China, which is a developing country. They summarized the insignificant relationship between social media and environmental sustainability practices. As social media connects everyone without boundaries, the freedom of speech might be abused, bringing a vast range of content, including pro-sustainability and contradictory content. Coverage of multiple opinions and conflicting content resulted in confusion or an inadequately clear vision for users, making it tough to adopt environmental sustainability practices without clear instructions. (Mallick & Bajpai, 2019). Other than that, Mo et al. (2018) conducted their study in China, which is a developing country. They noticed that overuse of social media will reduce users' attention spans, where mindlessly scrolling situations will occur. Hence, even if the users have come through environmental sustainability practices-related videos, they might not be environmentally conscious enough to reflect on or practice environmental sustainability behaviour.

Furthermore, there are different sample sizes to study the relationship between social media and environmental sustainability practices. The samples taken by Zhang and Skoric (2018) were 1,378 valid responses, consisting of 1024 environmental nongovernment organizations (ENGO) members and 354 ENGO non-members, while those taken by Gelashvili et al. (2022) were 447 valid responses. Moreover, there are also various scales that have been developed by the researchers and adopted in different studies to study the relationship between social media and environmental sustainability practices. Zhang and Skoric (2018) have taken 7-point Likert scales as measurement, while Gelashvili et al. (2022) have taken 5-point Likert scales as measurement.

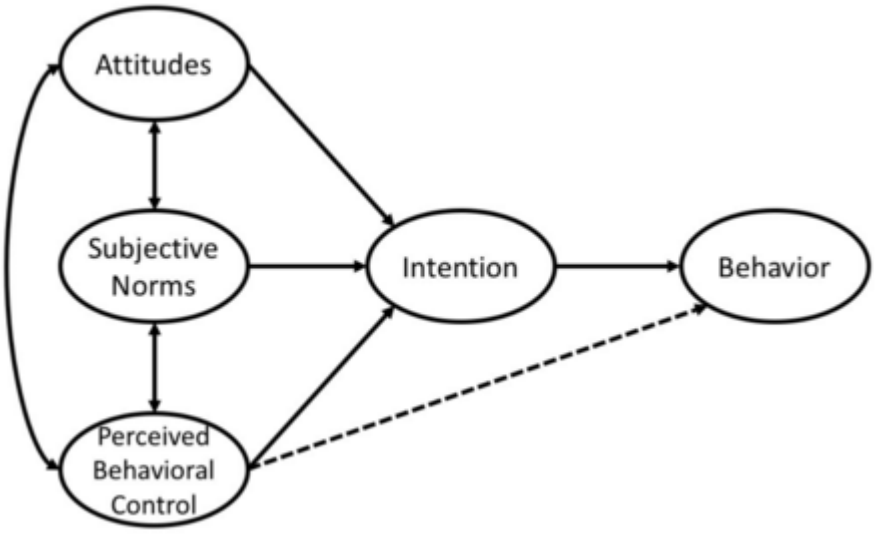
In conclusion, past studies have come up with two conclusions that there is a significant and insignificant relationship between social norms and environmental sustainability practices respectively. The reason may be the different countries of respondents, different sample sizes, and different scales of measurement that affect their environmental sustainability practices.

2.2 Theoretical Framework

Past studies have developed several theories about the drivers of environmental sustainability practices. The theories are theory of Theory of Planned Behavior, Norm Activation Model, Knowledge-Belief-Norm Theory, and Social Information Theory.

2.2.1 Theory of Planned Behavior

Figure 2.1

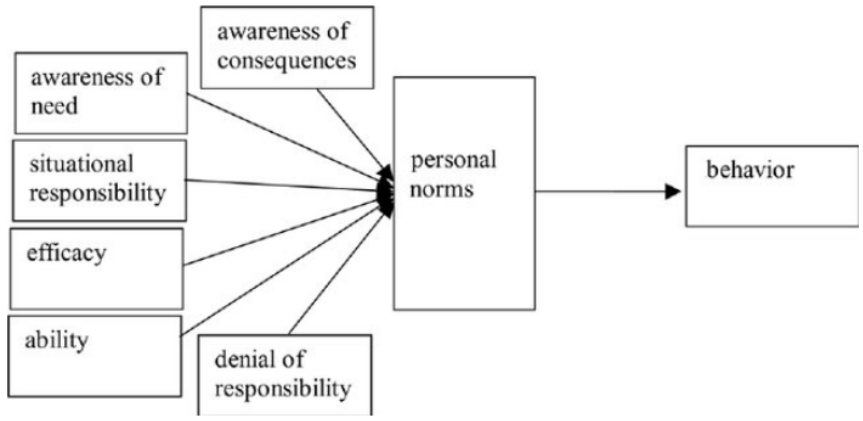


Source: Ajzen (1991)

The theory of planned behaviour was introduced by Ajzen (1985). It was developed to forecast behavioural patterns in people (Asare, 2015). Archie et al. (2022) stated that social norms determine three factors, which are perceived behavioural control, attitude, and subjective norms, while these three factors influence behaviour. Besides, subjective norm is defined as one of the social norms under the theory of planned behaviour (Fang et al., 2017). Fang et al. (2017) further explained that people show different behaviours when they are under pressure to conform to normative social norms. Therefore, subjective norms and social norms have the same meaning under the theory of planned behaviour. Moreover, the theory of planned behaviour was employed in many journal articles regarding environmental sustainability practices (Si et al., 2019). According to Fang et al. (2017), the theory of planned behaviour is one of the significant theoretical frameworks that has been used to understand the factors affecting pro-environmental behaviours in a variety of circumstances.

2.2.2 Norm Activation Model

Figure 2.2



Source: Schwartz (1977)

The Norm Activation Model was developed by Schwartz (1977). This model is used to identify the factors that influence people to act in altruistic and environmentally friendly ways (Savari et al., 2023). According to the Norm Activation model, behaviour starts with a person becoming aware of the negative effects of destructive behaviour, which is followed by growing sense of responsibility for those effects, thereby increasing the intention of individuals to act in a pro-social manner (Kim & Hwang, 2020). Onwezen et al. (2013) explained that a person's awareness and responsibility serve to moderate the influence of personal norms. Moreover, Schwartz (1977) stated that personal norms act as the fundamentals of the norm activation model as in this model the behaviour of people is driven by moral obligation but not intention. Furthermore, this theory has been proven in past studies that personal norms relate to pro-environmental behaviour (Han, 2014).

2.2.3 Knowledge-Belief-Norm Theory

The Knowledge-Belief-Norm is an extension of the value-belief-norm (Stern, 2000). The first goal of Knowledge-Belief-Norm was to ascertain whether environmental knowledge enhances belief (Fenitra et al., 2022). Fenitra et al. (2022) further explained that this theory consists of

variables such as biospheric values, environmental knowledge, beliefs, and personal norms. This theory has been focused on by the environmentalists to study the relationship between environmental knowledge and environmentally responsible behaviour (Steg & Nordlund, 2009). Besides, past studies have identified the crucial role that environmental knowledge plays in generating intended behaviour through beliefs and norms (Unal et al., 2018). The Knowledge-Belief-Norm model is suitable for research related to environmental sustainability practices due to values can affect human behaviours, beliefs, and norms (Fenitra et al., 2022). Furthermore, some academics have proposed that environmental knowledge and values jointly can most effectively predict belief (Liobikienė et al., 2017; Groening et al., 2018).

2.2.4 Social Information Processing Theory

This theory covers the importance of relationships in digital environments such as conversations through emails and text messages (Michaelson & Stacks, 2011). Besides, this theory explains how social media can facilitate the processing of interpersonal influence (Gulati, 2020). According to Chan et al. (2012) and Manfredo et al. (2016), social values which are shared and generated by the members of a social group are crucial for the adoption of sustainability since they are strongly related to behaviour. This theory is valid to study the relationship between social media and environmental sustainability practices due to people are motivated and affected by interactions with other members on social media (Ames & Naaman, 2007).

2.3 Conceptual Framework

Figure 2.3

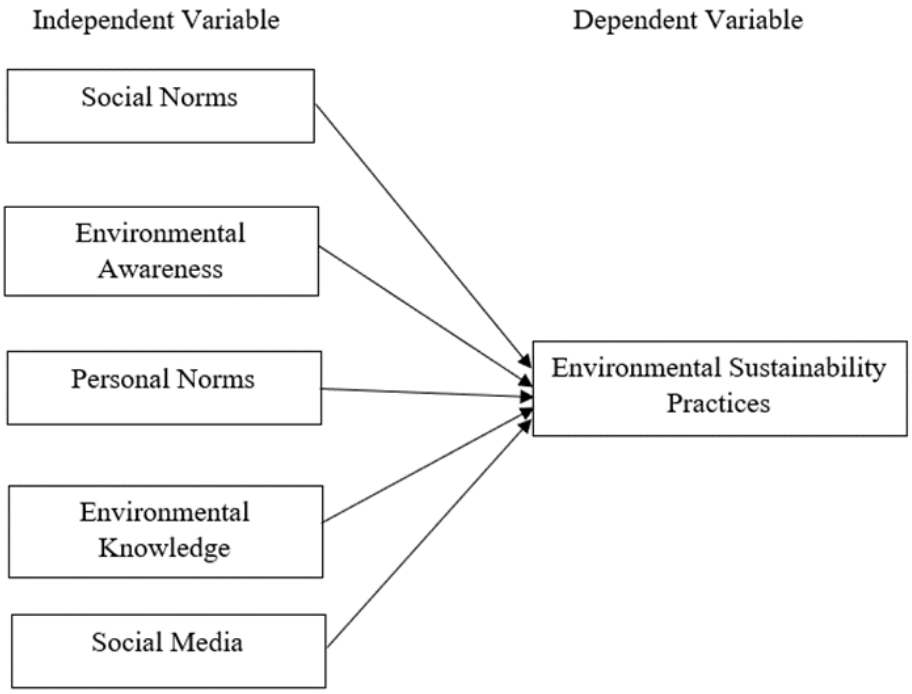


Figure 2.3 shows a developed conceptual framework to examine environmental sustainability practices among undergraduates at UTAR. This conceptual framework includes five independent variables which are social norms, environmental awareness, personal norms, environmental knowledge, and social media. Besides, this framework was created in order to evaluate the accuracy of the inference. Additionally, the hypothesis development in the following section will use this conceptual framework.

2.4 Hypothesis Development

2.4.1 Social Norms and Environmental Sustainability Practices

Bai and Bai (2020) showed that social norms can affect an individual's behaviours and intentions in adopting environmental sustainability practices. They mentioned that social norms have a bandwagon effect, which proves that when more surroundings are involved in

environmental sustainability practices, there is a higher possibility that an individual will make corresponding changes in their involvement in environmental sustainability practices too.

Besides, Huber et al. (2018) found that social norms impacted the perception of students' awareness of environmental sustainability practices. As such, the perceptions and behaviours of the public and surrounding people regarding environmental sustainability practices will have a non-negligible impact on students' lives within that social sphere. Students will amend their mentality regarding environmental sustainability practices based on the positive or negative feedback of the people around them and even the public. In other words, the stronger the social norms felt by students are, the easier it is for environmental sustainability practices to happen.

In addition, Perry et al. (2021) suggest that social norms can promote environmental sustainability practices. Environmental social norms appeared to promote frequent recycling activities in residential households and reduce the use of polystyrene containers and single-use plastic straws in their daily lives.

Based on the findings from the past research, the hypothesis developed is as follows:
H1: There is a significant relationship between social norms and environmental sustainability practices.

2.4.2 Personal Norms and Environmental Sustainability Practices

Jang and Kim (2023) showed that personal norms are significant antecedents of environmental sustainability practices. They said that several socio-psychological theories, such as the value-belief-norm model and norm activation model, give humans a strong sense of moral obligation to engage in environmental sustainability practices. Regardless of social norms, personal norms still influence one's intentions and behaviours towards environmental sustainability practices. Therefore, the stronger the personal norms felt, the higher the probability of performing environmental sustainability practices.

Besides that, personal norms are defined as the feelings of moral obligation of an individual toward a certain action that influence both intentions and environmental sustainability practices (Gifford and Nilsson, 2014). As such, an individual's ethical sense of right or wrong follows their personal norms.

In addition, Collado et al. (2017) found that personal norms have a positive relationship with environmental sustainability practices, and they are referred to as a good indicator of an individual's action. From a university perspective, it was found that undergraduates are more likely to engage in environmental sustainability practices as they are attached to a sense of moral obligation to hold accountability. Therefore, the pride of environmentalism ideology comes from the personal norms of undergraduate students, which influence the action of environmental sustainability practices.

Based on the findings from the past research, the hypothesis developed is as follows:
H2: There is a significant relationship between personal norms and environmental sustainability practices.

2.4.3 Environmental Awareness and Environmental Sustainability Practices

Agrawal et al. (2023) showed that environmental awareness has a positive relationship with environmental sustainability practices. They said that when they are aware of the value of the environment and the harm of destroying the ecosystem, humans tend to protect the environment by adopting environmental sustainability practices. Hence, increased awareness of environmental problems may result in the inclusion of environmental sustainability practices into our daily lives.

Besides, Ahmad et al. (2018) suggest that environmental awareness has a positive relationship with environmental sustainability practices. It is stated that when people are aware of the downfall of the environment, they tend to participate in environmental sustainability practices to sustain the balance of ecology. Due to their awareness, individuals will be more cautious in their actions in adopting environmental sustainability practices and avoid harmful environmental activities such as recycling instead of dumping trash into the river and burning it outdoors to reduce environmental impact due to their actions. As a result, people who are aware of environmental conditions will be more likely to participate in environmental sustainability practices.

Based on the findings from the past research, the hypothesis developed is as follows:

H3: There is a significant relationship between environmental awareness and environmental sustainability practices.

2.4.4 Environmental Knowledge and Environmental Sustainability Practices

Holison (2023) showed that environmental knowledge can play a significant role in assessing an individual's environmentally-sustainable lifestyle practices. People are more likely to make environmental sustainability decisions and support policies and programmes aimed at promoting environmental sustainability practices if they are knowledgeable of how their lifestyles affect the environment and have a positive attitude towards environmental sustainability practices.

Besides that, a study by Mohamed et al. (2020) discovered that environmental knowledge has a positive effect on environmental sustainability practices. It summarizes that the higher the environmental knowledge the citizens have, the easier environmental sustainability practices will be adopted. Apart from that, findings by Peng & Zhang (2022) showed a significant relationship between environmental knowledge and environmental sustainability practices. The essence of this study is that citizens who are knowledgeable about environmental topics will have a high level of openness to change. As a result, it is easier for them to practice environmental sustainability practices as it is a new habit for them to practice. In addition, Fu et al. (2018) also stated that there is a positive relationship between environmental knowledge and environmental sustainability practices. They found that the better environmental knowledge of a person leads to more adoption of environmental sustainability practices. The essence of this is that environmental knowledge is not an individual's perception and opinion on environmental factors; it is detailed information that must be learned to understand the definitions of environmental issues and regulations.

Based on the findings from the past research, the hypothesis developed is as follows:
H4: There is a positive relationship between environmental knowledge and environmental sustainability practices.

2.4.5 Social Media and Environmental Sustainability Practices

Nekmahmud et al. (2022) showed a positive relationship between social media and environmental sustainability practices. Social media educates youth like undergraduate students about sustainability and environmental practices. They said that social media is also considered one of the most influential communication tools for gaining attention from the youth, shifting their perceptions toward the increased participation of environmental sustainability practices. Therefore, social media can increase the involvement of environmental sustainability practices if used correctly.

Besides that, Zhang and Skoric (2018) examined a positive relationship between social media and environmental sustainability practices. As technology advances, social media plays a huge role as one of the antecedents of environmental sustainability practices. Social media can nurture the participation of society without boundaries and facilitate sustainable behaviour to adopt environmental sustainability practices.

Based on the findings from the past research, the hypothesis developed is as follows:
H5: There is a significant relationship between social media and environmental sustainability practices.

2.5 Conclusion

This chapter includes a thorough literature review for the independent variables (Social norms, personal norms, environmental awareness, environmental knowledge, and social media) and the dependent variable (Environmental Sustainability Practices). Besides, the theoretical framework, conceptual framework, and hypotheses development are significantly supported. To better understand the method used to conduct this study, there will be a research methodology inclusive of data collection techniques and data analysis methods discussed in the next chapter.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

The objective of conducting this research is to study factors that affect UTAR undergraduates' engagement in environmental sustainability practices. This chapter will include the research methodology of the study. The first part of the chapter will discuss research design. Then, sampling design, diagnostic checking, and data collection procedures will be reviewed accordingly. This study uses a quantitative study design. The primary data is collected through online surveys, and a simple random sampling method is used in this study.

3.1 Research Design

Research design is the overall method that is adopted to integrate each element of the study in a consistent and logical manner and assure that the research problem can be effectively addressed (Thakur, 2021). Besides, research design is a detailed strategy and technique that delivers an answer to the research question (Abosede & Onanuga, 2016). The two basic forms of research design are known as qualitative data and quantitative data.

A quantitative research approach is applied to analyze the drivers of environmental sustainability practices among undergraduates at UTAR. The quantitative research contains numerical measurement and statistical analysis. Bloomfield and Fisher (2019) stated that quantitative research can be considered scientific in nature. Furthermore, quantitative research serves the high efficiency of the result description and ensures the objectivity of studies (Bloomfield & Fisher, 2019).

3.2 Data Collection Methods

The mandatory part of hypothesis testing is the collection of data. There are two techniques to collect data from many resources in empirical studies: primary source and secondary source (Ajayi, 2017).

3.2.1 Primary Data

Primary data refers to information that is collected firsthand to examine the study (Driscoll, 2011). The data gathered through the questionnaires is primary data. The questionnaire method is preferred in this research because it shortens the time to gain responses from the respondents. Besides, the advantage of using Google Forms is that it brings convenience to the researcher in collecting data as the questionnaire can be delivered without physical presence.

3.3 Sampling Design

This study uses a questionnaire as the sampling design to collect data. The sample represents the entire population and draws conclusions about the population (Young, 2021). The researcher could make inferences about the characteristics of the population by studying and understanding the samples (Sekaran & Bougie, 2010).

3.3.1 Target Population

The population can be defined as what the researcher wishes to examine and could be acknowledged as a whole for the case study (Martins et al., 2018). The purpose of this research is to study the drivers of environmental sustainability practices among undergraduate students at UTAR. Hence, the target population of the study is the undergraduate students at UTAR Kampar Campus.

3.3.2 Sampling Frame and Sampling Location

The sampling frame means that the chosen population has been arranged in order (Baltes and Ralph, 2022). Hence, undergraduate students from UTAR's many faculties are the sampling frame for this study.

In addition, the sampling location is the location where the data collection has been conducted. The sampling location of this research is at Universiti Tunku Abdul Rahman, Kampar Campus.

3.3.3 Sampling Elements

The sampling element is the measurement unit of the study aimed at examining the population (Rahman et al., 2022). The sampling element of this study is the UTAR undergraduates from six different faculties. Moreover, the respondents would be different in terms of gender, race, age, year of study, and faculty.

3.3.4 Sampling Technique

Two types of sampling techniques are applicable in research, namely probability sampling and non-probability sampling (Taherdoost, 2016). In this research, probability sampling refers to the fact that all population members have an equal chance of participating in the study. The probability sampling technique is selected to create an accurate sample. Probability sampling technique is preferred in this study because it can be used to reduce sampling bias, allow the research results to be unbiased, and allow for concluding generalizations about undergraduate students in the UTAR population without favouritism.

Simple random sampling has been selected among the probability sampling techniques. According to Taherdoost (2016), in a basic random sample, everyone in the population has an equal chance of being chosen to be a sample subject. Bevans (2020) also noted that this

sampling technique delivers the most generalizability of the results and has the least bias. Similar to Asmum et al. (2012), they collected data from UiTM Shah Alam undergraduate students about the factors affecting sustainable consumption practices among undergraduate students in Selangor with the utilization of simple random sampling techniques. Additionally, a study by Jalil et al. (2016) that examines the recycling habit among undergraduate students at UUM used simple random as the sampling technique for their data collection. As a result, simple random sampling could be used to collect sufficient valid data from the intended respondents. This approach is useful for conducting both pilot and full studies, as well as for developing hypotheses and streamlining the data collection process.

3.3.5 Sampling Size

Figure 3.1: Table for Determination of Sample Size from a Given Population

N	s	N	S	N	s
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

According to Krejcie and Morgan (1970), a table is created to guide the selection of sample size to confirm a good decision model. In this study, “Table for Determination of Sample Size from a Given Population” is used to select the sampling size. The population of undergraduates at UTAR is around 21,000 students. Therefore, this study requires a minimum of 377 respondents.

3.4 Research Instrument

3.4.1 Questionnaire

The research instrument for collecting primary data for the study is a questionnaire. The questionnaire is a recommended tool for conducting research in a cheap and effective manner and receives a huge number of responses from different respondents (Wilkinson & Biringham, 2003). As the questionnaire consists of fixed-alternative questions, respondents must select among a set of options according to their personal viewpoints (Sekaran & Bougie, 2013). In this research study, the approach to distributing questionnaires is through Google Forms, which is an online mode. The same approach has been utilized by Berglund (2020), Junita et al. (2023), and Lopez-Odar et al. (2019) to study the drivers of environmental sustainability practices.

The questionnaire for the study consists of seven sections and a cover layout. Section A collects information about the backgrounds of the target respondents. The backgrounds include demographic questions such as gender, age, ethnicity, current academic year, and faculty. Section B is constructed to measure their behaviour towards environmental sustainability practices, which consists of five questions. Section C to Section G comprises 25 questions about the independent variables that affect the drivers of environmental sustainability practices.

All questions in Sections B to G are measured on five-point Likert scales. This scale was used to lessen the frustration of the survey (Babakus & Mangold, 1992). As a result, this scale could improve the response rates and data quality of questionnaire.

Johns (2010) stated that five-point Likert scales provide participants with enough options and keep the items manageable. Besides, Halim et al. (2021) gathered data on environmental sustainability practices using five-point Likert scales. Moreover, Zhang et al. (2022) also used five-point Likert scales to collect data about personal norms towards environmental sustainability practices.

3.4.2 Pre-Test

A questionnaire will be evaluated by two UTAR lecturers before distributing it to undergraduate students in UTAR.

3.4.3 Pilot Test

According to Zikmund (2003), a pilot test acts as a minor test that is undertaken before a larger-scale test. Data is collected from a small sample of undergraduate students at UTAR to see whether the study is feasible. A pilot test aims to gauge the viability of a study and its response rate. Moreover, a pilot test will improve the questionnaire's quality, and the result can be adjusted before conducting a full-scale study if the result is not as ideal as expected in the pilot test.

The pilot study will be carried out as an initial test. There will be 30 sets of questionnaires issued to UTAR undergraduate students. Johanson and Brooks (2010) suggest that the appropriate number of sets of questionnaires for conducting a pilot test is 30. The selected target places to obtain primary data from the undergraduate students are UTAR's library, study space, and canteens. SPSS version 29.0 software will be utilized to process all the collected data for the use of checking and measuring the questionnaire's reliability. Based on the results conducted by SPSS version 29.0,

3.5 Constructs Measurement (Scale and Operational Definitions)

The design of the questionnaire incorporates a number of measuring scales that can obtain feedback from respondents successfully.

3.5.1 Scale of Measurement

3.5.1.1 Nominal Scale

The nominal scale highlights the differences between each respondent (Sekaran & Bougie, 2019). This scale helps researchers identify and categorise the respondents. The nominal scale is used in the questions in Section A, which are Questions 1, 3, 4, and 5.

Example of nominal scale:

1. Gender

( ) Male ( ) Female

3.5.1.2 Ordinal Scale

This scale ranks the respondents, but it is unable to quantify the distances between rankings. To put it another way, the ordinal scale may display differences but not actual distances between data (Sekaran & Bougie, 2019). The ordinal scale is used in the question in Section A, which is Question 2.

Example of ordinal scale:

2. Age

☐ 18 – 19 ☐ 20 – 21 ☐ 22 – 23 ☐ 24 & above

3.5.1.3 Interval Scale

This scale helps respondents choose the one that best represents their degree of agreement about the questions (Sekaran & Bougie, 2019). The interval scale is applied to the questions in Sections B and C. The interval scale used is a 5-point Likert scale, and it indicates 5 levels of agreement that are represented by 5 different numbers accordingly (Tanujaya et al., 2022).

Example of interval scale:

Questionnaires for Environmentally Sustainability Practices	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Where possible, I choose to cycle or walk when I'm going somewhere, instead of travelling by motor vehicle.	1	2	3	4	5

3.5.2 Construct Origin

Table 3.1: Summary of Measurements of Items from Previous Studies

Name of variables	Extracted from	Number of items	Values of Cronbach's alpha from previous studies
Dependent Variable: Environmental Sustainable Practices	Berglund (2020)	1 item	0.902
	Halim et al. (2021)	5 items	0.72
Independent Variable: Social norms	Junita et al. (2023)	4 items	0.845
Independent Variable: Personal norms	Ahn et al. (2012)	2 items	0.824
	Zhang et al. (2022)	3 items	0.820
Independent Variable: Environmental awareness	Junita et al. (2023)	5 items	0.873

Independent Variable: Environmental knowledge	Halim et al. (2021)	7 items	0.80
Independent Variable: Social media	Severo et al. (2019)	5 items	0.941

3.5.3 The Operational Definition of Dependent Variable and Independent Variables

There are five drivers of environmental sustainability practices in this study, which are social norms, personal norms, environmental awareness, environmental knowledge, and social media. A 5-point Likert scale is used in the questionnaires, and '1' represents 'Strongly Disagree' and '5' represents 'Strongly Agree'.

3.5.3.1 Environmental Sustainability Practices

The definition of environmental sustainability practices is the effort made to lessen the effects that operations have on the environment (Jansson et al., 2010).

Environmental sustainability practices are measured by using six items which one item adopted from Berglund (2020) and 5 items adopted from Halim et al. (2021). The sample items are "*I will make my waste sorted according to the type of waste*", "*I pick up rubbish when I see it in public places*", "*I always turn off electrical appliances when not in use*", "*I bring my own reusable bag when shopping*", "*I do not take plastic bags when shopping*", and "*I usually turn off the water when brushing my teeth*".

3.5.3.2 Social Norms

Social norms are derived from a nation's cultural standards and principles that guide the way of behavior among the people in a society (Saracevic & Schlegelmilch, 2021).

Social norms are measured by four items which adopted from Junita et al. (2023). The sample items are "*My family members encourage me to preserve the environment*", "My *lecturers encourage me to preserve the environment*", "*My friends encourage me to preserve the environment*", and "*I will do so if I see others doing environmental preservation*".

3.5.3.3 Personal Norms

The definition of personal norms is the self-assumption of how an individual should behave in a specific social circumstance while also experiencing a sense of moral obligation (Jansson & Dorrepaal, 2015).

Personal norms are measured by using 5 items which 2 items adopted from Ahn et al. (2012) and 3 items adopted from Zhang et al. (2022). The sample items are "*I feel an obligation to save energy where possible*", "*I should do what I can to conserve natural resources*", "*I would try to protect local natural resources as much as I could*", "*I'm willing to help to reduce my footprint from the nature*", and "*I plan to act green in the future*".

3.5.3.4 Environmental Awareness

Environmental awareness is the understanding of the environmental impacts by an individual (Pinho & Gomes, 2023).

The measurement of environmental awareness uses the five items from Junita et al. (2023). The adopted items are "*Plants and animals are important to maintain the balance of ecosystem*", "*The condition of our environment will affect our health*", "*Natural resources should be preserved for future generations*", "*A country will run out of natural resources in the future if these natural resources are not conserved*", and "*Humans must live in harmony with nature to survive*".

3.5.3.5 Environmental Knowledge

Environmental knowledge is defined as an individual's general knowledge about environment concepts, relationships, and factual information about environment (Jaiswal & Kant, 2018).

The measurement of environmental knowledge uses seven items from Halim et al. (2021). The adopted items are "*I know the Malaysian government has enacted laws under the Environmental Quality Act 1974 to protect the environment*", "*I know the main function of the 1974 Department of Environment (DOE) is to prevent, eliminate, control pollution and improve the environment, consistent with the purposes of the Environmental Quality Act 1974*", "*I know that the Solid Waste Management and Public Cleaning Act 2007 is an act to regulate the management of solid waste and public cleanup*", "*I know motor vehicles emitted carbon dioxide which is a greenhouse gas that contributes to climate change*", "*I know that the recycle orange bin is reserved for disposing of items made of aluminum and plastic*", "*I know the decline in air quality will have a devasting effect on human race*" and "*I know that global warming will raise sea levels that lead to coastal flooding*".

3.5.3.6 Social media

Social media is defined as internet-based application, a channel for everyone in the globe to share information and interact without any boundaries (Kaplan & Mazurek, 2018).

The measurement of social media uses five items from Severo et al. (2019). The adopted items are "*I usually watch videos on social media about environmental pollution*", "*I usually watch videos on social media about the use of renewable energies*", "*I usually watch videos on social media about recycling*", "*I usually watch videos on social media about atmospheric pollution*", and "*I usually watch videos on social media about waste sorting*".

3.6 Data Processing

The data will be processed to review the data. The process includes checking, editing, coding, and transcribing. First and foremost, it is important to review each questionnaire that was received to look for any missing, contradictory, or illogical answers. Then, the fault responses should be changed or deleted during the editing stage. The digit code is then assigned to each answer respectively in the coding stage. Lastly, the data is input into SPSS version 29.0 for data analysis and reliability test (Sekaran & Bougie, 2019).

3.6.1 Data Checking

The purpose is to confirm that the questionnaires are valid for research. This is because some questionnaires may consist of missing, contradictory, or illogical answers. Therefore, data checking could minimize fault responses.

3.6.2 Data Editing

Then, data editing will be performed by amending the faulty responses from the questionnaires. If there is any faulty response, amendments will be made to guarantee the responses are reliable. This helps to ensure the data collected will be consistent (Sekaran & Bougie, 2019).

3.6.3 Data Coding

Moving on, this part includes transcribing the data. The numerical codes that represent the answer to each question will be entered into SPSS software. The responses in Section B and C are coded from 1 to 5.

The table 3.2 shows the coding for Section:

i.	Gender	"Male" = 1 "Female" = 2
ii.	Age	"18 – 19" = 1

		"20 – 21" = 2 "22 – 23" = 3 "24 & above" = 4
iii.	Race	"Malay" = 1 "Chinese" = 2 "Indian" = 3 "Others" = 4
iv.	Current Year	"Year 1" = 1 "Year 2" = 2 "Year 3" = 3 "Year 4" = 4
v.	Faculty	"FBF" = 1 "FICT" = 2 "FEGT" = 3 "FAS" = 4 "FSC" = 5 "ICS" = 6

Below shows the coding for answer with 5-point Likert scale in Section B and C:

- "Strongly Disagree" =1
- "Disagree" =2
- "Neutral" =3
- "Agree" =4
- "Strongly Agree" =5

3.6.4 Data Transcribing

Data transcribing will be performed using SPSS 29.0 software after data coding process.

3.7 Data Analysis

In this study, the data gathered from questionnaires is analyzed using SPSS 29.0 software. The data analysis in this study includes statistical methods such as descriptive analysis, reliability analysis, and inferential analysis.

3.7.1 Descriptive Analysis

Descriptive analysis makes understanding data easier through a summary of the data (Aldrich, 2018). Descriptive analysis is presented through graphs and tables. In this research, pie graphs are used for the analysis of the questionnaires in Section A.

3.7.2 Reliability Analysis

Reliability analysis measures and determines whether the items from questionnaire are consistent and stable. Cronbach's alpha is reliable in showing how strongly a group of items correlate with one another. According to Sekaran and Bougie (2019), the item is more reliable when the Cronbach's alpha value is closer to 1. Hence, Cronbach's alpha is used to test the reliability of the items from questionnaires.

Table 3.3 shows the level indicators of Cronbach's alpha value.

Table 3.3: Rule of Thumb on Cronbach's alpha

Value of Cronbach's alpha	**Indicators**
0.80 to 0.95	Very good
0.70 to 0.80	Good
0.60 to 0.70	Fair
Below 0.60	Poor

Source: Sekaran & Bougie (2019)

Table 3.4: Results of Reliability Test for Pilot Test

Name of Variables	Value of Cronbach's alpha	Indicators
Dependant Variable: Environmental sustainability practices	0.731	Good
Independent variable 1: Social norm	0.907	Very Good
Independent variable 2: Personal norm	0.963	Very Good
Independent variable 3: Environmental Awareness	0.949	Very Good
Independent variable 4: Environmental Knowledge	0.812	Very Good
Independent variable 5: Social media	0.905	Very Good

3.7.3 Preliminary Data Screening

3.7.3.1 Multicollinearity

Multicollinearity happens there is a high correlation between independent variables (Sekaran & Bougie, 2019). The results of regression analysis cannot be trusted when there is a multicollinearity problem. Hence, a multicollinearity test must be performed before conducting regression analysis.

Besides, Variance inflation factor (VIF) is used to detect multicollinearity problem among the independent variables. Multicollinearity occurs between independent variables when the VIF value exceeds 10 (Sekaran & Bougie, 2019).

3.7.3.2 Normality

This test can be used to determine whether the sample data is normal distributed in order to conclude the population (Ghasemi & Zahediasl, 2012). Thus, the normality of the distribution of data is tested using a few tests.

Firstly, the skewness and kurtosis of the data is viewed to observe the normality of the data. According to Griffin and Steinbrecher (2013), the data are normal when the skewness is between -3 and +3 and the kurtosis value is between -10 and +10.

Second, a histogram is performed to observe the normality pattern of the data. According to Holub and Ferreira (2006), the data is considered normal when the pattern of the distribution curve is symmetric and bell-shaped.

Thirdly, a QQ plot is performed to observe whether the data follows a normal distribution. According to Dawson (2011), the box will be symmetrical with the mean and median in the center if the data is normal.

3.7.4 Inferential Analysis

This analysis examines the hypothesis and conclude the population (Aldrich, 2018). Multiple linear regression analysis is performed in studying 377 students from 6 faculties on the UTAR Kampar campus. The multiple regression analysis is performed because it can identify the relationship between the response variable, environmental sustainability practices, and the explanatory variables, social norms, personal norms, environmental awareness, environmental knowledge, and social media.

3.7.4.1 Multiple Linear Regression Analysis

According to Bevans (2023), this analysis helps in studying the relationship between one or more independent variables and a dependent variable. This analysis is more reliable due to there are five independent variables chosen in this research. After that, a table with model summarizing will be used to interpret the R square value and significance of the relationships using the alpha value.

Multiple linear regression model:

$$ESP_i = \beta 0 + \beta_1 SN_i + \beta_2 PN_i + \beta_3 EA_i + \beta_4 EK_i + \beta_5 SM_i + \mu_t$$

Where ESP_i = Environmental sustainability practices

SN_i = Social norms

PN_i = Personal norms

EA_i = Environmental awareness

EK_i = Environmental knowledge

SM_i = Social media

μ_t = error term

3.8 Diagnostic Checking

3.8.1 Autocorrelation

Autocorrelation is the level of similarity between correlated errors in the regression model (Markel & Gray, 1973). The Durbin-Watson test could be used to detect autocorrelation problems in the regression model. This test shows the independence of residuals by examining whether there is a serial correlation between residuals (Azami et al., 2020). The acceptable range of value for the Durbin Watson test in large samples is between 1.5 to 2.5 (Turner, 2019).

3.9 Conclusion

This chapter discusses that the research design of the study is quantitative research, the data collected is primary data, and the data is collected through questionnaires. Besides, the sampling technique chosen for this study is simple random sampling. Moreover, a minimum of 377 respondents are required for this research, meanwhile pre-test and pilot test will be conducted before the full-scale test. After getting sufficient responses, a full-scale test will be conducted using SPSS software. Then, data analysis will be carried out.

CHAPTER 4: RESEARCH RESULTS

4.0 Introduction

This chapter includes data analysis of several tests such as descriptive analysis, reliability test, preliminary data screening and Multiple Linear Regression Analysis. All the analysis are completed using SPSS version 29.0.

4.1 Descriptive Analysis

This analysis interprets the demographic data of the respondents. This analysis interprets the demographic data of the respondents. The analysis is shown using tables and pie charts.

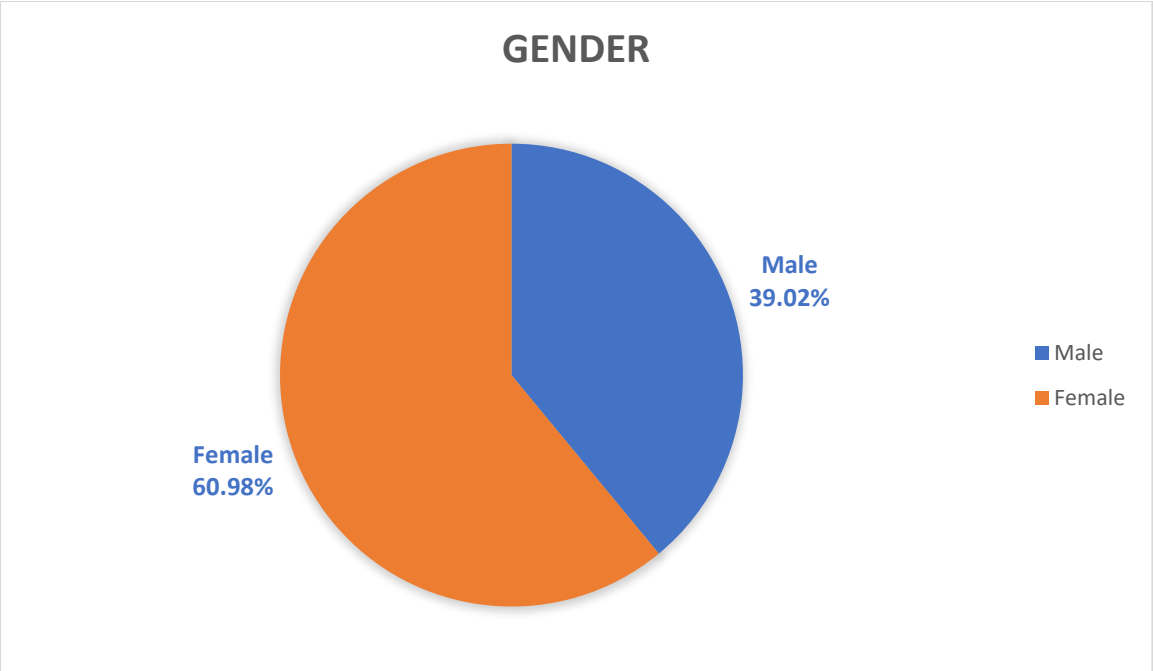
4.1.1 Respondents' Demographic Profile

4.1.1.1 Gender

Table 4.1: Gender Analysis

Gender	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percentage (%)
Male	151	39.02	151	39.02
Female	236	60.98	387	100

Figure 4.1: Gender Analysis



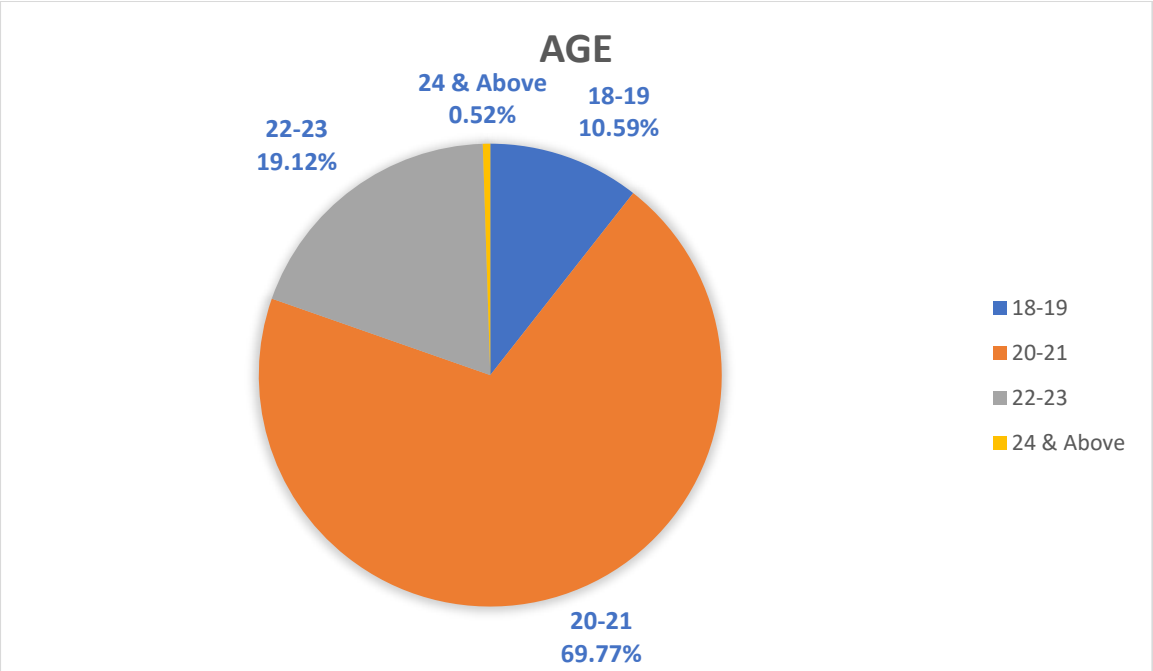
The table and figure above show the total number of undergraduate students participated in this study is 387. There are 236 female participants (60.98%) while there are 151 male participants (39.02%). Therefore, female participants are more than male participants.

4.1.1.2 Age Group

Table 4.2: Age Analysis

Age	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percentage (%)
18-19	41	10.59	41	10.59
20-21	270	69.77	311	80.36
22-23	74	19.12	385	99.48
24 & Above	2	0.52	387	100

Figure 4.2: Age Analysis



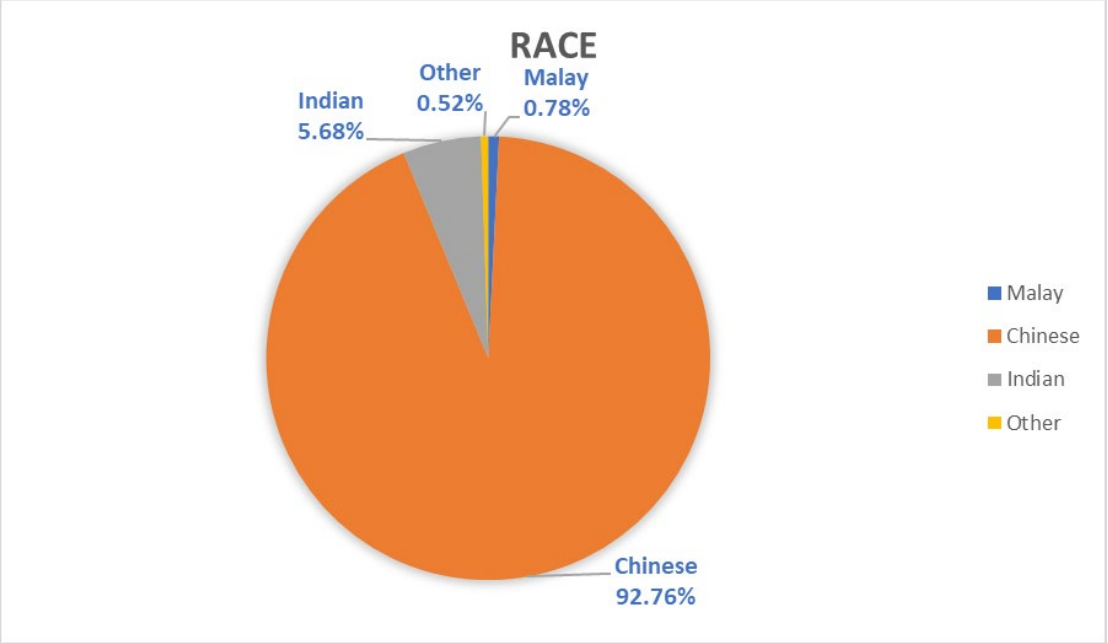
The table and figure above display that 270 respondents (69.77%) are between 20 and 21 years old. Besides, 74 respondents (19.12%) are between 22 and 23 years old. Moreover, 41 respondents (10.59%) are between 18 and 19 years old. Lastly, 2 respondents (0.52%) of the participants are aged 24 and above years old.

4.1.1.3 Race

Table 4.3: Race Analysis

Race	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percentage (%)
Malay	3	0.78	3	0.78
Chinese	359	92.76	362	93.54
Indian	22	5.68	381	99.22
Others	2	0.52	383	100

Figure 4.3: Race Analysis



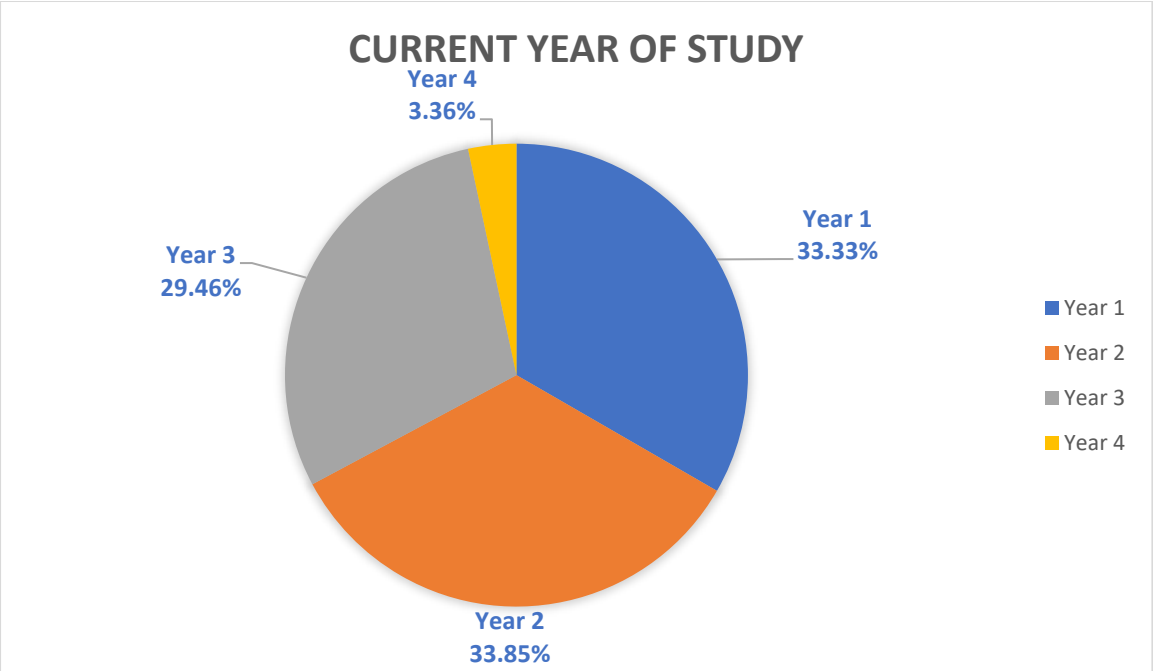
The table and figure above illustrate that most of the participants are Chinese (92.76%), then Indian (5.68%), Malay (0.78%) and other ethnicity (0.52%).

4.1.1.4 Current Year of Study

Table 4.4: Current Year of Study Analysis

Current Year of Study	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percentage (%)
Year 1	129	33.33	129	33.33
Year 2	131	33.85	260	67.18
Year 3	114	29.46	374	96.64
Year 4	13	3.36	387	100

Figure 4.4: Current Year of Study Analysis”



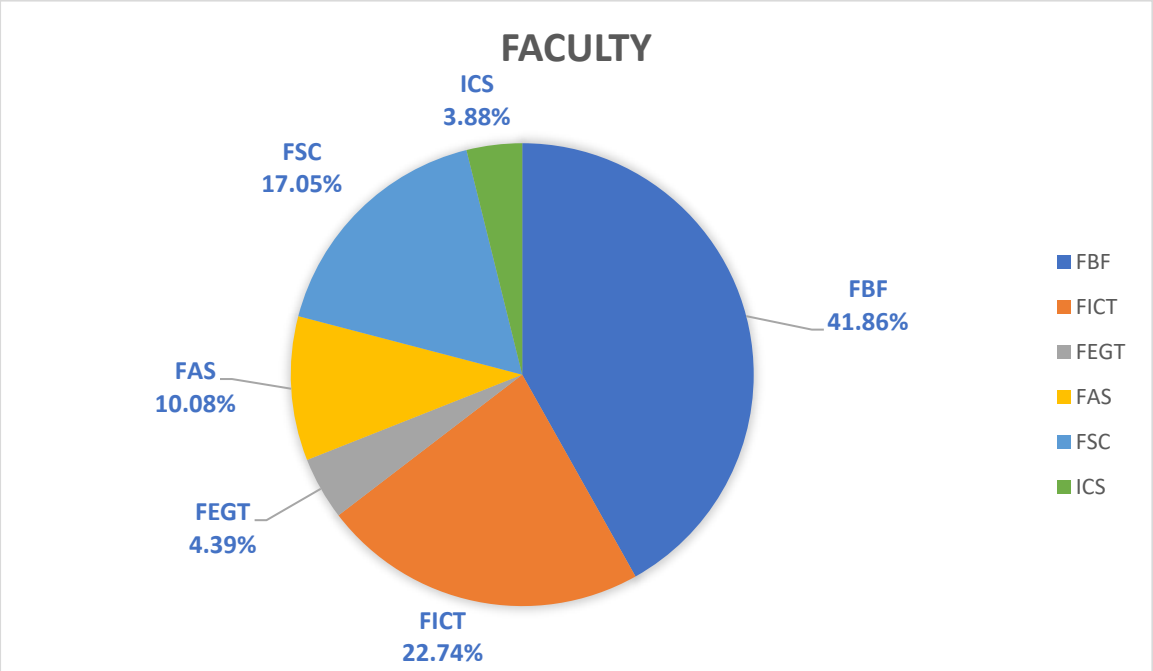
The table and figure above show the number and percentage of participants in terms of their current year of study. The highest order of respondents starts with 131 students in year 2 (33.85%), then 129 students in year 1 (33.33%), 114 students in year 3 (29.46%), and 13 students in year 4 (3.36%).

4.1.1.5 Faculty

Table 4.5: Faculty Analysis

Current Year of Study	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percentage (%)
FBF	162	41.86	162	41.86
FICT	88	22.74	250	64.60
FEGT	17	4.39	267	68.99
FAS	39	10.08	306	79.07
FSC	66	17.05	372	96.12
ICS	15	3.88	387	100

Figure 4.5: Faculty Analysis



The highest order of the respondents starts with the Faculty of Business and Finance (41.86%), then Faculty of Information and Communication Technology (22.74%), Faculty of Science (17.05%), Faculty of Arts and Social Science (10.08%), Faculty of Engineering and Green Technology (4.39%) and Institute of Chinese Studies (3.88%).

4.1.2 Central Tendencies Measurement of Constructs

The mean and standard deviation of each item in the surveys created using SPSS 29.0 are displayed in the central tendency. The frequency analysis in this study includes frequency tables and charts. Furthermore, the frequency analysis that was done allowed for the determination of the sample distribution's mean and standard deviation.

4.1.2.1 Environmental Sustainability Practices

Table 4.6: Central Tendencies Measurement of Environmental Sustainability Practices

Question	Statement	Sample Size, N	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
ESP 1	I will make my waste sorted according to the type of waste.	387	3.25	1.102	4	4
ESP 2	I pick up rubbish when I see it in public places.	387	3.21	1.091	5	5
ESP 3	I always turn off electrical appliances when not in use.	387	4.32	0.997	1	6
ESP 4	I bring my own reusable bag when shopping.	387	3.60	1.157	3	2
ESP 5	I do not take plastic bags when shopping.	387	3.06	1.141	6	3
ESP 6	I usually turn off the	387	4.17	1.212	2	1

	water when brushing my teeth.					

According to Table 4.6, ESP 3 recorded highest value of mean (4.32). Besides, ESP 6 recorded second highest value of mean (4.17), ESP 4 recorded third highest value of mean (3.60), ESP 1 recorded fourth highest value of the mean (3.25), ESP 2 recorded the fifth highest value of mean (3.21) and ESP 5 recorded the sixth highest value of mean (3.06).

Besides, ESP 6 recorded highest value of standard deviation (1.212). Besides, ESP 4 recorded second highest value of standard deviation (1.157), ESP 5 recorded third highest value of standard deviation (1.141), ESP 1 recorded fourth highest value of the standard deviation (1.102), ESP 2 recorded the fifth highest value of standard deviation (1.091) and ESP 3 recorded the sixth highest value of standard deviation (0.997).

4.1.2.2 Social Norms

Table 4.7: Central Tendencies Measurement of Social Norms

Question	Statement	Sample Size, N	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
SN 1	My family members encourage me to preserve the environment.	387	3.88	0.984	2	3
SN 2	My lecturers encourage me to preserve the environment.	387	3.82	0.997	3	2
SN 3	My friends encourage me	387	3.50	1.047	4	1

	to preserve the environment.					
SN 4	I will do so if I see others doing environmental preservation.	387	4.12	0.891	1	4

According to Table 4.7, SN 4 recorded highest value of mean (4.12). Besides, SN 1 recorded second highest value of mean (3.88), SN 2 recorded third highest value of mean (3.82), SN 3 recorded fourth highest value of the mean (3.50).

Besides, SN 3 recorded highest value of standard deviation (1.047). Besides, SN 2 recorded second highest value of standard deviation (0.997), SN 1 recorded third highest value of standard deviation (0.984), SN 4 recorded fourth highest value of the standard deviation (0.891).

4.1.2.3 Personal Norms

Table 4.8: Central Tendencies Measurement of Personal Norms

Question	Statement	Sample Size, N	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
PN 1	I feel an obligation to save energy where possible.	387	4.06	0.891	3	2
PN 2	I should do what I can to	387	4.14	0.807	1	5

	conserve natural resources.					
PN 3	I would try to protect local natural resources as much as I could.	387	4.12	0.836	2	4
PN 4	I'm willing to help to reduce my footprint from the nature.	387	4.03	0.847	4	3
PN 5	I plan to act green in the future.	387	3.98	0.909	5	1

According to Table 4.8, PN 2 recorded highest value of mean (4.14). Besides, PN 3 recorded second highest value of mean (4.12), PN 1 recorded third highest value of mean (4.06), PN 4 recorded fourth highest value of the mean (4.03), PN 5 recorded the fifth highest value of mean (3.98).

Besides, PN 5 recorded highest value of standard deviation (0.909). Besides, PN 1 recorded second highest value of standard deviation (0.891), PN 4 recorded third highest value of standard deviation (0.847), PN 3 recorded fourth highest value of the standard deviation (0.836), PN 2 recorded the fifth highest value of standard deviation (0.807).

4.1.2.4 Environmental Awareness

Table 4.9: Central Tendencies Measurement of Environmental Awareness

Question	Statement	Sample Size, N	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
EA 1	Plants and animals are important to maintain the balance of ecosystem.	387	4.61	0.712	2	4
EA 2	The condition of our environments will affect our health.	387	4.63	0.692	1	5
EA 3	Natural resources should be preserved for future generations.	387	4.50	0.793	5	1
EA 4	A country will run out of natural resources in the future if these natural resources are not conserved	387	4.57	0.743	3	3

EA 5	Humans must live in harmony with nature to survive.	387	4.55	0.751	4	2

According to Table 4.9, EA 2 recorded highest value of mean (4.63). Besides, EA 1 recorded second highest value of mean (4.61), EA 4 recorded third highest value of mean (4.57), EA 5 recorded fourth highest value of the mean (4.55), EA 3 recorded the fifth highest value of mean (4.50).

Besides, EA 3 recorded highest value of standard deviation (0.793). Besides, EA 5 recorded second highest value of standard deviation (0.751), EA 4 recorded third highest value of standard deviation (0.743), EA 1 recorded fourth highest value of the standard deviation (0.712), EA 2 recorded the fifth highest value of standard deviation (0.692).

4.1.2.5 Environmental Knowledge

Table 4.10: Central Tendencies Measurement of Environmental Knowledge

Question	Statement	Sample Size, N	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
EK 1	I know the Malaysian government has enacted laws under the Environmental Quality Act 1974 to protect	387	3.09	1.237	5	1

	the environment.					
EK 2	I know the main function of the 1974 Department of Environment (DOE) is to prevent, eliminate, control pollution and improve the environment, consistent with the purposes of the Environmental Quality Act 1974	387	3.02	1.235	6	2
EK 3	I know that the Solid Waste Management and Public Cleaning Act 2007 is an act to regulate the management of solid waste and public cleanup.	387	3.00	1.218	7	3
EK 4	I know motor vehicles	387	4.42	0.795	2	6

	emitted carbon dioxide which is a greenhouse gas that contributes to climate change.					
EK 5	I know that the recycle orange bin is reserved for disposing of items made of aluminium and plastic.	387	4.11	0.978	4	4
EK 6	I know the decline in air quality will have a devasting effect on human race.	387	4.31	0.803	3	5
EK 7	I know that global warming will raise sea levels that lead to coastal flooding.	387	4.47	0.738	1	7

According to Table 4.10, EK 7 recorded highest value of mean (4.47). Besides, EK 4 recorded second highest value of mean (4.42), EK 6 recorded third highest value of mean (4.31), EK 5 recorded fourth highest value of the mean (4.11), EK 1 recorded the fifth highest value of mean

(3.09), EK 2 recorded the sixth highest value of mean (3.02), and EK 3 recorded the seventh highest value of mean (3.00).

Besides, EK 1 recorded highest value of standard deviation (1.237). Besides, EK 2 recorded second highest value of standard deviation (1.235), EK 3 recorded third highest value of standard deviation (1.218), EK 5 recorded fourth highest value of the standard deviation (0.978), EK 6 recorded the fifth highest value of standard deviation (0.803), EK 4 recorded the sixth highest value of standard deviation (0.795), and EK 7 recorded the seventh highest value of standard deviation (0.738).

4.1.2.6 Social Media

Table 4.11: Central Tendencies Measurement of Social Media

Question	Statement	Sample Size, N	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
SM 1	I usually watch videos on social media about environmental pollution.	387	3.29	1.124	3	4
SM 2	I usually watch videos on social media about the use of renewable energies.	387	3.40	1.128	1	3
SM 3	I usually watch videos	387	3.28	1.104	4	5

	on social media about recycling.					
SM 4	I usually watch videos on social media about atmospheric pollution.	387	3.34	1.164	2	1
SM 5	I usually watch videos on social media about waste sorting.	387	3.18	1.141	5	2

According to Table 4.11, SM 2 recorded highest value of mean (3.40). Besides, SM 4 recorded second highest value of mean (3.34), SM 1 recorded third highest value of mean (3.29), SM 3 recorded fourth highest value of the mean (3.28), and SM 5 recorded the fifth highest value of mean (3.18).

Besides, SM 4 recorded highest value of standard deviation (1.164). Besides, SM 5 recorded second highest value of standard deviation (1.141), SM 2 recorded third highest value of standard deviation (1.128), SM 1 recorded fourth highest value of the standard deviation (1.124), and SM 3 recorded the fifth highest value of standard deviation (1.104).

4.2 Scale Measurement

4.2.1 Reliability Test

Table 4.12: Cronbach's Alpha Reliability Analysis

No	Types of Variables	Name	Number of Items	Value of Cronbach's Alpha	Indicator
1	Dependent Variable	Environmental Sustainability Practices	6	0.715	Good
2	Independent Variable	Social Norms	4	0.798	Good
		Personal Norms	5	0.85	Very Good
		Environmental Awareness	5	0.927	Very Good
		Environmental Knowledge	7	0.783	Good
		Social Media	5	0.915	Very Good

Based on the results of Table 4.12, environmental sustainability practices (0.715) score 'good' based on the indicator as the Cronbach's alpha value between 0.70 and 0.80. Moreover, social norms (0.798) and environmental knowledge (0.783) also score 'good' based on the indicator. The Cronbach's alpha values for personal norms, environmental awareness, and social media are 0.85, 0.927, and 0.915 respectively, which indicate 'very good' performance based on the indicator. In overall, the Cronbach's alpha value of all variables exceed 0.70. As such, all items remain in this research.

4.3 Preliminary Data Screening

This section is conducted to identify the reliability of the test results before performing inferential analysis. It includes multicollinearity test and normality test.

4.3.1 Multicollinearity Test

Multicollinearity occurs when the independent variables are highly correlated with each other (Sekaran & Bougie, 2019). The results of regression analysis cannot be trusted when there is a multicollinearity problem. Hence, a multicollinearity test must be performed before conducting regression analysis.

Besides, the variance inflation factor (VIF) and tolerance value are used to detect multicollinearity problems among the independent variables. There is multicollinearity between independent variables when the VIF value is greater than 10 and the tolerance value is less than 0.1. (Sekaran & Bougie, 2019).

Table 4.13 Variance Inflation Factor (VIF) and Tolerance Value

Independent Variables	Statistical Techniques	
	Variance Inflation Factor	Tolerance
Social Norms	0.611	1.636
Personal Norms	0.505	1.979
Environmental Awareness	0.587	1.704
Environmental Knowledge	0.566	1.766
Social Media	0.684	1.462

According to Table 4.13, the Variance Inflation Factor values of all independent variables are less than 10, and the tolerance values of all independent variables are more than 0.1. Therefore, multicollinearity does not occur among the independent variables.

4.3.2 Normality Test

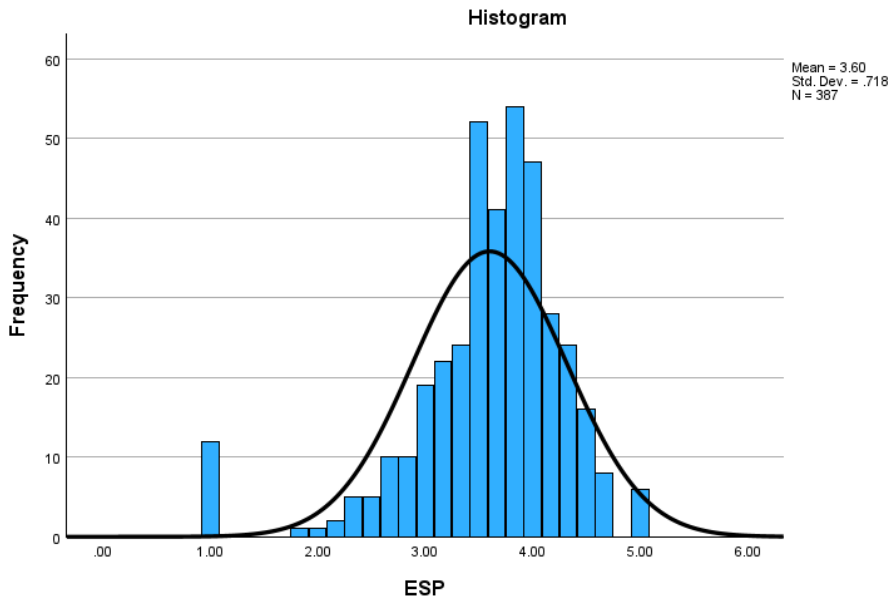
This test helps to identify whether the sample data is normally distributed to conclude the population (Ghasemi & Zahediasl, 2012). Thus, the normality of the distribution of data is tested using a few tests.

Table 4.14 Results of Normality Test

Name of Variables	Value of Skewness	Value of Kurtosis
Dependent Variable: Environmental Sustainability Practices	(1.450)	3.532
Independent Variable 1: Social Norms	(0.494)	0.705
Independent Variable 2: Personal Norms	(1.030)	2.544
Independent Variable 3: Environmental Awareness	(2.707)	10.540
Independent Variable 4: Environmental Knowledge	(0.353)	1.065
Independent Variable 5: Social Media	(0.251)	(0.517)

Firstly, the skewness and kurtosis of the data are viewed to observe the normality of the data. According to Griffin and Steinbrecher (2013), the data are normal when the skewness is between -3 and +3 and the kurtosis value is between -10 and +10. Based on Table 4.14, all the skewness values are between -3 and +3, and the kurtosis values are between -10 and +10 except for the variable environmental awareness (skewness is -2.707 and kurtosis is 10.54). However, Griffin and Steinbrecher (2013) emphasized that small deviations from the range can be accepted as long as they do not violate the assumptions of the normality test. In such cases, the highest skewness value goes to social media, which is -0.251, and the lowest goes to environmental awareness which, is -2.707. Besides, the highest kurtosis value goes to environmental awareness which, is 10.54 and the lowest goes to social media, which is -0.517. These variables are considered to be normally distributed.

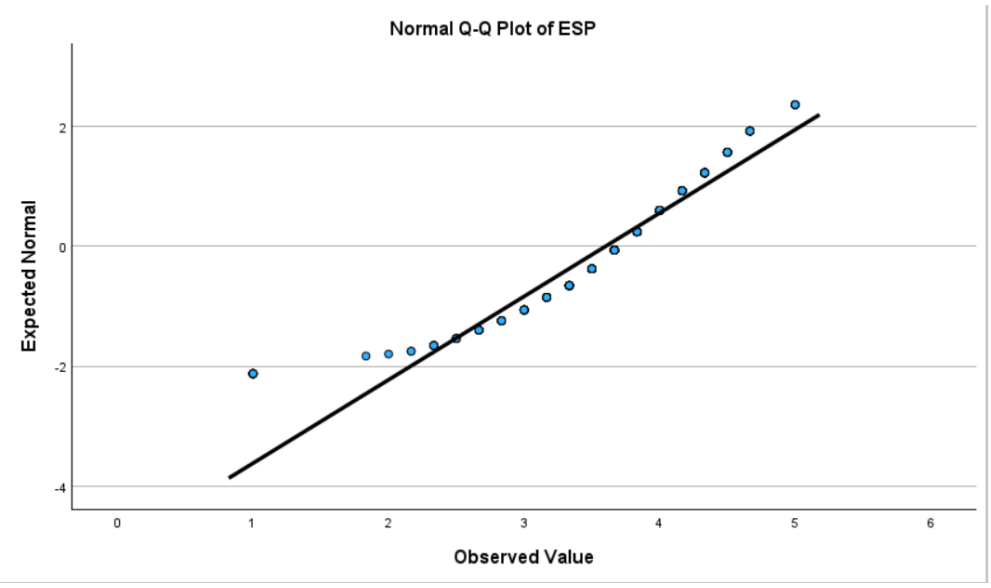
Figure 4.6 : Histogram



Furthermore, histogram can be used to observe the normality pattern of the data. According to Holub and Ferreira (2006), the data is considered normal when the pattern of the distribution curve is symmetric and bell-shaped.

The constructed histogram shown in Figure 4.6 is based on the response variable, environmental sustainability practices. A normal distribution curve is placed on the distribution plot, which is formed in this histogram. It can be seen that the distribution plot essentially corresponds to the normal distribution curve's pattern. The data's frequency is greatest in the middle and decreases as it approaches both extremes. It is therefore considered to be roughly bell-shaped and symmetrical. The data is therefore thought to be normally distributed.

Figure 4.7: Normal Q-Q plot



Moreover, QQ plot is performed to observe whether the data follows a normal distribution. According to Dawson (2011), the box will be symmetrical with the mean and median in the center if the data is normal.

Based on Figure 4.7, every data point is located close to the slope, resulting in the creation of a pattern of straight line. Thus, the data is normally distributed.

4.4 Inferential Analysis

This analysis examines the hypothesis and conclude about the population (Aldrich, 2018). Multiple linear regression analysis is performed in studying 377 students from six faculties on the UTAR Kampar campus. The multiple regression analysis helps identify the relationship between the response variable and the explanatory variables.

4.4.1 Multiple Regression Analysis

Table 4.15 Multiple Regression Analysis

	Unstandardized Coefficient Beta	Coefficient Std. Error	Standardized Coefficient Beta	t-statistics	P-value
(Constant)	1.230	0.248		4.950	0.000
SN	0.203	0.053	0.219	3.872	0.000
PN	0.215	0.066	0.204	3.270	0.001
EA	(0.023)	0.064	(0.021)	(0.360)	0.719
EK	0.198	0.063	0.186	3.161	0.002
SM	0.022	0.039	0.030	0.569	0.569
R-squared					0.254
Adjusted R-sqaured					0.244
F-test					25.883
P-value					<0.001

According to Bevans (2023), multiple linear regression analysis examines the relationship between more than one explanatory variable and response variable. After that, a table with model summarizing will be used to interpret R square value and significance of the relationships using alpha value.

This study examines the relationship between the five independent variables, which are social norms (SN), personal norms (PN), environmental awareness (EA), environmental knowledge (EK), social media (SM) and the dependent variable, which is the environmental sustainability practices. Social norms, personal norms, environmental knowledge indicate a significant result at t-statistics of 3.872,3.270,3.161 respectively. Besides, the p-values of these three independent variables are less below 0.01. However, it is observed that environmental awareness and social media are insignificant at t-statistics of -0.360, 0.569 respectively with the p-values of t-statistics more than 0.1.

Social norms are significant at 99% of confidence level. The p-value of social norms (0.000) is less than the alpha value (0.01). This result tallies the research of Zibenberg et al. (2018), Zheng et al. (2019), and Bai & Bai (2020). The result fulfils the expectation of study as social norms are significantly related to environmental sustainability practices among the undergraduates at UTAR Kampar.

Next, personal norms are significant at 99% of confidence level. The p-value of personal norms (0.001) is less than the alpha value (0.01). This result is same as the research done by Jang and Kim (2023) and Collado et al. (2017). The result fulfils the expectation of study as personal norms are significantly related to environmental sustainability practices among the undergraduates at UTAR Kampar.

Besides, environmental awareness is insignificant at 90% of confidence level. The p-value of environmental awareness (0.719) has exceeded the alpha value (0.10). This result is same as the research done by Junita et al. (2023), Yusof et al. (2020), Yusliza et al (2020). The result does not fulfil the expectation of study as environmental awareness is significantly related to environmental sustainability practices among the undergraduates at UTAR Kampar.

Moreover, environmental knowledge is significant at 99% of confidence level. The p-value of environmental knowledge (0.002) is less than the alpha value (0.01). This result is same as the findings of Holison (2023), Mohamed et al. (2020) and Peng and Zhang (2022). The result fulfils the expectation of study as environmental knowledge is significantly related to environmental sustainability practices among undergraduates at UTAR Kampar.

Lastly, social media is insignificant at 90% of confidence level. The p-value of social media (0.569) is more than the alpha value (0.10). This result tallies the research done by Gelashvili et al. (2022), Luo et al. (2020) and Mo et al. (2018). The result does not fulfil the expectation of study as social media is significantly related to environmental sustainability practices among the undergraduates at UTAR Kampar.

Moving on, R-squared explains that the percentage change in the response variable is determined by the change in the explanatory variables. The value of R-squared (0.254) represents that 25.4% of the variation in environmental sustainability practices among UTAR undergraduates is explained by all variations of social norms, personal norms, environmental awareness, environmental knowledge, and social media. The remaining 74.6% of variation in environmental sustainability practices among UTAR undergraduates is explained by other relevant factors.

Furthermore, the value of the adjusted R-squared is 0.244. It can be explained that 24.4% of the variation in environmental sustainability practices among UTAR undergraduates could be explained by all variations of social norms, personal norms, environmental awareness, environmental knowledge, and social media after taking into account the degree of freedom.

Moreover, the regression model is statistically significant at a confidence level of 99%. The p-value of the F-test, below 0.001, is less than the alpha value, 0.01. Thus, this model shows a significant relationship between social norms, personal norms, environmental awareness, environmental knowledge, social media, and environmental sustainability practices.

4.5 Diagnostic Test

4.5.1 Autocorrelation

The value of the Durbin-Watson statistic is 1.945. It shows that there is no autocorrelation between residuals as the value falls between the acceptable range (1.5 to 2.5).

4.6 Conclusion

In this study, SPSS version 29.0 is applied to analyze and summarize the data. The analysis demonstrates the validity of the scales for the questionnaire. Apart from that, there is no multicollinearity problem, and the distribution is normal. Moreover, social norms, personal norms, and environmental knowledge are significantly related to environmental sustainability practices. However, environmental awareness and social media are tested insignificant relating to environmental sustainability practices.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.0 Introduction

This chapter will discuss the research finding, implications, limitations as well as recommendations. Lastly, conclusion will be conducted to summarize the study.

5.1 Discussion on Major Findings

The research examines the drivers of environmental sustainability practices among undergraduates at UTAR. Key findings from the study are presented in this section.

5.1.1 Social Norms and Environmental Sustainability Practices

The study's findings showed a significant relationship between social norms and environmental sustainability practices among UTAR undergraduates. This result tallies the research done by Zibenberg et al. (2018), Zheng et al. (2019), and Bai & Bai (2020). Zibenberg et al. (2018) said that the environmental behaviour of an individual is influenced by his moral values. Moreover, findings from Bai & Bai (2020) also found that individuals' behaviour towards solving environmental pollution problems is influenced by public pro-environmental behaviour. Besides, Zheng et al. (2019) discovered that social interactions promote environmental protection behaviour among people.

UTAR has taken initiatives to strengthen the linkage between social norms and environmental sustainability practices. Societies like UTAR Nature & Pet Lovers Society,

Sustainable Development Society, and Community Service Society have attempted to create a community of pro-environmental behaviour undergraduates at UTAR. Campaigns like ECO-FEST 2024, CSS Energy Saving Program, and Eco-Friendly Campaigns are organized by these societies to engage involvement among UTAR students. Once their students are involved as part of the committee or as helpers, it usually draws the attention of their mutual peers to join, gradually promoting environmental sustainability practices at UTAR. These results show that UTAR undergraduates are highly influenced by social norms to practice environmental sustainability actions.

5.1.2 Personal Norms and Environmental Sustainability Practices

Next, the relationship between personal norms and environmental sustainability practices among undergraduates at UTAR is found to be significant. This result is in sync with the outcomes of Jang and Kim (2023) and Collado et al. (2017). Jang and Kim (2023) showed that personal norms, such as the value-belief-norm model and norm activation model, give humans a strong sense of moral obligation to involve themselves in environmental sustainability practices. Besides, Collado et al. (2017) found that found that there is a higher chance for university students to engage in environmental sustainability practices as they are attached to a sense of moral obligation to be held accountable for protecting the environment.

UTAR's efforts in empowering personal norms with environmental sustainability practices are improving the green infrastructure on the campus, bringing greater availability for students to practice environmental sustainability, such as establishing recycling centres, categorizing recycle bins, and building solar panels on campus sites. UTAR's Green Ambassador Programme, introduced by UTAR, has received numerous appraisals from the students, encouraging them to adopt a mindset of environmental sustainability practices in their daily lives. These actions show that UTAR’s undergraduates are highly impacted by personal norms to practice environmental sustainability practices.

5.1.3 Environmental Awareness and Environmental Sustainability Practices

The relationship between environmental awareness and environmental sustainability practices among undergraduates at UTAR is found to be insignificant. The outcome is the same as Junita et al. (2023), Yusof et al. (2020), and Yusliza et al. (2020). Junita et al. (2023) found that environmental awareness has no significant effect on pro-environmental behaviours. According to Yusof et al. (2020), environmental awareness does not influence the actions of a person, as the person may be aware of environmental issues, but awareness does not determine their actions.

UTAR has made several efforts to increase environmental awareness among undergraduates. For instance, a five-day online campaign named "PALette 2021: Green Mania campaign" has been organized by public relations students to raise awareness about the consequences of improper waste disposal towards the environment, and the effective use of recyclable and reusable items to reduce waste. The campaigns include "Fabric Mask DIY Workshop" and "Rabbit Ring Challenge", which mainly encourage participants to showcase their creativity and practice 3R in the campaign. Moreover, UTAR has outlined policies like the UTAR Climate Action Plan and established the UTAR Green Campus Committee during the Virtual International Collaboration Forum 6.0 in 2022 to cultivate ESG perspectives in higher education. However, it seems like these endeavours are insufficient to influence undergraduates to perform environmental sustainability practices by their means.

5.1.4 Environmental Knowledge and Environmental Sustainability Practices

The relationship between environmental knowledge and environmental sustainability practices among undergraduates in UTAR is found to be significant. This result is in sync with the findings of Holison (2023), Mohamed et al. (2020), and Peng and Zhang (2022). Holison (2023) explained that people are more likely to make environmental sustainability decisions and support policies and programmes aimed at promoting environmental sustainability practices if they are knowledgeable of how their lifestyles affect the environment and have a positive attitude towards environmental sustainability practices. Besides that, a study by Mohamed et al. (2020) summarizes that the higher the environmental knowledge the citizens have, the easier environmental sustainability practices will be adopted. Apart from that,

findings by Peng and Zhang (2022) mentioned that citizens who are knowledgeable about environmental topics will have a high level of openness to change. As a result, it is easier for them to practice environmental sustainability practices as it is a new habit for them to practice.

UTAR has made endeavours to increase environmental knowledge by painting SDGs mural in the corridor of Block H, developing staff-student collaborations on green campus initiatives such as establishing UTAR Green Bank to advocate recycling and allocating ecological landscaping methods such as building an urban green space in UTAR Kampar, and ensuring the undergraduates get to understand the knowledge about sustainable goals, recycling, and the importance of environment protection. This summarizes that environmental knowledge positively impacts undergraduates' ability to execute environmental sustainability practices.

5.1.5 Social Media and Environmental Sustainability Practices

The relationship between social media and environmental sustainability practices is found to be insignificant. This is the same as the findings of Gelashvili et al. (2022), Luo et al. (2020) and Mo et al. (2018). According to Gelashvili et al. (2022), social media will have no effect as the users have selective engagement with their content, which might not influence those who are not environmentally inclined.

UTAR has been active on social media sites such as Facebook, Instagram, XiaoHongShu, and TikTok, giving great exposure for publicity and marketing purposes. However, it is rarely seen that UTAR introduced their green campus initiatives on social media. As such, undergraduates did not notice any green efforts done by UTAR that were adequate to influence them to practice green actions. UTAR should grab the chance to showcase the lush greenery and pristine lakes on campus, as UTAR Kampar is one of the few private universities that have multiple green infrastructures and scenery views such as the UTAR Bird sanctuary which breeds over 100 species of birds and breeding herons. This could impress many undergraduates as they will be obligated to protect these superb surroundings in UTAR. Hence, even if there is an increase in social media exposure at UTAR, it does not significantly increase the involvement in environmental sustainability practices among undergraduates.

5.2 Implication of the Study

5.2.1 Managerial Implications

This section outlines the managerial implications, focusing on actionable steps organizations like universities, government bodies, and religious institutions can take to encourage the practices of environmental sustainability, drawing from the insights derived from data analysis.

In this study, it was found that social norms have influenced on environmental sustainability practices significantly. Therefore, environmental social norms could be promoted within universities or with other organizations. Lecturers, as influential role models, can lead by example by organizing outreach programs such as tree planting events and beach clean-ups. Through these initiatives, they inspire groups of undergraduates to engage in environmentally sustainable practices alongside their peers. Besides, family members, acting as influential role models, can encourage and support their children's efforts to use eco-friendly products and adopt sustainable behaviors in their daily lives, thereby shaping their environmental consciousness. For instance, parents, as primary influencers, can instill eco-conscious values in their children by actively supporting and participating in sustainable practices at home, fostering a culture of environmental responsibility within the family unit.

Next, personal norms are found to be significantly related to environmental sustainability practices. As undergraduates have a sense of moral obligation to protect the environment, UTAR could enhance students' commitment to environmental sustainability by integrating its six educational pillars into the university's culture. This would help undergraduates become socially responsible members of society, engaging in green actions in their daily lives. Religious organizations such as Buddhist, Christian, and Islamic associations can promote family participation in environmental events, fostering greater parent-child interactions. For instance, they can encourage followers to involve children in activities like recycling, thereby enhancing their personal values.

The relationship between environmental knowledge and environmental sustainability practices is significant. Therefore, universities could integrate additional environmental knowledge into their teaching materials and syllabi, encouraging greater engagement among

students in environmentally sustainable practices. UTAR can infuse environmental sustainability subjects into the syllabus to provide undergraduates with exposure to the importance of environmental sustainability. Furthermore, parents can instil in their children a greater understanding of the environment from an early age, increasing their knowledge and encouraging them to engage in environmental activities from a young age. These efforts can improve environmental sustainability practices by increasing undergraduates' environmental knowledge. Moreover, Governments could play a pivotal role in disseminating environmental knowledge by integrating sustainability concepts into educational curricula, broadcasting relevant information through mainstream media channels, and leveraging social media platforms. Additionally, they enact environmental legislation to enforce compliance with sustainability standards, thereby fostering widespread awareness and adoption of environmentally friendly practices.

Besides, the result reveals environmental awareness has an insignificant influence on environmental sustainability practices. However, environmental awareness has been found significant in other studies (Zibenberg et al., 2018; Zheng et al., 2019; Bai & Bai, 2020). Therefore, environmental awareness can be disseminated to undergraduate students via infomercials and social media platforms. Implementing these initiatives can enrich the environmental knowledge of undergraduate students. Moreover, the government can conduct seminars to educate undergraduate students on environmental conservation, recycling, and waste management.

While this study did not find a significant relationship between social media usage and environmental sustainability practices, evidence from other scholarly publications supports the notion that social media can positively influence engagement in environmentally sustainable behaviours (Nekmahmud et al., 2022; Zhang & Skoric, 2018). The government could remind undergraduate students about the negative impacts of environmental issues by employing various channels like social media and newspapers. These measures are likely to encourage environmental sustainability practices. Besides, UTAR could collaborate with Kampar District to host an online debate about environmental issues, welcoming all Kamparians and undergraduates to share their thoughts on green perseveration.

5.3 Limitations of Study

This study includes some limitations. The first limitation is that the research instrument used to conduct the study is questionnaire. This is because the questionnaire is cheap and effective tool to receive a large number of responses. However, there is a problem in figuring out the doubts and opinions of respondents in depth using a questionnaire.

The primary goal to conduct this study is to explore the direct relationship between environmental sustainability practices and social norms, personal norms, environmental awareness, environmental knowledge, and social media. This study is motivated by the dearth of empirical research on environmental sustainability practices within Malaysian universities. However, focusing solely on the direct relationship between the dependent variable and independent variables overlooks the potential role of mediators and moderators in the study of environmental sustainability practices.

Furthermore, this study exclusively focuses on undergraduate students at UTAR Kampar. The rationale for selecting UTAR Kampar as the research site is its status as one of the largest private universities in Malaysia, encompassing 1300 acres of land, which promotes greater engagement in environmental sustainability practices. Additionally, UTAR Kampar Campus is equipped with environmentally friendly infrastructures, hosts campaigns, and supports societies that advocate for environmental sustainability among its undergraduate students. However, concentrating solely on UTAR Kampar may limit the generalizability of the study to other universities and age groups.

5.4 Recommendations for Future Research

Therefore, certain aspects of the research could be enhanced in future studies examining the direct relationship between environmental sustainability practices and social norms, personal norms, environmental awareness, environmental knowledge, and social media, aiming for a more comprehensive understanding of the topic. Consequently, this section provides some recommendations.

The first recommendation is for future research to employ a mixed-methods approach, incorporating both quantitative and qualitative data collection methods. This is because qualitative data can offer rich descriptions of the factors influencing environmental sustainability practices. For instance, interviews could be utilized to gain in-depth insights into respondents' perspectives.

Furthermore, it is recommended that future research incorporates mediators and moderators into the development of a conceptual framework. This addition may enhance the complexity of the research model and provide a more comprehensive understanding of the relationship between the dependent variable and independent variables.

Lastly, future researchers could include all university students in Malaysia to examine the drivers of environmental sustainability practices in subsequent research. This would ensure that the study's hypotheses are more representative, as it encompasses students from various universities with diverse backgrounds and ethnicities.

5.5 Summary

This research is conducted to study the drivers of environmental sustainability practices among undergraduate students at UTAR. The data was collected through questionnaires and analyzed by SPSS software. Social norms, personal norms, and environmental knowledge have significantly influenced environmental sustainability practices, while environmental awareness and social media have not influenced environmental sustainability practices significantly. The findings are reviewed in detail, and the effects of the findings are stated. Moving on, the limitations and the following recommendations are discussed for future research.

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Appendices

APPENDIX 1.1: QUESTIONNAIRE SURVEY PERMISSION LETTER

UNIVERSITI TUNKU ABDUL RAHMAN *DU012(A)*
Wholly owned by UTAR Education Foundation *(200201010564(578227-M))*
Faculty of Business and Finance
Jalan Universiti, Bandar Barat, 31900 Kampar, Perak
Phone: 05-468-8888
https://fbf.utar.edu.my/

3 October 2023

To Whom It May Concern

Dear Sir/Madam,

Permission to Conduct Survey

This is to confirm that the following students are currently pursuing their *Bachelor of Economics (Honours) Financial Economics* program at the Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR) Perak Campus.

I would be most grateful if you could assist them by allowing them to conduct their research at your institution. All information collected will be kept confidential and used only for academic purposes.

The students are as follows:

Name of Student	**Student ID**
Lim Tian He	20ABB01847
Tan Kian Yew	20ABB01439

If you need further verification, please do not hesitate to contact me.

Thank you.

Yours sincerely,

.....

Ms Thavamalar a/p Ganapathy
Head of Department
Faculty of Business and Finance
Email: thavamalar@utar.edu.my

APPENDIX 1.2: SURVEY QUESTIONNAIRE

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE

BACHELOR OF ECONOMICS (HONS) FINANCIAL ECONOMICS

UBEZ3026 UNDERGRADUATE PROJECT

SURVEY OF ENVIRONMENTAL SUSTAINABILITY PRACTICES AMONG UNDERGRADUATE STUDENTS IN UTAR

Dear Respondent,

Warmest greetings from University Tunku Abdul Rahman (UTAR). We are final year undergraduate students of Bachelor of Economics (Honours) Financial Economics, University Tunku Abdul Rahman (UTAR). The purpose of this survey is to examine environmental sustainability practices among undergraduate students in UTAR and identify the drivers of environmental sustainability practices among them. Environmental sustainability is the ability to maintain an ecological balance in our planet's natural environment and conserve natural resources to support the wellbeing of current and future generations. Please answer all questions to the best of your knowledge. There are no wrong responses to any of these statements. All responses are collected for academic research purposes and will be kept strictly confidential. Thank you for your participation.

Instructions:

1) There are SEVEN (7) sections in this questionnaire. Please answer ALL questions in ALL sections.

2) This form will take you around 5 minutes to complete.

3) The contents of this questionnaire will be kept strictly confidential.

Personal Data Protection Notice:

Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

1. The purposes for which your personal data may be used are inclusive but not limited to:

a) For assessment of any application to UTAR

b) For processing any benefits and services

c) For communication purposes

d) For advertorial and news

e) For general administration and record purposes

f) For enhancing the value of education

g) For educational and related purposes consequential to UTAR

h) For replying any responds to complaints and enquiries

i) For the purpose of our corporate governance

j) For the purposes of conducting research/ collaboration

2. Your personal data may be transferred and/or disclosed to third party and/or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes that are related to the purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with applicable laws.

3. Any personal information retained by UTAR shall be destroyed and/or deleted in accordance with our retention policy applicable for us in the event such information is no longer required.

4. UTAR is committed in ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

5. By submitting or providing your personal data to UTAR, you had consented and agreed for your personal data to be used in accordance to the terms and conditions in the Notice and our relevant policy.

6. If you do not consent or subsequently withdraw your consent to the processing and disclosure of your personal data, UTAR will not be able to fulfill our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose.

7. You may access and update your personal data by writing to us at:
Lim Tian He 017-512 0025
Tan Kian Yew 016-304 7525

Acknowledgment of Notice

☐ I have been notified and I understood. I hereby agree as per UTAR personal data consent.

☐ I hereby disagree, my data will not be processed.

Section A: Demographic Data

We would like to collect your personal information for better insight into our project.

Please choose only ONE (1) answer for the questions below.

1. Gender

☐ Male ☐ Female

2. Age

☐ 18 – 19 ☐ 20 – 21 ☐ 22 – 23 ☐ 24 & above

3. Race

☐ Malay ☐ Chinese ☐ Indian ☐ Others

4. Current Year

☐ Year 1 ☐ Year 2 ☐ Year 3 ☐ Year 4

5. Faculty

☐ FBF ☐ FICT ☐ FEGT ☐ FAS

☐ FSC ☐ ICS

Section B: Environmental Sustainability Practices

Please choose only ONE (1) answer for each of the following question. Please be noted that Scale 1 = Strongly Disagree; Scale 2 = Agree; Scale 3 = Neither Agree nor Disagree; Scale 4 = Agree; Scale 5 = Strongly Agree.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I will make my waste sorted according to the type of waste.	1	2	3	4	5
2. I pick up rubbish when I see it in public places.	1	2	3	4	5
3. I always turn off electrical appliances when not in use.	1	2	3	4	5
4. I bring my own reusable bag when shopping.	1	2	3	4	5
5. I do not take plastic bags when shopping.	1	2	3	4	5
6. I usually turn off the water when brushing my teeth.	1	2	3	4	5

Section C: Social Norms

Please choose only ONE (1) answer for each of the following question. Please be noted that Scale 1 = Strongly Disagree; Scale 2 = Agree; Scale 3 = Neither Agree nor Disagree; Scale 4 = Agree; Scale 5 = Strongly Agree.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My family members encourage me to preserve the environment.	1	2	3	4	5
2. My lecturers encourage me to preserve the environment	1	2	3	4	5

3. My friends encourage me to preserve the environment.	1	2	3	4	5
4. I will do so if I see others doing environmental preservation.	1	2	3	4	5

Section D: Personal Norms

Please choose only ONE (1) answer for each of the following question. Please be noted that Scale 1 = Strongly Disagree; Scale 2 = Agree; Scale 3 = Neither Agree nor Disagree; Scale 4 = Agree; Scale 5 = Strongly Agree.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I feel an obligation to save energy where possible.	1	2	3	4	5
2. I should do what I can to conserve natural resources.	1	2	3	4	5
3. I would try to protect local natural resources as much as I could.	1	2	3	4	5
4. I'm willing to help to reduce my footprint from the nature.	1	2	3	4	5
5. I plan to act green in the future.	1	2	3	4	5

Section E: Environmental Awareness

Please choose only ONE (1) answer for each of the following question. Please be noted that Scale 1 = Strongly Disagree; Scale 2 = Agree; Scale 3 = Neither Agree nor Disagree; Scale 4 = Agree; Scale 5 = Strongly Agree.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Plants and animals are important to maintain the balance of ecosystem.	1	2	3	4	5
2. The condition of our environment will affect our health.	1	2	3	4	5
3. Natural resources should be preserved for future generations.	1	2	3	4	5
4. A country will run out of natural resources in the future if these natural resources are not conserved.	1	2	3	4	5
5. Humans must live in harmony with nature to survive.	1	2	3	4	5

Section F: Environmental Knowledge

Please choose only ONE (1) answer for each of the following question. Please be noted that Scale 1 = Strongly Disagree; Scale 2 = Agree; Scale 3 = Neither Agree nor Disagree; Scale 4 = Agree; Scale 5 = Strongly Agree.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I know the Malaysian government has enacted laws under the Environmental Quality Act 1974 to protect the	1	2	3	4	5

environment.					
2. I know the main function of the 1974 Department of Environment (DOE) is to prevent, eliminate, control pollution and improve the environment, consistent with the purposes of the Environmental Quality Act 1974.	1	2	3	4	5
3. I know that the Solid Waste Management and Public Cleaning Act 2007 is an act to regulate the management of solid waste and public cleanup.	1	2	3	4	5
4. I know motor vehicles emitted carbon dioxide which is a greenhouse gas that contributes to climate change.	1	2	3	4	5
5. I know that the recycle orange bin is reserved for disposing of items made of aluminum and plastic.	1	2	3	4	5
6. I know the decline in air quality will have a devasting effect on human race.	1	2	3	4	5
7. I know that global warming will raise sea levels that lead to coastal flooding.	1	2	3	4	5

Section G: Social Media

Please choose only ONE (1) answer for each of the following question. Please be noted that Scale 1 = Strongly Disagree; Scale 2 = Agree; Scale 3 = Neither Agree nor Disagree; Scale 4 = Agree; Scale 5 = Strongly Agree.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I usually watch videos on social media about environmental pollution.	1	2	3	4	5
2. I usually watch videos on social media about the use of renewable energies.	1	2	3	4	5
3. I usually watch videos on social media about recycling.	1	2	3	4	5
4. I usually watch videos on social media about atmospheric pollution.	1	2	3	4	5
5. I usually watch videos on social media about waste sorting.	1	2	3	4	5

APPENDIX 1.3: RELIABILITY TEST ANALYSIS RESULTS FOR PILOT TEST

Environmental Sustainability Practices

Reliability

Scale: ES

Case Processing Summary

		N	%
Cases	Valid	31	100.0
	Excluded[a]	0	.0
	Total	31	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.732	6

Social Norms

Reliability

Scale: SN

Case Processing Summary

		N	%
Cases	Valid	31	100.0
	Excluded[a]	0	.0
	Total	31	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.907	4

Personal Norms

Reliability

Scale: PN

Case Processing Summary

		N	%
Cases	Valid	31	100.0
	Excluded[a]	0	.0
	Total	31	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.963	5

Enviromental Awareness

Reliability

Scale: EA

Case Processing Summary

		N	%
Cases	Valid	31	100.0
	Excluded[a]	0	.0
	Total	31	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.949	5

Environmental Knowledge

Reliability

Scale: EK

Case Processing Summary

		N	%
Cases	Valid	31	100.0
	Excluded[a]	0	.0
	Total	31	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.812	7

Social Media

Reliability

Scale: SM

Case Processing Summary

		N	%
Cases	Valid	31	100.0
	Excluded[a]	0	.0
	Total	31	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.905	5

APPENDIX 1.4: RELIABILITY TEST ANALYSIS RESULTS FOR FULL TEST

Environmental Sustainability Practices

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	387	100.0
	Excluded[a]	0	.0
	Total	387	100.0

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

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.715	.717	6

Social Norms

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	387	100.0
	Excluded[a]	0	.0
	Total	387	100.0

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

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.798	.797	4

Personal Norms

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	387	100.0
	Excluded[a]	0	.0
	Total	387	100.0

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

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.850	.853	5

Enviromental Awareness

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	387	100.0
	Excluded[a]	0	.0
	Total	387	100.0

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

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.927	.928	5

Environmental Knowledge

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	387	100.0
	Excluded[a]	0	.0
	Total	387	100.0

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

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.783	.781	7

Social Media

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	387	100.0
	Excluded[a]	0	.0
	Total	387	100.0

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

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.915	.915	5

APPENDIX 1.5 MULTIPLE LINEAR REGRESSION ANALYSIS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.504[a]	.254	.244	.62461

a. Predictors: (Constant), SM, EA, SN, EK, PN

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50.489	5	10.098	25.883	<.001[b]
	Residual	148.642	381	.390		
	Total	199.131	386			

a. Dependent Variable: ESP

b. Predictors: (Constant), SM, EA, SN, EK, PN

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.230	.248		4.950	<.001
	SN	.203	.053	.219	3.872	<.001
	PN	.215	.066	.204	3.270	.001
	EA	-.023	.064	-.021	-.360	.719
	EK	.198	.063	.186	3.161	.002
	SM	.022	.039	.030	.569	.569

a. Dependent Variable: ESP

APPENDIX 1.6 DIAGNOSTIC TEST

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.504[a]	.254	.244	.62461	1.945

a. Predictors: (Constant), SM, EA, SN, EK, PN

b. Dependent Variable: ESP