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**RELATIONSHIP BETWEEN ENVIRONMENTAL KNOWLEDGE,
SOCIAL INFLUENCES, PERSONAL NORMS, MEDIA EXPOSURE AND
ENVIRONMENTAL AWARENESS AMONG STUDENTS OF
UNIVERSITI UTARA MALAYSIA**



**Thesis Submitted to
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia,
In Partial Fulfillment of the Requirement for the Master of Science (Management)**



**Pusat Pengajian Pengurusan
Perniagaan**

SCHOOL OF BUSINESS MANAGEMENT

Universiti Utara Malaysia

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**RELATIONSHIP BETWEEN ENVIRONMENTAL KNOWLEDGE, SOCIAL INFLUENCES,
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AMONG STUDENTS OF UNIVERSITI UTARA MALAYSIA**

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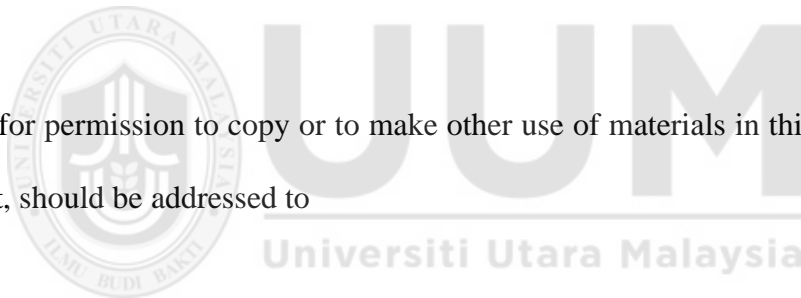
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ABSTRACT

The stability of the world ecosystem is increasingly threatened by irresponsible human activities that do not care about environmental issues. Therefore, the need for environmental awareness among public becomes paramount as an essential measure to restrain the situation before it becomes worse. The objective of this study is to identify factors affecting level of environmental awareness of UUM's students. Specifically, this study examines the relationship between environmental knowledge, social influences, personal norms, media exposure and environmental awareness. Environmental awareness, as the dependent variable in this study, has been measured individually with all four independent variables without any existence of mediating factors. The data was collected through questionnaires among students of Universiti Utara Malaysia (UUM). A total of 248 returned questionnaires were analyzed using SPSS version 25. Pearson Correlation and Multiple Regression Analyses are used to identify relationship between IVs and DV. The results indicate that environmental knowledge, social influences, personal norms, and media exposure have positive and significant relationship towards environmental awareness of the UUM students. Finally, the theoretical and practical implications as well as limitations and recommendations for future research are also discussed in this thesis. Most importantly, students as the hope for future betterment of environment, must begin to develop themselves with such awareness in every sense of their daily life.

Keywords: Environment, Environmental Awareness, Environmental Knowledge, Environmental Education, Social Influences, Personal Norms, Media Exposure, Students of UUM.



ABSTRAK

Kestabilan ekosistem dunia kini semakin terancam disebabkan aktiviti manusia yang tidak ambil peduli tentang isu-isu alam sekitar. Justeru, kesedaran terhadap alam sekitar amat penting sebagai asas yang ampuh untuk menghalang keadaan ini daripada menjadi lebih buruk. Objektif kajian ini adalah untuk mengenalpasti faktor-faktor yang mampu memberi kesan signifikan kepada tahap kesedaran alam sekitar pada diri pelajar UUM. Secara khususnya, kajian ini menguji hubungkait diantara pengetahuan alam sekitar, pengaruh sosial, norma sendiri, dan peranan media, dengan kesedaran alam sekitar. Kesedaran alam sekitar, yang merupakan pemboleh ubah bersandar, diuji secara langsung satu persatu dengan keempat-empat pemboleh ubah tidak bersandar tanpa sebarang kehadiran faktor penghubung. Data kajian ini telah dikutip daripada para pelajar UUM. Sebanyak 248 borang kaji selidik yang dipulangkan telah dianalisa menerusi sistem SPSS versi 25. Analisa Pearson's Correlation dan Multiple Regression digunapakai untuk mengenalpasti kesan hubungkait antara pemboleh ubah IV dan pemboleh ubah DV. Hasil kajian menunjukkan terdapat hubungan positif dan signifikan diantara pengetahuan alam sekitar, pengaruh sosial, norma sendiri, dan pendedahan terhadap media, dengan kesedaran alam sekitar dikalangan para pelajar UUM. Berdasarkan dapatan kajian ini, UUM disarankan untuk menyemarakkan Pendidikan berteraskan alam sekitar dalam sistem Pendidikan institusi tersebut demi menggalakkan sikap pro-alam sekitar dikalangan para pelajar. Paling penting, pelajar itu sendiri perlu menerapkan diri mereka dengan kesedaran alam sekitar ini kerana mereka adalah penentu kepada keseimbangan alam sekitar pada masa hadapan.

Kata Kunci: Alam sekitar, kesedaran alam sekitar, pengetahuan alam sekitar, Pendidikan alam sekitar, pengaruh sosial, norma sendiri, pendedahan terhadap media, pelajar UUM.

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DEDICATION

This research study is lovingly dedicated to my one and only mom,

Puan Maimunah Binti Malik.

Your support, encouragement, prayer and constant love

have sustained me throughout my life.

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LIST OF ABBREVIATIONS

- UUM - University of Utara Malaysia
- EA - Environmental Awareness
- EK - Environmental Knowledge
- EE - Environmental Education
- SI - Social Influences
- PN - Personal Norms
- ME - Media Exposure
- EPI - Environmental Performance Indicator
- NAM - Norms Activation Model
- SIT - Social Influences Theory
- TPB - Theory of Planned Behavior
- SPSS - Statistical Package For Social Science

CHAPTER 1

INTRODUCTION

1.1 Introduction

This very beginning chapter elaborates every significant element of the research comprises the background of research, problem statement, research questions, main objectives of the research, significance of the research, terms definition, and the entire organization of chapters of this study.

1.2 Background of Study



In recent years, Malaysia has experiencing critical environmental issues due to various socio-political and economic reasons such as rapid urbanization, need for betterment of citizen's quality of life, increase of Government's revenues, improvement of per capita incomes, and many more. Sau Mei et al (2016) agreed that the root causes of serious nature calamities are having relationship to satisfying human needs through aggressive economic activities. The degradation of publics' health quality, wild life extinction, loss of biodiversity, global warming due to greenhouse effect, and poor quality of air, soil and water, are amongst the environmental problems rooted from human activities like industrial pollutions, rapid deforestation, unsustainable development, and overwhelming of solid waste. Batty (2017) argued that despite the emerging attention of environmental issues in recent years, the problem of lack of environmental awareness

(EA) remains as major issues globally. Therefore, the need for environmental awareness becomes supreme as a vital measure to restrain the situation before it becomes worse and uncontrollable.

Generally, there is no specific definition or terminology to describe environmental awareness. We can find different names of the same concept like environmental awareness, environmental concern, environmental consciousness, environmental behaviors, and environmental responsibility in vast literatures. Marija et al (2015) defines EA as the attitude regarding environmental consequences of human behavior. Ziadat (2010) defines as a person shows heightened perception as well as an understanding and appreciation of the environment. Ibrahim et al (2012) argues that the environmental awareness, in which, it dictates human's comprehension, values, attitudes, skills, abilities and actions towards environmental protection. Altin et al (2014) refers EA as the alertness to the issues pertaining to environment, and taking initiative to involve actively in pro-environmental organizations and activities. Chekima et al (2016) argues that changing in consumer consumption toward more environmentally friendly is also considered as aware to the environment as this action would save the environment as well as reducing costs of managing unnecessary waste.

Scientifically, environmental awareness is having different measures depending on the context to which it is referred to. Some researchers associate environmental awareness with the level of individuals' knowledge and individual's obligation in preserving environment through their intentions, consumption behaviors, attitudes, values, and actions (Yahya et al., 2013; Chan & Lau, 2000; Zarrintaj et al., 2013; and etc).

For whatever terms, definitions and contexts to describe the environmental awareness, the most important is to encourage this consciousness on all level of society. Society with high environmental awareness are likely to behave positively towards environment (Karatekin, 2014).

Currently, Malaysia is ranked 68th out of total 180 participated Nations in the global Environmental Performance Index (EPI) (*refer Appendix 2 on indictors measured on EPI; source: EPI, university of Yale, 2020*). As for record, Malaysia was ranked 9th in 2006, and this dramatical drops need to be addressed proactively by the Government and related authorities, especially in term of the management, implementation, and legal enforcement of environmental policies. The indicators of EPI are the pratical tool for a country to measure the life quality of its citizen, which focuses on two major objectives; 1) environmental public health and, 2) the performance of ecosystem liveliness. Having said so, the current EPI ranking tells us that the life quality of Malaysian is degraded over the years. Pollutions of air and water, greenhouse effect, drastic climate changes, heavy deforestation, and many other environmental problems are impacting directly on health level of Malaysian.

For example, the case of river toxic due to industrial pollution at Kim Kim River, Pasir Gudang, Johor in 2019. The toxic pollution has been affecting the health of approximately 6,000 people, with 2,775 were hospitalized, besides threatening the ecosystem of related inhabitants like birds, fishes, many others. The root cause of the incident is identified as illegal chemical waste dumping by the industrial factories along Kim Kim River. Lesson learned, the legal action alone will not be sufficient to control

such pollutions as money is not a big deal for the business owners, but the environmental awareness and education will do in the long run.

Another example of environmental problems that cause the ecological instability is illegal land use for farming activities at highland areas. Azlini et al (2018) clarify in their research that aggressive development and land clearing in Cameron Highlands over the past 30 years have altered the land structure, and causes many problems such as massive landslides and soil erosion, and ultimately contributed to the water pollution issues and loss of water sources at many of river system. Besides, several incidents of massive flash floods were also reported in Cameron Highlands in recent years as the consequences of the illegal farming activities. The rapid development, deforestation and illegal farming, indirectly have also contributed to the increase of highland temperature. As for the record, Azlini et al (2018) reported that average temperature of Cameron Highlands in the past 15 years was between 17 and 20 degree Celsius all year round. However, the average temperature has increased by 5 degree Celsius since 2014, and this situation lead to many ecological problems of highlands (RTD, 2018) especially to the specific flora species that thrives at lower temperature.

On different issue, the number of illegal logging cases in Malaysia has terrifyingly increased in recent years. As of record, illegal logging led to losses of total RM15.2 million from the period 2006 to 2017 (Malaysia Ministry of Natural Resources & Environment, 2018). The ministry has further reported that number of illegal logging reported from 2008 to 2017 was 187 cases, and another 2,617 forest offences cases involving 514.61 hectares of land happened nationwide (data for Peninsular Malaysia). Despite the risen of various socio-economic problems like corruption, human rights

abuse over indigenous and local populations, the increase of unstructured deforestation due to illegal logging also lead to many environmental problems such as wild life extinction, reduce quality of biodiversity, loss of water sources, landslides, soil erosion and many more. Government will continue to lose millions of ringgits every year if the trend continues and uncontrollable.

In related concerns, the air pollutions of Malaysia is at a very alarming level. There is a report by Free Malaysia Today (www.freemalaysiatoday.com) in February 2020, quoted the Greenpeace environmental experts whom predicted the annual cost of air pollution in Malaysia would be exceeding RM28 billions including the cost of health condition management, production downfall due to employees' disability to work, and medical treatment of major illnesses due to air pollution such as asthma, acute respiratory, stroke, lung cancer, and premature death of the unborn baby. The high usage of private transportation at major cities, with the newest episodes of seasonal haze due to Sumatran and Borneo forest burning activities have led to serious poisonous air pollutions in Malaysia. Resya Hani of the New Straits Time (Aug 29th, 2019) quoted based on the World Health Organization report that 6,251 deaths happened in Malaysia up to 2012 due to air pollutions. Statistically, the air pollutions caused one out of nine deaths in Malaysia, which make it as the top ten causes of death in this country. Under the National Haze Action Plan, the government has taken necessary measures in preventing haze and open burning activities. Moreover, the government also implement the National Open Burning Action Plan as a proactive action in reducing haze condition in the country. However, the degree of successful of the initiatives taken is also been determined by the awareness among Malaysian.

Another big issues of environmental in Malaysia is the solid waste management. This issue has attracted special attention of the Government as the cost of handling solid waste is steadily increased every year. Jereme, Siwar and Alam (2015) mentions about that solid waste generations in Malaysia is tremendously increased with the increased of population and economic growth. They reported that roughly 18,000 tons of wastes are generated by Malaysian per day in 2010. The figure is expected to increase by 2% every year, hence by simple calculation, the solid wastes generated will reach 30,000 tons daily in 2020. Out of that amount, only five to ten percent (5%-10%) was able to be recycled subjected to the material type, and remaining waste went to the landfill sites for dumping and disposal. From this situation, we could say that, the rate of recycling can be increased if more and more society adapting and cultivating recycling waste at their level. Government could save more money on this, and channel the money saved to another nation development programs.

In fact, the above-mentioned issues and examples require supports from the society to make impactful changes and better. Society, especially the young generations need to be exposed and educated to aware on every basic aspect of environmental issues as they have close interaction with environmental in their daily routines. Society need to be made known the consequences of their actions towards environment, and the wellbeing of its inhabitants. Government actions alone will not be sufficient, but the responsibility of citizens to act wisely to environment will help to improve the current nature conditions. Inglehart (1995) suggested that, the success of government policies and efforts in resolving environmental problems are much dependent on citizen's awareness towards environment.

The awareness towards environment requires knowledge and empathy, which can be obtained through environmental education (EE). Several researches have shown positive correlational between environmental awareness and education level in regard to developing countries (De Pretto et al, 2015; Wang R. et al, 2015; Sumardi, 2001, etc). Environmental education assists in attaining awareness, attitude, knowledge, and responsible behaviors towards environment, and progressively promoted as a sustainable tool to protect the environment (Zarrintaj et al, 2013). To have a solid awareness, the environmental education is suggested to be applied at every level of education system in this country. Students must be made aware on the importance of environmental protection and sustainability from their early stage of education. Sarkawi et al (2017) argued that knowledge on environmental can be attained officially at schools, or unofficially at home. Therefore, the environmental education must not only be limited to formal curriculum education in schools or colleges, but must also be applied in informal education through various education channels. In another study, Ziadat (2009) mentioned that environmental awareness among university students increased linearly as they proceeded their study years, with the older groups response more consistently and having higher index of environmental awareness. She added that level of education determines the degree of environmental awareness among students. Meanwhile, Gambro and Switzky (1996) agreed on the critical roles played by the students as part of the future generations in sustaining a sound environmental condition, with the condition that they must strengthening their knowledge and understanding about environmentalism and be more conscious on the current environment situation. Meanwhile Abbas et al (2013) in their study suggested that young generations especially students in higher institutions/ universities are the hope for future betterment of

environment, and for attaining environmental sustainability due to their level of environmental knowledge and positive attitudes towards environment.

To further elaborate about environmental education in the perspective of knowledge generation among students, Zarrintaj et al (2013) as per earlier argument mentioned that, education can increase the attitude and knowledge, and promoting right behaviors about environment. The knowledge will then, drive the human attitudes and behaviors to act accordingly, and provide ideas on consequences of every action taken. In relation to that, Zsoka et al. (2013) define environmental knowledge as knowing and conscious about environmental problems and the solutions to that problems. Meaning that, environmental knowledge provides comprehensive package of awareness where it provides ideas and motivation on consequences (good or bad) and solutions (the best-case or the worst-case situations). Meanwhile, Gambro and Switzsky (1996) define environmental knowledge as the ability to understand and evaluate the influence of society on environment, and this knowledge is expressed by identifying environmental problems and their causes, consequences and results. In addition, Schan and Holzer (1990) mentioned that the environmental knowledge could be in the forms of nonconcrete knowledge (abstract knowledge) and concrete knowledge. The abstract knowledge refers to any information pertaining to environmental problems, causes, and solutions), while concrete knowledge is based on the factual or proven theory. The understanding of the causes and implications of environmental problem will be definitely influencing the level of environmental awareness among students as they have ideas of consequences of their actions.

As outcomes of the environmental knowledge concept, we can see various pro-environmentalism actions performed by the people as individual, group or organization. Car pool, usage of biodegradation plastic, buying eco-friendly products, consumption of alternative energy, and recycling are some of the pro-environmental actions taken by the society. Whereby NGOs and corporate organizations would embrace pro-environmental behavior in a larger scale through various green campaigns, eco-friendly productions and processes, and many others. Royne et al (2011) in his study on green energy consumption, found out people with the energy consumption conversion knowledge have tendency to decrease fossil fuel burning, hence helped in decreasing the emissions of carbon dioxide, methane and other ozone damaging gasses to the atmosphere. On the other hand, Sarkawi et al (2017) mentioned that there is high possibility of environmental damage done by the society with less environmental knowledge. More sadly, they do not even know that their decisions and actions are badly impacting the nature, and will continue to behave like that. At this point, Sarkawi et al suggested that environmental knowledge needs to be socialized, as it potentially becomes a norm in the society, hence creating a harmony symbiosis between humans and the nature.

Social influence is referring to the condition that individuals alter their behaviors to meet social environment's demands. Meaning that, individuals (regardless level of environmental knowledge they have) willing to adjust their personal attributes (attitudes, perception, behavior and action) at certain limit to conform with the tolerable standard of a group. Kelman (1958) through his Social Influence Theory (SIT) defined social influence as individuals' attitude, belief, and subsequent behaviors that have been influenced by a social group via the process of compliance, identification, and

internalization. Social influences exist in a very wide field of study. Hoyer and Mac Innis (2004) argues that many of elementary consumptions of an individual are influenced by inspirational and associative reference groups. An individual tends to make comparison of his own judgements with the standard of social group he lived in before taking any decision and further action. In example, a person who is having awareness on climate change will be feeling more integrated into a community that is having a similar concern of the climate change. In contrast, the same person may not care about climate change due to the community ignorance, even if he aware about the implications of his actions towards the environment.

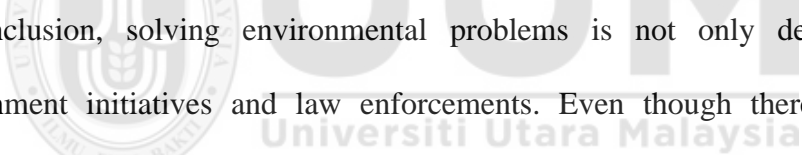
Environmental awareness is also impacted by the personal character of an individual. Every one of us possessed personal attributes that lead to certain decisions, attitudes and behaviors. Kallgren et al. (2000) suggest that people's behavioral guideline is determined by the internal rather than external processes. According to the Norm Activation Model (NAM) by Schwartz (1977), the norms of a person is defined as a self-expectation of particular action in certain situation, experienced as a feeling of moral obligation. Personal norm is seen to encourage individual's selfless behavior which is triggered by two determinants; 1) awareness of consequences and 2) acknowledgement of responsibility. The NAM suggests that an individual must be aware of the problems caused by his actions in order to activate his personal obligation towards environment. In explaining this model, Esfandiar (2019) has organized a research project on measuring pro-environmental binning behavior among visitors in a national park. From that project, he found that visitors who litter into the bin has a clear awareness triggered by the knowledge that *"litter can be mistaken for the food by animals in the Park"* or *"litter can be valuable as a resource and can be recycled into*

useful materials". Therefore, as much as environmental awareness is concerned, the NAM proposed that personal norms influence individual's pro-environmental behaviors rather than damaging the nature. In relation to that, Onwezen et al. (2013) explains on the pride feeling when the individual's actions comply with his/her personal norms, alternately, the non-compliance will lead to the feeling of guilt. In example, a person who sense a moral obligation to protect the environment feel proud to share vehicle with others (Nordlund and Garvill, 2003), or to buy organic products for daily consumptions (Thøgersen and Ölander, 2006).

In short (*literally, but not a conclusion*), to justify the effect of personal norms and social influences on individuals' environmental awareness, researcher assumes that the individuals' attitudes and behavioral are so called divided into two different derivation; first, from their personal norms, and second, from the social group they joined. The norms are easily being shared, communicated and transferred through various channels of social networking. The presence of new medias like blog, website and social medias have accelerated the process of norms sharing in the society.

The role of media is also important in encouraging environmental awareness to the public. Media exposure is the frequent messages that people see and hear from the media. The researcher agrees that all sorts of media are having greater role in raising community concerns and awareness toward environmental issues. All sorts of events are being sensationally covered by the media, thus, make it the most revolutionary instrument for spreading consciousness towards environmental issues. Vibha (2015) mentions that media play vital roles in alerting people about environmental damages,

environmental negligence among corporate organizations, analysis of legislations and guidelines to best protect and preserve the environment. Nowadays, within split seconds, peoples could have been completely informed with any event occurs around the world via different media platforms e.g. traditional mass media (television and radio, newspaper, etc), institutional media (schools, government official broadcast, etc), and new media (social media and internet) (Aseen Khan, 2016). Several studies have underlined the importance of media variation in creating environmental awareness among peoples at different social classes. Based on the above-mentioned argument, the media exposure can be acclaimed as the most effective instrument to spur awareness on the environmental problems, and encourage public participation in any form of environmental improvement programs.



In conclusion, solving environmental problems is not only dependent on the Government initiatives and law enforcements. Even though there are variety of environmental acts, rules and regulations under the National Policy of the Environment (DASN) like Environmental Quality Act 1974, Sabah Conservation of Environment Order 1999, Sarawak Natural Resources and Environment Order 1994, The Malaysia Ambient Air Quality Standard 2013, and Environmental Quality (Clean Air) Regulations 2014; yet, the need for environmental awareness among society still essential in protecting the nature. Educating society about environmental awareness is not a destination, rather it is a never-ending journey and must be deeply rooted in all level of education system. The existing curricula applies at primary, secondary or even at the higher learning institutions provide lots of opportunity to make students aware of environment, and the consequences of every action taken to the nature. Awareness makes students more knowledgeable and empathy on environmental issues, thus

determining their attitudes and behaviors to act accordingly to best preserve the nature. Students in higher learning institutions or universities must be given extra attention in regard to environmental education and knowledge, as they will soon become a leader or a policy maker who determines the future environmental landscape of Malaysia. These group of students will be soon joining various corporate and government agencies out there, and disseminating a fresh ideas, concepts, and framework of environment protection. This study is organized to identify awareness towards environment among students of Universiti Utara Malaysia.

1.3 Problem Statement

The sustainability of the environment in which we all live and carry out our daily routines cannot be jeopardized. The world and its nature resources are owned and mutually shared by everyone of us. The quality of our live is directly or indirectly depends on the quality of such environment. Over the recent decades, despite of numerous campaigns run by the Government, coupled with the stern law enforcement, environmental degradation became more obvious, natural disastrous events became rampant, which was seen largely as the result of human's greediness actions (Abbas et al, 2013). Having said so, as a future leader or even a future policy maker, students of UUM must nurture their awareness towards protecting environment and its resources before graduating and joining social groups out there. Students must realize that to get such a blessed environment to live, the level of environmental awareness among society need to be improved at all levels. Only people with high environmental awareness are likely to act positively towards the environment.

Despite of extensive study on environmental awareness, there is still a huge problem pertaining to the inconsistency of the research result. Studies related to environmental awareness and factors related to it, do not always consistent in results (Marija et al., 2016). Conflicting research results as well as numerous influencing variables (IV) are the common issues debated in this field of study. This will lead to the assumption that researchers do not always carry the same notion of environmental awareness (Carlson, 2004). This would be a challenging situation for researcher and respondents to comprehend the concept of environmental awareness correspondingly. Therefore, to help respondents understand of what kind of awareness measured on them, this study will not go too specific on certain aspect of environmental issues, but to open discussion on general environmental matters such as air and water pollutions. By having so, the efficacy of tested variables would be better probed and provide more accurate results for this study.

Scholtz (2016) argues that there was a positive correlational between environmental awareness and environmental knowledge, where, the environmental awareness could be increased by increasing knowledge about environment. For example, the campaign of *Cintailah Sungai Kita* by *Jabatan Parit & Saliran* (JPS) since 1993, is still relevant and effective in educating public about the importance of preserving rivers as the main water source for our daily consumption. This campaign emphasized on the knowledge of good and bad implications of human activities towards rivers in Malaysia. Another example is on recycling solid waste. The more knowledge about recycling waste adapted by the society, the lower rate of waste dumping at landfill site. As a result, more money can be

saved by the Government and can be used for another nation development programs. Therefore, as environmental knowledge (EK) could enhance environmental awareness (EA), it is important to study the impact of EK towards EA among UUM students.

Meanwhile, in certain circumstances, the environmental awareness may have been influenced by a collective agreement of a social group. Grace et al (2012) explain that the social influences exist within peer pressure, conformity compliance, and many other socialization activities. While Hoyer and Mac Innis (2004) argue that plenty of consumer consumptions of a person are based on inspirational of associative reference groups. In the context of environmental, an individual tends to make comparison of his own judgements with the standard of social group he lived in before taking any decision and further action. For example, a person who is having awareness on climate change will be feeling more integrated into a community that is care about climate change. Conversely, the same person may not care about climate change due to the community ignorance, even if he personally aware on the consequences of his ignorance. Having said so, as social influence (SI) could have possibility to enhance environmental awareness (EA), it is important to study the impact of SI towards EA among UUM students.

Schwartz (1977), suggested that individual is having moral obligations in performing positive action towards environment in order to preserve sustainability and wellbeing of others. This action is derived from the unselfish behavior which is activated by two determinants, which are awareness of consequences and acknowledgement of responsibility. In example, a person who decided to use public transportation rather than

personal vehicle is feeling and performing his moral obligations towards environment as he wants to reduce the emission of CO₂ to the atmosphere. The same thing goes to a person who intends to buy eco-friendly products, or shopping at the outlet that practice and support eco-friendly initiatives, or litter in the bin while in the public park, or not throwing rubbish outside the car while driving, is behaving positively towards preserving environment by aware the consequences to the nature. When the right environmental attitude and behavioral frequently being performed in daily routines, this will generate a strong awareness foundation in a person's mind. As personal norms (PN) could have enhance the environmental awareness (EA), it is important to study the impact of PN towards EA among UUM students.

There is no doubt that media plays vital roles in disseminating messages to public for generations. The influenced power of image, audio, and visual on targeted audience have formed certain behaviors and attitudes, that resulting in positive and negative actions. In the context of environment, a person who is exposed frequently to the environmental messages would have tendency to behave accordingly to the nature. This assumption resulted from the scientific studies that proven media has constructing knowledge, cultivating skills, behaviors and attitudes while provisioning information to the audience (Prathap & Ponnusamy, 2006; Tisdell & Thompson, 2007; Sharma, 2012; Wartella & Knell, 2004). For example, a person who is exposed to the message on recycling waste frequently, will tend to the recycle waste at home. Therefore, as media exposure (ME) could enhance environmental awareness (EA), it is important to study the impact of ME towards EA among UUM students.

The problem that may arise and need for confirmation is that, whether the university students were getting adequate knowledge about environment before they get to the University, either at home or at preliminary schools. In addition to that, researcher need to confirm whether the students are gaining or exploring any environmental knowledge in the university. If the answer for both statements is Yes, then we can assume that the students are pretty aware and concerned on the environmental issues, and holding some ideas on consequences of their actions towards environment. However, if the answer is No, the students are supposed to have less knowledge foundation or even completely unknowledgeable about the importance of preserving environment. This would be the most challenging part for the researcher to confirm on students' knowledge background before measuring level of environmental awareness on them. Having said so, this research is hoped to elucidate the relationship between environmental education, environmental knowledge and environmental awareness regardless any knowledge background of the respondents.

Despite of its connection to the knowledge and awareness, environmental education (EE) is also reflecting on the students' attitudes and behaviors encouragement. There are plenty of studies that shown significant relationship of EE towards attitudes (e.g. Zarrintaj et al, 2013; Abbas, 2013; Khan S.H, 2013, Zsoka, 2013) and behaviors (e.g. Nordlund et al,2003; Manstead, 2000; Lee, 2009; Sarkawi, 2017; Frick et al, 2004). The inter-relationship of attitudes and behaviors are best explained via the *Theory of Planned Behavior* (Ajzen, 1987). The theory stated that the attitudes, person's norms, and perceived behavioral control, collectively influenced individuals' behavioral intentions

and behaviors, however, the exact nature of these relations is still uncertain. This study will not examine the relationship of attitudes and behaviors towards awareness level, but wanted to have a view of both elements from the perspective of personal norm, social influences, and media exposure.

Personal norms, as per earlier discussion, encourage students' selfless behaviors which is triggered by two determinants; 1) awareness of consequences and, 2) acknowledgement of responsibility (Schwarz, 1977). For instance, a person aware that high road traffic may cause to the high level of air pollutions, however there is also a positive effect of it in the long run which is reducing the use of personal car, and Consequently, based on this example, the understanding that the environmental threat (consequences) may 'hurt' student's personal values and it is in individual's responsibility to avoid these negative consequences through his pro-environmental actions (Nordlund and Garvill, 2003).

Whereas, on the social influences factor, students may need to make a choice between their personal and social consequences related h the issues they dealt with. The attitude, behavior, and action are much dependent on the ego-centric values of that person. This situation is called "social dilemma", when a person should choose between self-interest and collective interest (Nordlund and Gavill, 2003). In that sense, it is uncertain whether social influences have a consistent impact on the students' level of environment or not, and hope that this study will answer the statement.

We have learned that media exposure, for generations, plays vital roles in raising community concerns and awareness toward environmental issues. There are many studies and evident showing positive relationship between media exposure and public awareness. Media comes in various platforms and approaches, therefore, the effect of media on public are relatively different due to the background diversity. It is quite challenging to measure how people exposed and react to media content, which is important to understand the roles of media in encouraging pro-environmentalism. Today's media landscape, with the presence of new medias like Internet and social medias, have made measurement of media exposure becomes more complicated in which individuals are exposed to a diversity of messages anytime, from different media platforms, has complicated the measurement of media exposure even more. For example, the approach to entertainment-education can be very promising one in creating environmental awareness to the public. This approach might be suitable for middle-aged, family-based audience by using television, radio and newspaper, however, it might not attractive to students, teenagers and youngsters. The use of new medias like Facebook, Tik-Tok and Instagram might be workable to gain attention of young generation including students. However, there is very limited study to prove on the effectiveness of the roles played by media in raising student awareness towards environment.

1.4 Research Questions

The present study has the following questions:

1. Is there relationship between environmental knowledge and environmental awareness among UUM students?

2. Is there relationship between social influence and environmental awareness among UUM students?
3. Is there relationship between personal norm and environmental awareness among UUM students?
4. Is there relationship between media exposure and environmental awareness among UUM students?

1.5 Research Objective

This study contains four main objectives as per following details:

1. To identify the relationship between environmental knowledge and level of environmental awareness among UUM students.
2. To identify the relationship between social influences and level of environmental awareness among UUM students.
3. To identify the relationship between personal norms and level of environmental awareness among UUM students.
4. To identify the relationship between environmental media exposure and level of environmental awareness among UUM students.

1.6 Significance of Study

The findings of this study are expected to contribute valuable information to the field of environmental awareness, environmental education and environmental knowledge among students. Environmental awareness implies not only being educated and

knowledgeable about the environment, but also being habituated with the attitudes and sets of behaviors for addressing environmental related problems (Abbas et al, 2013). Therefore, to relate with the attitudes and behaviors, this study has given attention to the factors of personal norms (Schultz P. , 2001) (Azjen, 1977)(Esfandiar, 2019), social influences (Lee, 2009; Kelman, 1958), and media exposure (Aseen Khan, 2016). Moreover, this study is hoped to be a significant endeavor in promoting high environmental awareness among students, thus, making sure that the nature and its resources are well preserved and protected in the long run. This study is hoped to serve as future reference for many researches to further explore on the environmental related study for the sake of nature sustainability and the interest of future generations.

1.7 Definition of Terms

The definitions of terms of this study are presented as follows:

- a. **Environmental Awareness** - Being aware of the natural environment and making choices that benefit rather than hurt the earth. It also be defined as being knowledgeable about the environment with the right sets of values, attitudes, and skills for addressing environment related problem (Abbas, 2013).

- b. **Environmental Knowledge** - Environmental knowledge refers to the knowledge and awareness towards environmental problems and solutions (Zsóka, 2013).

- c. Environmental Social Influence** - Actions of significant numbers of peers and individuals through communication, discussion of environmental issues and recommendations on the use of organic products (Lee, 2009). Meanwhile Kelman (1958) through his Social Influences Theory defines it as an individual's attitudes, beliefs, and subsequent actions or behaviors that influenced by a social group via the process of compliance, identification, and internalization.
- d. Environmental Personal Norms** - Environmental personal norms are beliefs and an obligation to act in a certain way concerning to the environment (Schultz P. , 2001).
- e. Environmental Media Exposure** - Any opportunity for a reader, viewer, or listener to see or hear an advertising message in a particular medium. The message about environmental issues are conveyed to the audience at different level of credibility, via different platforms ranging from the traditional mass media (television and radio, newspaper, etc), institutional media (schools, government official broadcast, etc), and new media (social media and internet).

1.8 Organization of Study

The study consists of five chapters. Chapter 1 offers the details on the introduction of the study, problem statement, research questions, research objectives, the significance of study, and definitions of key terms. Meanwhile, Chapter 2 provides literature reviews

of all five variables comprises of environmental awareness, environmental education, environmental knowledge, personal norms, social influences and media exposure. Chapter 3 focused on the methodological aspects such as design of the study, sampling methods, population and sample sizes, research framework, instrument development, response format, questionnaire design, and research hypotheses. Chapter 4 explains on the data analysis process and findings of the study. Finally, Chapter 5 offers the discussions, implications, limitations, conclusions and recommendations of this study.

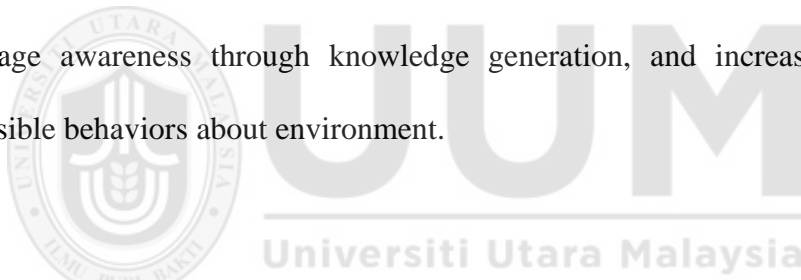


CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Specifically, the study aims to identify the environmental awareness among UUM students. Therefore, this chapter looks into the concepts, the relationships and the theory used in explaining the relationship between environmental knowledge (EK), personal norms, social influences, media exposure and environmental awareness. Furthermore, this chapter also demonstrates the vital roles of environmental education (EE) to encourage awareness through knowledge generation, and increasing attitude and responsible behaviors about environment.



2.2 Environmental Awareness

The Environmental Awareness (EA) terms has been debated over the last few decades in regard to any environmental related issues. Generally, there is no specific definition or terminology to describe EA. There are different name variants of the same concept such as environmental awareness, environmental concern, environmental consciousness, environmental behaviors, and environmental responsibility in vast literatures. However, the term EA can be broadly defined as the attitude regarding environmental consequences of human behavior (Marija et al., 2015).

Environmental awareness is also essential to nurture positive attitudes and affection towards positive environmental behavior. Therefore, the awareness and concern of environmental issues, the causes and adverse impacts are necessary to be measured in an environmental awareness context. Individual with higher awareness level to towards environmental the its cause-effect schemes, the higher the intentional of environmental behavior of that individual. Meanwhile, Kennedy et al (2009) argues on economical awareness that recognizes the costs and benefits associated with environmental problems.

Furthermore, Kollmuss and Agyeman (2010) argues that environmental awareness consists of both cognitive and affective attributes of an individual; knowledge-based component (cognitive) and perception-based component (affective). While some other researchers have associated EA terms with the level of individuals' knowledge and obligation in preserving environment through their intentions, consumption behaviors, attitudes, values, and actions (Yahya et al., 2013, Chan and Lau, 2000, Zarrintaj et al, 2013, and etc). Having said so, environmental awareness implies not only being knowledgeable about the environment, but also being acquittanced with sets of values, attitude and skills for addressing environmental issues. Thompson and Barton (2014) recommended a two-dimensional method in understanding environmental awareness. They suggest that there are at least two reasons in explaining why people concern about the environment. First, the eccentric individual who values nature for its own interest, therefore, believed that the nature deserved protection because of its inherent values. Second, the anthropocentric individual who think that the environment should be taken care for its value in preserving the quality of human life. These are the primary sources of environmental awareness as an attitude.

Scientifically, various measuring instruments were used in environmental awareness study, depending on the context to which EA is referred to. For example, EA have different interpretations pertaining to population control, natural resources, energy conservation, eco-friendly consumption, pollution control and many other issues.

2.3 Environmental Knowledge

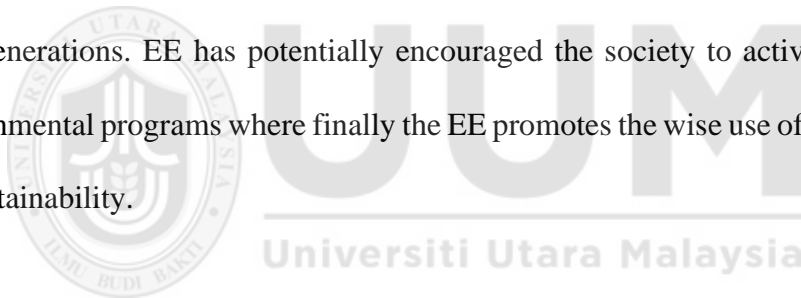
Fahlquist (2008) suggests that when peoples are more knowledgeable about environment and its associated matters, they will, in turn, become more aware, motivated and responsible toward. But how does this make sense? Schahn and Holzer (1990), explains environmental knowledge in two conditions. First, the factual that focused on environmental problem's definition, causes and consequences. As example, when we literally want to know the definition of the climate change. Second, it is all related to the action which the information is regarding to the human behaviors that could influence the environment. As example, when the question asked of what are the human behaviors that affect the climate change? The answer for this question does not need to depend on facts, however the subjective methodologies to the matters can be considered under this category. The discrepancy of these two styles of environmental knowledge is vital because human behavior is influenced more by actions that correlated to knowledge instead of the factual ones. Thus, in the perspective of environmental knowledge, perceived knowledge about facts rather than knowledge about actions and abstract, becomes important for better understanding of the actual impacts on individual's behavior. (Schahn & Holzer, 1990)

According to Tanaka (2000), the environmental knowledge is an understanding of an individual on how environment working; how people interact with the environment; how environmental problems occur; and how does these difficulties can be solved. In addition, environmental knowledge can be described in the perspective of environmental learning component regarding to knowledge of issues related to environmental sustainability and its impact towards human natural life. Meanwhile, Rowe (2002) refers the environmental knowledge to the basis of understanding about the idea and knowledge on significant issues and information with health and environmentally sustainable. This includes environmental matters relating to human health.

Furthermore, according to (Zsóka, Szerényi, Széchy, & Kocsis, 2013), environmental knowledge refers to “knowledge and awareness about environmental problems and possible explanations to those problems. General environmental knowledge is defined as “general knowledge of facts, concepts, and relationships pertaining to the natural environment and its foremost ecosystems” (Fryxell & Lo, 2003). Various scholars are using different measures to empirically evaluate how individuals emphasize their environmental knowledge. For instance, some measures look at the individuals’ factual knowledge of environment, while others attempt to measure the impact of their actions-related knowledge. (Tanner & Kast, 2003). Factual environmental knowledge is believed to be more applicable than actions-related because of the knowledge level to assist individuals in making environment friendly consumption decisions.

2.3.1 Environmental Education

One of the best tools to explain the environmental awareness (EA) and environmental knowledge (EK) is the environmental education (EE). Environmental education helps to achieve awareness, attitude, knowledge and responsible behaviors about environment, and is progressively recommended as a justifiable tool in environmental protection (Zarrintaj et al, 2013). In the context of Malaysia, in order to have a solid environmental awareness among future generations, the environmental education should be applied at all level of education system in this country. EE is seen as a very effective tool in educating the society to minimize or even eliminate the destruction activities on environment, and highlight the necessity of preserving the nature for the next generations. EE has potentially encouraged the society to actively participate in environmental programs where finally the EE promotes the wise use of natural resources for sustainability.



2.4 Environmental Social Influence

Social influence is defined as change in the opinions, emotions, attitudes, or behaviors of a person resulting from contact with another person or community (Moussaïd, Kämmer, Analytis, & Neth, 2013). (Lee, 2009) in his study of seven predictive factors of environmental purchasing behavior amongst youngsters found that the most significant predictor was social influences. The group of peoples like friends, colleagues, teachers, and family members have shown to have a strong influential effect on individual's pro-environmental behavior and the internalization of standard cares toward the environment. Other researchers such as Lee (2009), and Ryan (2001) have

also mentioned on the recognition and influence of the social group in individual behavior towards many things including environment.

2.5 Environmental Personal Norms

Norms is a standard that is typical or predictable where it is set as belief that define the behavior. From the perspective of environmental psychology, personal norms can be defined as the feeling of moral obligation (Schwartz, 1977). Moral obligations shape attention to the results that the conduct of individuals affects the environment so that the behavior of these individuals will contributes to the preservation of the environment. It influences both actual pro-social and pro-environmental behavior where these two come together with attitudinal factors (Manstead, 2000). Hence, the environmental personal norms are the belief and duties to behave in a certain way regarding to the environment (Schultz, 2001). The standard that has been set up is then linked to the concern of the environment.

The compliance with personal norms is linked with feelings of pride, while non-compliance is linked with feelings of guilt (Onwezen, Antonides, & Bartels, 2013). For example, an individual with environmental personal norms will have the feelings of guilt if consuming too much energy and water and feeling of prides to morally responsible for protecting nature, demands feeling to preserve the environment in daily behaviour and encourage to do environmental protection. Besides, personal norms are also a form of individual ethical responsibility to protect the environment (Arundati, Sutiono, & Suryono, 2020). In addition, individuals with personal norms will portrays moral

obligation to protect the environment such as reducing personal car use (Nordlund & Garvill, 2003). Besides,

Few previous studies conducted to examine the environmental personal norms as the factor that lead to environmental awareness. According to Nordlund & Garvill (2003), the effects of values, problem awareness and personal norm have been studied to examine the influence on the willingness to reduce personal car use. Besides, the previous research by researcher Khare (2015) also studied the correlation of environmental personal norms and environmental behaviors such as consumers' green buying behavior.

2.6 Environmental Media Exposure

Mass media plays an important role for creating environment awareness among people. According to (Jharotia, 2018), media exposure is critical in influencing public awareness about global climate change and associated actions. The media has three major roles which are to educate, to inform and to entertain audience. Media helps to communicate messages about environmental issues and concern effectively through various platforms and approaches.

Schultz and Zelezny (1998), defines media exposure as any chance for a people to read, view, or listen a publicity message in a particular medium. It is recommended to expose

media contents in different platforms and approaches as they serve different purposes, involve different forms of audiences, and they are variants in credibility.

Furthermore, Dennis & DeFleur (1998) argue about the role of media in shaping public's behaviours and beliefs through consistent repetition of message over the time. They found out that the process has helped change attitudes and behaviour in various contexts, some for betterment and some for worse. In addition to that, Lowe and Morrison (1984) have a parallel view with the majority of researchers, that media plays a major role in the widespread dissemination of environmental concern.

2.7 Relationship Between Variables

This section discusses the relationship between environmental knowledge, personal norms, social influences, media exposure and environmental awareness.

2.7.1 Environmental Knowledge and Environmental Awareness

Many studies have found a positive relationship between environmental knowledge and environmental awareness. The relationship between environmental knowledge and environmental awareness has been investigated extensively for many years. According to Kuppusamy and Mari (2017), there is a significant relationship between environmental knowledge and environmental awareness. Student's awareness and knowledge is shown by restructuring environmental matters as well as grasping the roots, implications, and consequences of those matters.

Sarkawi et al (2017) argues on the importance of environmental knowledge in decision making of actions towards environment, by emphasizing on the consequences of that decision. This statement has been supported by Tanner and Kast (2003) that encourage the use of environmental knowledge in intelligent manner to embrace positive behaviors towards environment. They believe that if everyone is knowledgeable about the importance of preserving the environment, it will then help the society to be more environmental-friendly. Therefore, it is hypothesized that:

Hypothesis 1: There is significant relationship between environmental knowledge and environmental awareness among UUM students.

2.7.2 Social Influence and Environmental Awareness

Several studies have been conducted and show the social influence has significant relationship with environmental awareness. (De Leon & Fuqua, 1995; Lee, 2008; Baker & Ozaki, 2008; Wong et al., 2012). In this present study, the social influence is referred to the influential action of peers towards individual via communication, discussion and recommendations regarding environmental issues and its related activities.

According to Lee (2009), close friends or members of a closed social group have strong influences on a person's pro-environmental routine and the internalization of standards related cares towards environment. Therefore, social influence has an important role in the formation of environmental awareness, given that it exposes users to various stimuli of environmentally sustainable messages (Ghali, Frayret, & Robert, 2016). Hence, second hypothesis proposed in this study is as follow:

Hypothesis 2: There is significant relationship between social influences and environmental awareness among UUM students.

2.7.3 Personal Norms and Environmental Awareness

Many studies were carried out to examine the relationship between environmental personal norms and environmental awareness. Previous research has found that there was a positive correlation existed between environmental personal norms and environmental awareness. The relationship between environmental personal norms and environmental awareness was investigated and it successfully proven that both were correlated to each other. The research by Fu, et al. (2020) studied the value of environmental awareness and successful incentive strategies to encourage environmental RFT behavior. The study intended to verify the importance of environmental awareness in promoting environmental behavior.

The study by Esfandiar et al (2019) stated there is correlation between personal norms that controlling an individual's pro-environmental behavior and awareness of consequences. Furthermore, the research by Nordlund & Garvill (2003) show that there is significant relationship between values and problem awareness and personal norms, which in turn influenced willingness to reduce personal car use. In addition, the finding by Ahn, Koo & Chang (2012) shows that personal norms have a positive relationship with pro-environmental purchasing behavior. Moreover, research by Wiidegren (1998) shows that personal norms have strong correlation with pro-environmental behavior and

willingness to pay for environmentally friendly products or services. Therefore, based on the above empirical evidences, the third hypothesis proposed is:

Hypothesis 3: There is significant relationship between personal norms and environmental awareness among UUM students.

2.7.4 Environmental Media Exposure and Environmental Awareness

According to Shanahan et al. (1997) based their study on analyses of the 1993 and 1994 General Social Survey and worked from the theory of cultivation to examine the association between exposure to television messages and various aspects of belief and knowledge related to environment. The results of their study showed that television viewing which part of the media has a positive relationship with the general concern about the state of environment.

Besides, the study by Brulle et al. (2012), and Sampei and Aoyagi-Usui (2009) reveal that newspapers and broadcast coverage have a significant correlation with public concern and awareness in the issues of climate change and global warming in the United States and Japan. In relation to that, Chokriensukchai and Tamang (2010) whom has done a study by sampling 2,500 middle school students, reveals a positive association between the exposure to media and awareness on global warming issue amongst youths in Thailand. Therefore, the fourth hypothesis proposed for this study is as follow:

Hypothesis 4: There is significant relationship between media exposure and environmental awareness among UUM students.

2.8 Research Framework Formation

Research framework is the foundation to the whole research paper where it visualizes the relationship amongst all the variables of the study. The literature reviews, with the help of the underpinning theories are used in illustrating the relationship between environmental knowledge, social influence, personal norms, media exposure and environmental awareness. The conceptual framework of this study is shown in the following Figure 2.3.

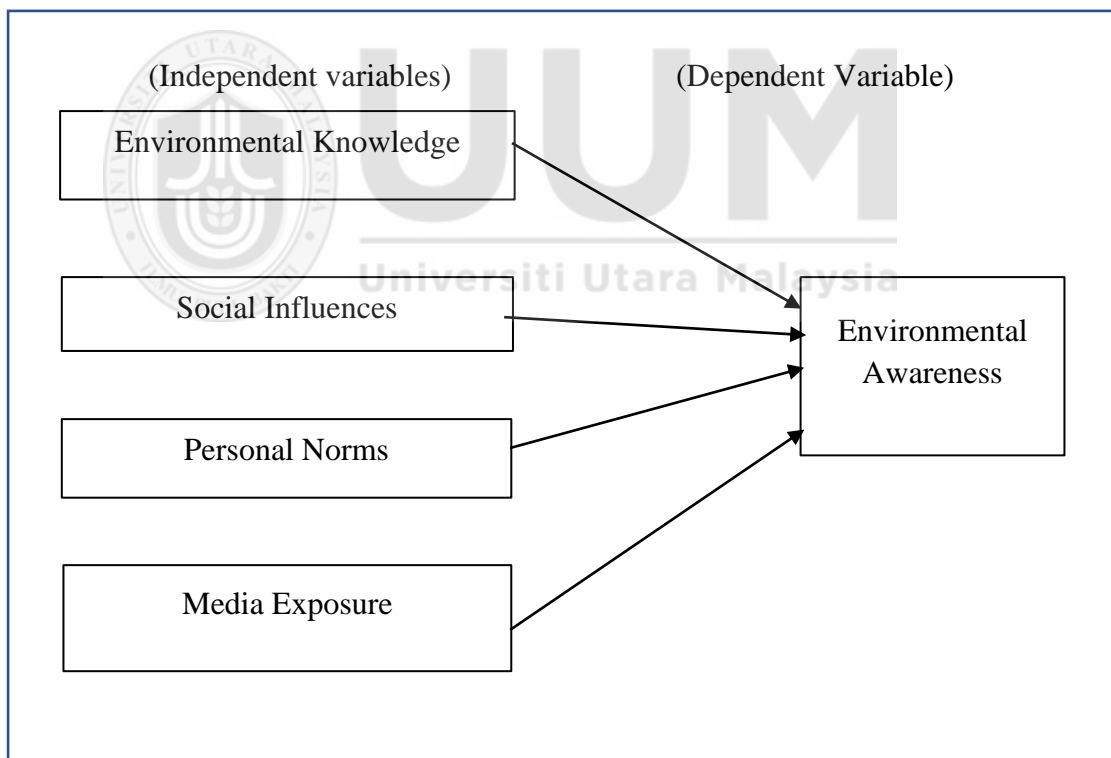


Figure 2.3
Research Framework Formation

2.9 Conclusion

In conclusion, this chapter reviews on previous literatures of all variables involved in this study. The reviews is important in developing the hypotheses and the research framework of this study. The next chapter will be discussing on the methodological aspects of the study.



CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter, the description of methodology of the study discussed. The design of study, instrument development for dependent and independent variables, response format, questionnaire design, research hypothesis, data collection procedures and statistical analysis procedure are presented in this section.

3.2 Design of Study

Design of study is as an architectural plan that outlines process and techniques for the reason of data collection as well as data analysis required for information (Zikmund.W, Babin.B, Quinlan, Carr, & Griffin, 2013). The purpose of this study is to test the hypothesis by examine the relationship between environmental knowledge, environmental social influence, environmental personal norm, environmental media exposure and environmental interest on environmental awareness. This study can be categorized as correlation study because it was designed to examine the degree of relationship between independent and dependent variables. A correlational study is conducted in a natural environment with minimal interference by the researcher with the

normal flow of events. In explaining nature of certain relationship, hypothesis testing is usually applied (Cavana, Delahaye, & Sekeran, 2001).

Futhermore, this research adopts a quatitative study by using survey questionnaires for data collection. Data collected from participants was used to see how it matched with the theories, which was in turn used to test hypothesis in order to reject or support the proposed relationships (Creswell & Clark, 2007).The results depend and uses statistical data collected using Statistical Packages of Social Sciences (SPSS).

The unit of analysis selected for this study is the individual unit which refer to the students from Universiti Utara Malaysia. When data is gathered from each individual, therefore it is considered as individual unit of analysis (Sekaran & Bougie, 2013). Hence, a field survey has been conducted in a non-contrived setting to collect cross-sectional quantitative data and subsequently used the data. Sekaran and Bougie (2010) stressed that data which obtain from cross-sectional study is less biased and more accurate. Cross-sectional studies are more applicable rather than longitudinal study because it allows data collection in a relatively short period.

3.3 Population and Sample

The word “population” is used in a different way in research compared to its normal meaning, which describes to the total number of people living in a country. Population in this research refers to the students of UUM that in common, having similar set of

attributes as a student (Borges, et al., 2017). The population size for this study is estimated around 29,000 students (UUM reports as at 25 August 2019: Total 28,86 students. 23,907 of them are undergraduates while 4,959 are postgraduate students). Table 3.1 shows the number of students in Universiti Utara Malaysia.

University	Total number of Resource students
Universiti Utara Malaysia	28,866 UUM, Registrar Department, 2019

Table 3.1
The number of students as of 25 August 2019

3.3.1 Sampling Frame



Sampling frame is a list that record all population elements. Once a target population is chosen, sampling frame availability can be determined (Borges, et al., 2017). This analysis of this study undergoes the probability sampling method, with the use of simple random sampling technique. Simple random sampling means that everyone in the population has a similar probability of being selected. It means everyone in the targeted population is having equal chances to be a part of the analysis of a study.

The analysis of this study resolves around individual student of UUM, who is currently undergo the UUM learning programmes at the main campus in Sintok, Kedah. The researcher aims to get at least 300 cases for factor analysis, as it considered as sufficient number for a good finding (Wahab, 2010). Confidence level is set at 95% (as majority

of study used), and confidence interval of 4% (margin of error). From the sampling calculation, the numbers of sample recommended is 264 out of total population of 29,000 UUM students. In order to get 264 feedbacks, researcher decided to distribute 350 questionnaires by hand with the help of undergraduate students in the Sintok Campus. Distribution of questionnaires by hand is believed to provide better return within limited time frame.

3.4 Instrument Development

The instrument is described in five different variables, which are environmental awareness (dependent variable), environmental knowledge, social influences, personal norms, and media exposure (independent variables). The details of the items are presented in the following discussion.

3.4.1 Dependent Variable

Researcher uses the instrument by (Blok, Wesselink, Oldrich, & Kemp, 2015) to measure Environmental awareness. The environmental awareness scale consists of eleven questions. The answers were captured on a five-point Likert-scale ranging from 1 (low awareness) to 5 (high awareness). The reliability value measured was between 0.75 and 0.86, and the details of it is presented in Table 3.2.

Table 3.2
Operational definitions and Items for Environment Awareness

Variable	Operational Definition	Items
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Environmental Awareness	level of individuals' knowledge and individual's obligation in preserving environment	<ol style="list-style-type: none"> 1. Environmental pollution affects my health. 2. Environmental problems have consequences for my life. 3. I worry about environmental problems. 4. I can see with my own eyes that environment is deteriorating. 5. Environmental problems are a risk for the future of my children. 6. Environmental problems are exaggerated. 7. Too much attention is paid to environmental problems. 8. The attention given to the greenhouse effect is exaggerated. 9. Saving threatened species in unnecessary luxury. 10. A better environment starts with me. 11. People who do not take the environment into account try to escape their responsibility.
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UUM
Universiti Utara Malaysia

3.4.2 Independent Variables

There are four independent variables measured in this study, they are: environmental knowledge, social influence, personal norms, and environmental media exposure. All these four variables were measured using different measurements adapted from various studies.

3.4.2.1 Environmental Knowledge

Firstly, an instrument of environmental knowledge with five items adopted by (Mohr, Eroglu, & Ellen, 1998) is based on the idea of collective measure of environmental knowledge (Ellen, Webb, & Eroglu, 1997). The reliability measured is $\alpha = 0.88$. The details is shown in Table 3.3.

Table 3.3
Operational definitions and Items for Environment Knowledge

Variable	Operational Definition	Items
Environmental Knowledge	In the perspective of environmental knowledge, perceiving the knowledge about facts from knowledge about actions and abstract ones becomes important for better understanding of real impacts on individual's behavior	<ol style="list-style-type: none">1. I know I buy products and packages that are environmentally safe.2. I know more about recycling than the average person.3. I know how to select products and packages that reduce the amount of waste ending up in landfills.4. I understand the environmental phrases and symbols on the product.5. I am very knowledgeable about environmental issues.

3.4.2.2 Environmental Social Influence

Secondly, environmental social influence represents an adaptation of the instrument designed by. It contains five items. (Lee, 2008). The details of the items are presented in Table 3.4.

Table 3.4
Operational definitions and Items for Social Influences

Variable	Operational Definition	Items
Environmental Social Influence	Actions of significant numbers of peers and individuals through communication, discussion of environmental issues and recommendations on the use of organic products.	<ol style="list-style-type: none"> 1. Often my classmates recommend products that respect the environment. 2. Often my classmates argue with me about environmental issues. 3. My lecturers often argue in class about environmental issues. 4. I have learned from my lecturers about environmental problems. 5. I have learned from my colleagues about environmental problems.



3.4.2.3 Environmental Personal Norms

Thirdly, environmental personal norms and consisted of four items. It was designed by Ahn, Khoo & Chan (2012) and applied to young consumers and adults in Korea. In 2015, they applied this sub-scale to consumers in India, corroborating its validity and reliability. The reliability of the scale is $\alpha = 0.932$. The details are presented in the following Table 3.5.

Table 3.5
Operational definitions and Items for Personal Norms

Variable	Operational Definition	Items
Environmental Personal Norms	Environmental personal norms are beliefs and responsibility of obligation to behave in a certain manner in relation to the environment. (Schultz, 2001)	<ol style="list-style-type: none"> 1. I feel that improving environment helped future generations. 2. He should do everything possible to conserve natural resources. 3. I am committed to the responsible use of energy. 4. I feel the obligation to save energy when possible.

3.4.2.4 Environmental Media Exposure

Fourthly, there are four items used to measure the environmental media exposure. All items were adopted from Lee (2010), which is measure of the media mix. Participants were questioned to indicate their exposure to environmental messages through the following media sources: television, radio, internet, and advertisements. The reliability of the scale is 0.82. The details of the items are shown in Table 3.6.

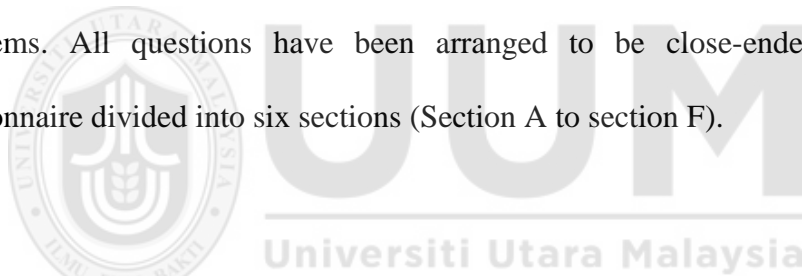
Table 3.6
Operational definitions and Items for Media Exposure

Variable	Operational Definition	Items
Environmental Media Exposure	Media exposure is any opportunity for a reader, viewer, or listener to see or hear an advertising message in a particular medium.	<ol style="list-style-type: none"> 1. I always come across environment-related topics/issues on TV 2. I always come across environment messages on advertisement

-
3. I always come across environment-related topics/issues in radio
 4. I always come across environment-related topics/issues on the internet.
-

3.5 Response Format

This study is using 5-point Likert Scale to capture response from the respondents. The respondents specified their answers to all items in the range of 1-Strongly Disagree, 2-Disagree, 3-Neither Disagree Nor Agree, 4-Agree, and 5-Strongly Agree. The respondents chose the score that best represented their perception or preference towards the items. All questions have been arranged to be close-ended question. The questionnaire divided into six sections (Section A to section F).



3.6 Questionnaire Design

The questionnaire is designed with a close-ended question which all questions have a set of alternative answers and respondent need to choose the one appropriate answer that best describes their opinion. The description of questionnaire design for this study is shown in the following Table 3.7.

Table 3.7
The Questionnaire Design

Questionnaire Part	Descriptions
PART A	Demographic profile of respondent regarding gender, age, year of study, college, and ethnicity.
PART B	Consists of questions measuring environmental awareness.

PART C	Consists of questions measuring environment knowledge.
PART D	Consists of questions measuring social influences.
PART E	Consists of questions measuring personal norms.
PART F	Consists of questions measuring media exposure.

3.7 Data Collection Procedures

The distribution of questionnaire is done by hand delivery in order to get a complete questionnaire returned within limited time. This was done in Universiti Utara Malaysia, Sintok, with the help of the students. Collecting data by hand is thought to be a good method as empirical evidence shows the rate of questionnaires return are relatively high (Asika, 1991). One of the advantages is that the researcher was able to obtain the whole completed questionnaire within limited time frame. Besides, researcher was able to provide further explanation on items that required clarification from the respondents. Additionally, the researcher is allowed in such scenario to persuade the respondents to take part in the survey in order to give their sincere opinions (McQueen & Knussen, 2013) and (Sekaran & Bougie, 2016).

3.8 Statistical Analysis Procedures

After the data collection process, the data were analyzed using the Statistical Package for Social Sciences (SPSS) version 25. SPSS is a set of software systems that are integrated into a single package where it can be used to analyze scientific data to generate a statistic of the research. The descriptive and inference analyses were conducted in the procedure, encompassed the frequency statistics, mean, standard

deviation, factor analysis, and correlation. The descriptive analysis is used in describing the demographic profile.

3.8.1 Descriptive Analysis

Descriptive analysis was carried out to analyze the profile of sample (demographic profile). There were five elements of profile that have been asked including age, gender, year of study, college and ethnicity. The analysis involves central tendencies measurement (such as mean, median, mode) and dispersions measurement (such as variance, standard deviation range and interquartile range).

3.8.2 Reliability Analysis

All data was first tested for reliability analysis. Cronbach Alpha testing used to measure the reliability of the data. The measurement of this testing is the nearer Cronbach Alpha value to 1, the higher of its reliability. Generally, if the reliability coefficient is below 0.60, it is poor, for those within the range of 0.70 to be satisfactory and for those above 0.80 is recognized as good.

3.8.3 Pearson Correlation Analysis

Pearson Correlation Coefficient analysis was carried out to determine the significant of the relationship between independent variables and dependent variable. It also used to determine the degree of correlation of the relationship between both variables. The correlation strength can be measured between -1 and +1, while the path can be checked

on the basis of a positive value reflecting a positive relationship and a negative value suggesting a negative relationship.

3.8.4 Multiple Regression Analysis

Multiple Regression analysis was carried out to recognize the relationship between dependent variable and all independent variables. Multiple regressions are important as they can predict future outcomes. In this research, the aim of the analysis is to identify the predictive power of environmental knowledge, social influence, personal norms, and media exposure against environmental awareness. P-value is used to check the hypothesis, in which, the coefficient is zero (no effect). The null hypothesis can be rejected for the hypothesis with low p-value (< 0.05). Meaning that, in the case of null hypothesis declined, other predictive values might have relationship effect on the dependent variable. Otherwise, the p-value is higher than the equivalent quantities (> 0.05 & > 0.01) and the effect is negligible.

3.9 Conclusion

This chapter explained on the methodological part of this study. It describes the all the required methods to complete the research starting from designing framework, setting population, sampling, development of instrument, establishing hypotheses, and gathering of data collection results. The statistical analysis has been done using SPSS Version 25, and the results were explained at the end of this chapter. The next chapter

offers the data analysis and results which answered the study's objectives and hypotheses.



CHAPTER 4

DATA ANALYSIS AND RESULTS

4.1 Introduction

This chapter deliberates on the data analysis process and discussion of the result. Data analysis commences with the hypothesis testing to make sure that all variables selected are relevant for this study. Then, the analysis continued with the demographic profile of respondents, which consists of age, gender, year of study, college and ethnicity. Further, the results of the study particularly in the relationship between environmental knowledge, social influence, personal norms, media exposure and environmental awareness were reported. Data was analyzed using five different methods which include the demographic profile of the respondents, descriptive analysis, reliability analysis, correlation analysis and multiple regression analysis. The main purpose of data analysis in this chapter is to answer all the research objectives which have been mentioned earlier in Chapter 1.

4.2 Demographic Profile

Table 4.1 displays the demographic characteristics of the 248 respondents involved in the study. They are all students of University of Utara Malaysia, main campus in Sintok, Kedah. The respondents have answered all questions; therefore, each profile component

was cumulated at 100%. It shows that 51 (20.6%) out of total respondents are males, while 197 respondents (79.4%) are females. Majority of the respondents are Malay (93.4%), aged below than 26 years old. On average, all the respondents have spending 2 to 3 years of study in UUM Sintok, with majority of them are studying in College of Business (74.2%).

Table 4.1
Demographic Profile

Characteristics	Frequency (N)	Percentage (%)
Gender		
Male	51	20.6
Female	197	79.4
Age		
18 – 22	144	58.1
23 – 26	99	39.9
> 26	5	2.0
Year of Study		
1 st Year	26	10.6
2 nd Year	65	26.3
3 rd Year	147	59.1
4 th Year	10	4.0
College		
COB	184	74.2
COLGIS	29	11.6
CAS	35	14.1
Ethnicity		
Malay	232	93.4
Chinese	7	3.0
Indian	5	2.0
Others	4	1.5

4.3 Reliability

Reliability test is used to measure reliability of selected variables. The test was conducted on all measured variables (DV and IVs) using Cronbach's Alpha, to access acceptability and reliability of those variables. The Cronbach's alpha value more than 0.60 was considered as acceptable reliability value (Sekaran, 2003). Based on the test,

all variables are checked as accurate, as the Cronbach Alpha values surpassed 0.60. Furthermore, the findings of the reliability test showed that all the variables exceeded a coefficient level greater than 0.60. Table 4.2 reveals the Cronbach's alpha value for all variables of this study. The result shows that the alpha value for each variable ranged from 0.748 to 0.817. According to Nunnaly (1978), if the score below 0.6, then the score is considered as poor. Meanwhile scores between 0.60 and 0.70 is acceptable and above 0.80 is considerably good. Therefore, the reliability of each variable of the study is considered as acceptable and good.

Table 4.2
Reliability analysis of Environmental Knowledge, Social Influences, Personal Norms, Media Exposure and Environmental Awareness

Variables	Number of items	Alpha value
Environmental Awareness	11	0.748
Environmental Knowledge	5	0.802
Environmental Social Influence	5	0.817
Environmental Personal Norms	4	0.807
Environmental Media Exposure	4	0.791

4.4 Results on Pearson Correlation and Multiple Regression Analysis

4.4.1 Pearson Correlation

Pearson Correlation Analysis determines the significance of relationship between independent variables and the dependent variable.

Table 4.3
Pearson Correlation Analysis

		DV	IV1	IV2	IV3	IV4
DV	Pearson Correlation	1				
	Sig. (2-tailed)					
IV1	Pearson Correlation	.454**	1			
	Sig. (2-tailed)	.000				
IV2	Pearson Correlation	.247**	.425**	1		
	Sig. (2-tailed)	.000	.000			
IV3	Pearson Correlation	.412**	.325**	.195**	1	
	Sig. (2-tailed)	.000	.000	.006		
IV4	Pearson Correlation	.371**	.431**	.361**	.399**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

** . Correlation is significant at the 0.01 level (2-tailed).

4.4.1.1 Relationship between Knowledge and Environmental Awareness

The result indicates that there is a positive and significant relationship between environmental knowledge and environmental awareness ($r=0.454$, $p<0.01$). It means that having high environmental knowledge may enhance students to aware on environmental caring. Therefore, H1a is supported.

4.4.1.2 Relationship between Social Influences and Environmental Awareness

There is a positive and significant relationship between environmental social influence with environmental awareness ($r=0.247$, $p<0.01$). The correlation analysis supports that the environmental social influence has a significant

positive relationship to environmental awareness. This means that the environmental awareness among the students will increase if there is strong environmental social influence, and vice versa. Therefore, H2a is supported.

4.4.1.3 Relationship between Personal Norms and Environmental Awareness

There is a significant and positive relationship between environmental personal norms and environmental awareness ($r=0.412$, $p<0.01$). The correlation analysis supports that environmental personal norms has a significant positive relationship to environmental awareness. It means that if the students have good environmental personal norms, it will improve the student's environmental awareness and vice versa. Therefore, H3a is supported.

4.4.1.4 Relationship between Media Exposure and Environmental Awareness

There is a significant and positive relationship between environmental media exposure with environmental awareness ($r=0.371$, $p<0.01$). The correlation analysis supports that the environmental media exposure has a significant positive relationship to environmental awareness. It means that when the

students have the exposure about the environmental from the media, it will improve the student's environmental awareness. Therefore, H4a is supported.

4.4.2 Result of Multiple Regressions Analysis

The standardized regression results presented in Table 4.4 demonstrates the efficiency of multiple regression when all selected IVs were positively correlated with the environmental awareness at a significant level <0.01 ($p < 0.01$). R-value indicates the association between the two variables which is 0.558 and R-Square value describes the variance, which is 0.312. It means that only 31.2 percent variance of the environmental awareness is explained by the environmental knowledge, social influence, personal norms, and media exposure. Specifically, EK ($\beta = 0.295$, $p < 0.01$), SI ($\beta = 0.008$, $p < 0.01$), PN ($\beta = 0.195$, $p < 0.01$), and ME ($\beta = 0.065$, $p < 0.01$). These results supported all hypothesis H1a – H4a.

Table 4.4
Multiple regression

Variables	Standardized Coefficients Beta	Sig.
Environmental knowledge	.295	.000
Environmental social influence	.008	.904
Environmental personal norms	.195	.009
Environmental media exposure	.065	.404
R square (R^2)		0.312
Adjusted R square (R^2)		0.294
F value		17.385

4.5 Relationship between IVs (environmental knowledge, social influence, personal norms, and media exposure) and Employees' Retention

The main objective of this study is to indicate the relationship between selected IVs and environmental awareness. Four hypotheses were established to respond to the objectives of this study. The hypotheses are as follows:

- H1a : There is positive and significant relationship between Environmental Knowledge and Environmental Awareness.
- H2a : There is positive and significant relationship between Social Influences and Environmental Awareness.
- H3a : There is positive and significant relationship between Personal Norms and Environmental Awareness.
- H4a : There is positive and significant relationship between Media Exposure and Environmental Awareness.

4.6 Conclusion

The entire analyses in this chapter have been constructed in several tables using Statistical Package for the Social Science (SPSS) version 22. Reliability analysis were conducted on the collected data and have shown all the variables were satisfactory and adequate for further analysis. The Pearson Correlation and Standard Multiple Regression have been used to test the relationship between environmental knowledge, social influence, personal norms and media exposure towards, environmental awareness. In addition, the multiple regression study is used to analyse between all the independent variables with dependent variable.

CHAPTER 5

DISCUSSIONS AND CONCLUSIONS

5.1 Introduction

This is the final chapter to discuss on the findings according to the objective of this study. In Chapter 1, there are four main objectives to be accomplished by this study. In relation to that, four hypotheses have been developed and tested to answer the study's objective. This chapter reviews the implications of the findings based theoretical and practical implications. Beside of that, this chapter also discuss the limitations of study, and the recommendations for future research on the similar field.

5.2 Recapitulation of the Study Findings

This study was applied on the students of University of Utara Malaysia based in the main campus in Sintok, Kedah, Malaysia. A total of 248 students have responded to the study's questionnaires with complete answer. There are four main objectives to be achieved throughout this study, which are; (1) to identify and determine the relationship between environmental knowledge and level of environmental awareness among UUM students, (2) to identify and determine the relationship between social influences and level of environmental awareness among UUM students, (3) to identify and determine the relationship between personal norms and level of environmental awareness among UUM students, and (4) to identify and determine the relationship between

environmental media exposure and level of environmental awareness among UUM students.

In respond to the Objective 1, the result indicates that there is a positive and significant relationship between environmental knowledge and environmental awareness. The study found that a student with environmental knowledge is having higher level of environmental awareness than a student with less knowledge or unknowledgeable about the environmental issues.

Meanwhile to respond on Objective 2, this study has shown a positive and significant relationship between social influences and environmental awareness. The study found that a socialized student (in which, attached to any specific social group, or peers-relation) has a significant and positive relationship to environmental awareness. The more influence (any form of pro-environmental influences) a student received from the social group/ peers, the higher level of awareness he/she would has, and vice versa.

Furthermore, to respond on Objective 3, the analysis result shown a significant and positive relationship between personal norms and environmental awareness. The study recommends that, a student with right environmental attitudes and behaviors, and practice pro-environmentalism in his daily routine, is tends to have high awareness and concern towards environment.

And finally, to respond on Objective 4, the analysis also shown a significant and positive result about relationship between media exposure and environmental awareness. The study recommends that, the more a student being exposed to the media pertaining to environmental issues and concern, the higher the level of awareness he/she will do.

5.3 Discussions

This research is conducted to study on the effect of environmental knowledge, social influence, personal norms, and media exposure towards level of environmental awareness among UUM students. interest with environmental awareness.

5.3.1 Relationship between Environmental Knowledge and Environmental Awareness

This study proves a positive and significant relationship between environmental knowledge and environmental awareness. The correlation analysis confirms that there is a positive effect of environmental knowledge towards environmental awareness of a student. This conclude that, a student with environmental knowledge will react positively towards environment, as compared to those who has less knowledge or even unknowledgeable about environment. The study's findings is in line with the majority of researches that study on the roles of knowledge towards environmental awareness (Sarkawi et al (2017), Rowe (2000), Tanner & Kast (2003), Kuppusamy and Mari (2017), and many more.

5.3.2 Relationship between Environmental Social Influence and Environmental Awareness

This research shown that there is a significant and positive relationship between the environmental social influence and environmental awareness. Meaning that, the environmental awareness among student will increase if there is significant and consistent social influences, and vice versa. This study is aligned with the previous researches that studies on the effect of social influence on individual's level of environmental awareness. (e.g. De Leon & Fuqua, 1995; Lee, 2008; Baker & Ozaki, 2008; Wong et al., 2012, Ghali, Frayret & Robert, 2016). According to Lee (2009), friends, fellow students, colleagues, teachers or any significant number of persons could have influence on someone's pro-environmental behaviors and internalization of standards related to the environment preservation.

5.3.3 Relationship between Environmental Personal Norms and Environmental Awareness

This study shows a positive and significant relationship between environmental personal norms and environmental awareness. The correlation analysis confirmed that there is a positive relationship between environmental personal norms and environmental awareness where the correlation analysis resulted on moderate relationship between these two. This conclude that if the students' environmental personal norms are strong, their environmental awareness will increase and vice versa. The findings of this study is in line with the earlier researches (Esfandiar, Pearce & Dowling (2019), Nordlund &

Garvill (2003), Ahn, Koo & Chang (2012), Wiidegren (1998), and many others) that shown the person with a pro-environmental behavior will act positively towards environment.

Apart from that, finding by Ahn, Koo & Chang (2012) shown that personal norms have a positive effect on pro-environmental purchasing behavior. The study also proposed that the relationship between personal norms and environment-friendly purchasing behavior would be higher for people with a high awareness of the consequences than for people with a low awareness of the consequences, but that hypothesis was not supported. In addition to that, previous study by Wiidegren (1998), proved that, the persons with highly pro-environmentalism is willing to pay more than others in their daily consumer consumption. Wiidegren also associated his study with the factors of education and income towards pro-environmentalism behavior, however, he found that income and education only have low influence on pro-environmental behavior and willingness to pay more for eco-friendly products. The study, was somehow rather, proved that personal norm is a strong indicator when it comes to environmental behavior and practices which directly increased the environmental awareness of a person.

5.3.4 Relationship between Environmental Media Exposure and Environmental Awareness

The result of this study has shown a significant and positive relationship between media exposure and environmental awareness. This means that, the environmental awareness among students will increase if the media frequently and widely expose the emerging issues and concern of environment in appropriate manners and platforms. Many studies

are carried out focusing on the impact of media exposure on environmental awareness. According to Shanahan et al. (1997), based on their study on analyses of 1993 and 1994 General Social Survey and worked from the theory of cultivation to examine the association between exposure to television messages and various aspects of belief and knowledge related to environment. The results of their study showed that television viewing which part of media has a positive relationship with the general concern about the state of environment.

Besides, the studies by Brulle et al. (2012), and Sampei and Aoyagi-Usui (2009) had revealed newspapers and broadcast coverage as correlated significantly with public concern and awareness in issues of climate change and global warming in the United States and Japan. Meanwhile, Chokriensukchai and Tamang 's (2010) study which sampled from among 2,500 middle school students, has proven a positive association between the exposure to media and awareness on global warming issue amongst youths in Thailand.

In addition, mass media has been credited by users at large, in both Malaysia and overseas countries, as a major source of information about environmental issues. In the specific context of Malaysia, the constructive impact of mass media on environmental awareness could also partly due to the enhanced attractiveness and reaching-out potentials of mass media following the transformations of media system in Malaysia, such as the emergence of digital media. The colorful media content and the extended convenience brought by the borderless features make news appears more attractive to the mind and psychology of Malaysian readers (Daud, 2008). In fact, the online mass media has become the main source of information for the young generations of Malaysia

(Ahmad et al., 2011). Therefore, as a conclusion, this study is aligned with the previous researches which has proven that media exposure has significantly impacted on the environmental awareness among students.

5.4 Implications of the Findings

The implications of the findings of this study is explained in theoretical implications, as well as practical implications.

5.4.1 Theoretical Implications

The findings of this research have provided empirical supports to the theoretical relationship between environmental knowledge, social influences, personal norms, media exposure and environmental awareness. Fundamentally, this study has shown that all independent variables are having positive and significant relationship with the environmental awareness of a student.

As the definition of environmental awareness (EA) has been debated on various concepts and theory, this study proven that all suggested theories and concepts of EA are acceptable in regard to the environmental consequences caused by an individual. This study has totally agreed with the theory of associating awareness with the individual's attitude toward environmental consequences (Marija Ham et al, 2015), and associating awareness with individual's cognitive level towards environmental

consequences (Karatekin, 2014; Kennedy, 2009). Meanwhile, this study in line with Kollmuss and Agyeman (2010) argument that environmental awareness lies on knowledge-based component (cognitive) and perception-based component (affective) towards environmental consequences. Meanwhile in responding to Thompson and Barton (2014) whom proposed a two-dimensional method to understanding environmental awareness, which are; first, the eccentric individual who values the environment for its own interest and, therefore, believe that the nature deserved fortification because of its intrinsic values. Second, the anthropocentric individual who think that the environment should be preserved for its value in sustaining and improving the quality of life of its inhabitants. Both concepts are concerning on environmental consequences based on individual level of awareness.

This study shows a significant and positive relationship between environmental knowledge and environmental awareness. This study agreed with the theory of education helps in increase level of awareness (Zarrintaj, 2013; Fahlquist, 2008) where people with knowledge about environment and its related issues will become more aware of the environment and its problems. Therefore, they will be more motivated to act positively toward the environment in more responsible ways. The concept is supported by Schahn and Holzer (1990), explains environmental knowledge in two conditions. First, the factual that is focused on environmental problem's definition, causes and consequences. Second, it is all related to the action which the information is regarding to the human behaviors that could influence the environment. The discrepancy of these two styles of environmental knowledge is vital because human behavior is influenced more by actions that correlated to knowledge instead of the factual ones. Thus, in the perspective of environmental knowledge, perceived knowledge about facts

rather than knowledge about actions and abstract, becomes important for better understanding of the actual impacts on individual's behavior. (Schahn & Holzer, 1990)

This study shows a significant and positive relationship between social influences and environmental awareness. Social influence is defined as change in the opinions, emotions, attitudes, or behaviors of a person resulting from contact with another person or community (Moussaïd, Kämmer, Analytis, & Neth, 2013). This study has agreed with the concept of peers pressure on a person's behavior through communication, discussion of environmental issues and recommendations (Lee, 2009; Ryan, 2001; Valenzuela, 2011).

Meanwhile, the findings if this study shows positive and significant relationship between personal norms and environmental awareness. The findings aligned with the norm's theory and concepts of previous researches that relate the norms as personal's moral obligation and belief that shape the behavioral of a person (Schwartz, 1977; Manstead, 2000; Schultz, 2001, Nordlund & Garvill, 2003).

The finding of this study shows that is a positive and significant relationship between media exposure and environmental awareness. This means, the study findings support the concept of 'people will be more educated and aware of environment if they have been exposed frequently to the media". (Jharotia, 2018; Schultz and Zelezny, 1998; Dennis & DeFleur, 1998; Lowe and Morrison, 1984, and many more).

5.4.2 Practical Implications

The discussion of practical implications is focusing on implications to organization, individual or student, and the policy makers. The details of it are explained in the following discussions.

5.4.2.1 Implications to Organization – to UUM

The findings of this study exhibit that all IVs; environmental knowledge, social influences, personal norms and media exposure; have positive and significant relationship towards environmental awareness among UUM students. Therefore, it is recommended that UUM should encourage more environmental knowledge-based programs, officially or unofficially, in its education system in order to encourage pro-environmentalism among students. Students, regardless their level of studies, must be treated as the quality product of UUM, will soon be joining many of corporate and government agencies out there as leaders, policy makers, or policy rulers upon graduation. Therefore, they need to be equipped with solid understanding and moral obligations towards preserving the best interests of environment. The introduction of eco-merit system to the resident students, eco-friendly CSR, online examinations system for students, extensive use of new media for official communication, and massive consumption of eco-friendly products are amongst of this study recommendations that can be adapted by UUM in order to go green, and educate the importance of environmental awareness among students.

5.4.2.2 Implications to Individual or Student

The findings of this study also offer guidelines to the student to enhance their level of awareness to a certain degree. This study has identified four factors that having significant relationship with the awareness level. Therefore, by adapting all four factors, student can be able to encourage their pro-environmental behaviours by getting more knowledge, setting positive moral values and norms, and start sharing and influencing their close peers and social group members via various media platform and approaches.

5.4.2.3 Implications to Policy Makers

The findings of the study will also provide useful guidelines to the policy makers such as higher education institution/ university to produce suitable graduates that equipped with a strong awareness about environment. Current students are the hope for future betterment of environment, as they may turn to be the National leaders and policy makers one day. Therefore, the right knowledge contents are critical to be applied at all level of education system, not only by the university, but also by the Government and related agencies that hold responsibility towards preserving a sustainable environment for the long run.

5.5 Limitations and Suggestions for Future Studies

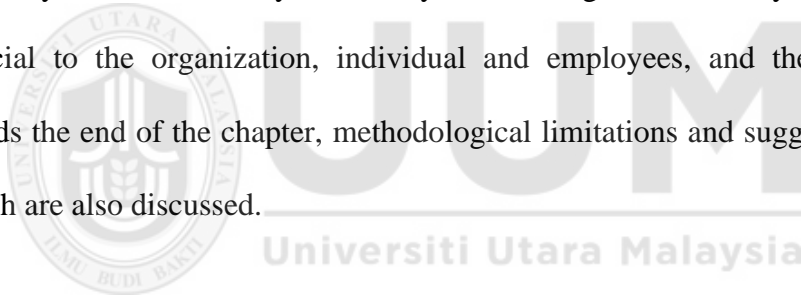
This study has several limitations that can be improved and further extent in future research related to environmental awareness among University students. The first limitation is about the sample and sampling methods of this study. The sampling has been conducted only at the undergraduate students of University Utara Malaysia. Thus, generalization of findings to all level of students is comparatively may not be accurate. This study can also be extent to a greater scope of study by extending the sampling to other universities/ higher learning institutions than UUM.

Secondly, this study is objectively organized to only test the relationship effect between independent variables (environmental knowledge, social influence, personal norms and media exposure) and dependent variable (environmental awareness), without any consideration of effect from mediating factors. This is a straight forward analysis, which can be a strong foundation for the next level of environmental study, for example, the study of relationship between attitudes, behavioral on environmental knowledge, and so on.

Overall, the findings show a positive and significant, but moderate relationship between all IVs and DV. Therefore, they might be other factors that are strongly influenced the level of awareness among UUM students. This study could be further extent to explore of different independent variables lead to the environmental awareness.

5.6 Conclusions

This chapter provides empirical discussions to all the findings corresponding to the research objectives of the study. The purpose of this research is to explore relationship between environmental knowledge, environmental social influence, environmental personal norms, environmental media exposure, environmental interest, and environmental awareness of students at the University Utara Malaysia. Findings revealed that all the variables have a moderate strength positive connection to environmental awareness. The discussion, while providing empirical and theoretical verification to the findings, also highlights the empirical and theoretical research gaps filled in by the current study. Generally, the findings of this study are hopeful to be beneficial to the organization, individual and employees, and the policy makers. Towards the end of the chapter, methodological limitations and suggestions for future research are also discussed.



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APPENDIX 1:

Questionnaires



SURVEY QUESTIONNAIRES ON FACTORS THAT LEAD TO ENVIRONMENTAL AWARENESS AMONG UNIVERSITY STUDENTS

Dear Colleagues,

You have been randomly selected to participate in my Master research survey. The main purpose of this survey is to study the relationship between Environmental Knowledge, Social Influences, Personal Norms, Media Exposure and Environmental Awareness. I would appreciate if you could spend some time to answer the questions.

There is no right or wrong answer to these questions. All the answers will be treated with strict confidence and be completely anonymous and will be used for the academic purpose only. It will take approximately 10-15 minutes.

Should you have any questions concerning this survey, feel free to contact me. Your participation will certainly make a significant to my research.

Thank you very much for your time, cooperation and effort.

Yours sincerely,

.....
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SECTION A: DEMOGRAPHIC DATA (Respondent's Profile)

Please provide answer to the following by crossing (X) one box only.

Gender

Male	
Female	

Age

18-22	
22-26	
>26	

Year of Study

1 st Year	
2 nd Year	
3 rd Year	
4 th Year	

College

COB	
COLGIS	
CAS	

Ethnicity

Malay	
Chinese	
Indian	
Others	



SECTION B: For this part, you are required to use the following scale to respond to the statements:

Strongly Disagree *Disagree* *Neutral* *Agree* *Strongly Agree*

Scale	1	2	3	4	5
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These questions related to ENVIRONMENTAL AWARENESS . For this section, you are required to take your own choice.						
No.	Questions	1	2	3	4	5
1	Environmental pollution affects my health.	1	2	3	4	5
2	Environmental problems have consequences for my life.	1	2	3	4	5
3	I worry about environmental problems.	1	2	3	4	5
4	I can see with my own eyes that environment is deteriorating.	1	2	3	4	5
5	Environmental problems are a risk for the future of my children.	1	2	3	4	5
6	Environmental problems are exaggerated.	1	2	3	4	5
7	Too much attention is paid to environmental problems.	1	2	3	4	5
8	The attention given to the greenhouse effect is exaggerated.	1	2	3	4	5
9	Saving threatened species in unnecessary luxury.	1	2	3	4	5
10	A better environment starts with me.	1	2	3	4	5
11	People who do not take the environment into account try to escape their responsibility.	1	2	3	4	5

SECTION C: For this part, you are required to use the following scale to respond to the statements:

	<i>Strongly</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly</i>
	<i>Disagree</i>				<i>Agree</i>
Scale	1	2	3	4	5

These questions related to ENVIRONMENTAL KNOWLEDGE . For this section, you are required to take your own choice.						
No.	Questions	1	2	3	4	5
1	I know I buy products and packages that are environmentally safe.	1	2	3	4	5
2	I know more about recycling than the average person.	1	2	3	4	5
3	I know how to select products and packages that reduce the amount of waste ending up in landfills.	1	2	3	4	5
4	I understand the environmental phrases and symbols on the product.	1	2	3	4	5
5	I am very knowledgeable about environmental issues.	1	2	3	4	5

SECTION D: For this part, you are required to use the following scale to respond to the statements:

Strongly Disagree *Disagree* *Neutral* *Agree* *Strongly Agree*

Scale	1	2	3	4	5
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These questions related to ENVIRONMENTAL SOCIAL INFLUENCE . For this section, you are required to take your own choice.						
No.	Questions	1	2	3	4	5
1	Often my classmates recommend products that respect the environment.	1	2	3	4	5
2	Often my classmates argue with me about environmental issues.	1	2	3	4	5
3	My lecturers often argue in class about environmental issues.	1	2	3	4	5
4	I have learned from my lecturers about environmental problems.	1	2	3	4	5
5	I have learned from my colleagues about environmental problems.	1	2	3	4	5

SECTION E: For this part, you are required to use the following scale to respond to the statements:

Strongly Disagree Disagree Neutral Agree Strongly Agree

Scale	1	2	3	4	5
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<p>These questions related to ENVIRONMENTAL PERSONAL NORMS For this section, you are required to take your own choice.</p>						
No.	Questions	1	2	3	4	5
1	I feel that improving environment helped future generations.	1	2	3	4	5
2	He should do everything possible to conserve natural resources.	1	2	3	4	5
3	I am committed to the responsible use of energy.	1	2	3	4	5
4	I feel the obligation to save energy when possible.	1	2	3	4	5

SECTION F: For this part, you are required to use the following scale to respond to the statements:

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
<i>Scale</i>	1	2	3	4	5

These questions related to ENVIRONMENTAL MEDIA EXPOSURE For this section, you are required to take your own choice.						
No.	Questions	1	2	3	4	5
1	I always come across environment-related topics/issues on TV.	1	2	3	4	5
2	I always come across environmental messages on advertisements.	1	2	3	4	5
3	I always come across environment-related topics/issues in radio.	1	2	3	4	5
4	I always come across environment-related topics/issues on the Internet.	1	2	3	4	5

END OF SURVEY

APPENDIX 2

Global EPI indicators

EPI	Objective	Issue Category	Indicator
Environmental Performance Index (EPI)	Environmental health (40%)	Health Impacts (33%)	Environmental Risk Exposure (100%)
		Air quality (33%)	Household Air Quality (30%)
			Air pollution - Average Exposure to PM2.5 (30%)
			Air pollution - PM2.5 Exceedance (30%)
			Air pollution - Average Exposure to NO2 (10%)
		Water and sanitation (33%)	Unsafe Sanitation (50%)
	Drinking Water Quality (50%)		
	Ecosystem vitality (60%)	Water resources (25%)	Wastewater treatment (100%)
		Agriculture (10%)	Nitrogen use efficiency (75%)
			Nitrogen balance (25%)
		Forests (10%)	Change in forest cover (100%)
		Fisheries (5%)	Fish stocks (100%)
		Biodiversity and habitat (25%)	Terrestrial Protected Areas (National Biome Weights) (20%)
			Terrestrial protected areas (Global Biome Weights) (20%)
			Marine protected areas (20%)
			Species protection (National) (20%)
Climate and energy (25%)		Species protection (Global) (20%)	
	Trend in carbon intensity (75%)		
	Trend in CO2 emissions per kWh (25%)		