UNIVERSITAS AIRLANGGA
Excellence with Morality

UNIVERSITI TEKNOLOGI MARA
Cawangan Kedah
Kampus Sungai Petani

BOOK OF EXTENDED ABSTRACTS

iVCPPS 2021

1ST INTERNATIONAL VIRTUAL CONFERENCE ON PUBLIC POLICY AND SOCIAL SCIENCE

iVCPPS 2021:

REGIONAL ISSUES IN PUBLIC POLICY AND SOCIAL SCIENCE DURING COVID 19 PANDEMIC

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FACULTY OF ADMINISTRATIVE SCIENCE AND POLICY STUDIES, UITM KEDAH
&
FAKULTAS ILMU SOSIAL DAN ILMU POLITIK UNIVERSITI OF AIRLANGGA (UNAIR)

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LIST OF PAPER iVCPPS 2021

ANTECEDENTS OF THE UNIVERSITY STUDENTS' INTENTION TO PRACTISE E-WASTE RECYCLING

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EXTENDED ABSTRACT

INTRODUCTION

Electronic waste or simply known as e-waste has been a global crisis even before the Coronavirus disease (COVID-19) hit, and the number of e-waste have been rising sharply due to the outbreak. This is due to the fact that, during the pandemic, most of the education systems worldwide have switched to a new method of fully online learning. Therefore, every student needs to utilize the electronic devices and gadget to engage with the new method of learning. Hence, the amount of e-waste generated will be rising more rapidly than usual as there is massive usage of the gadgets and electronic devices during the pandemic.

The e-waste disposal management in other countries is varied whereby it is properly recycled or improperly disposed. For example, some of the countries are exporting or dumping their e-waste to other countries such as in Nigeria and Ghana, Africa in which about 4 Million tons of waste are dumped illegally in landfills (Sivaraman, 2013) Moreover, Guiyu City in China, India and Philippines are also practising improper e-waste disposal by burning them. Moreover, some studies also pointed that, in the United States only some e-wastes were recycled properly, and the rest were shipped to Hong Kong, Latin America and the Caribbean (Vidal, 2013). Other studies also found that there is still a high quantity of e-waste managed under improper methods by informal collectors in several nations, especially in Asia and Africa, such as China, Bangladesh, India, Thailand, Vietnam, Nigeria, and Ghana (Shamim, 2015).

In Malaysia, e-waste also has become significant waste that is growing rapidly. A data published by StEP (Solving the E-waste Problem) organization stated that the amount of e-waste generated in Malaysia alone was 232,000 metric ton in 2014 and thereof it could lead to high possibility of e-waste generation in the future by 2020 onwards. In 2012, the total e-waste generated in Malaysia was approximately 10 to 15% of the total generated scheduled waste, and its value is forecasted to rise when the proper collection of household e-waste is fully enforced. (Fatihah Suja et al., 2014). A study also shows that Malaysians still lack awareness about e-waste recycling. Kalana (2010) stated that e-waste management in Malaysia has become less effective since 2010. Plus, Malaysia is still lacking e-waste systematic recycling management for the transport and disposal method as well as law enforcement (Nnorom &

Osibanjo, 2008). Consequently, a few initiatives and implementation must be developed by the government as a measure to reduce improper e-waste recycling.

PURPOSE AND BACKGROUND

Due to massive usage of electronic devices and gadgets during the pandemic, it is vital to evaluate to what extent the students are aware about the importance of e-waste recycling since they are equipped with those devices.

Pertaining to the above-mentioned issue, this study was driven by several objectives. This study examined the level of students' intention to practise e-waste recycling and the correlations between its antecedents. This study also set out to examine their perceptions towards the importance of proper disposal and environmental awareness. The methodology, discussion, and conclusion are presented below.

Ajzen (1991) stated that the intention of a person to carry out the desired behaviour will rely on his attitudes towards the behaviour itself. Having the intention to practise e-waste recycling will be the first main step in order to act accordingly. A person's attitude towards the desired behaviour is constituted by his knowledge, understanding, conception and experience about the behaviour. It is related to the attitude-intention approach which is supported by the survey done by Chen et al (2010) and Ghani et al (2013) with significant evidence of positive relationship between intention and attitude to recycle and practise waste separation at home respectively.

In general, perceived benefit means the perception of the positive consequences that are caused by a specific action (Leung, 2013). Several studies shown that financial incentives in recycling play major roles in influencing the behavioural intention of the individual (Thogersen, 2003; Hage et al., 2008). Other researchers have found that households in a few countries such as Bangladesh and India, refuse to practise e-waste recycling because it does not give them any benefit (Islam, 2016). Another study also suggested that giving rewards is an effective way to promote waste recycling in Hong Kong (Yau, 2010). Subsequently, the following hypothesis was formed.

H1: Perceived benefits have a positive correlation with the intention to practise e-waste recycling.

Generally, perceived convenience is closely related with the availability of time and space as well as easiness for the individual which would determine the intention or willingness of the individual to do the act and perceive it as a good act to perform (Wan et al., 2012). Previous studies have found that perceived convenience has a significant positive impact on the intention of e-waste recycling (Shaharudin et al., 2020). The e-waste disposal depends on external conditions and it has strong impact as proposed by Hage et al., (2008) stated that inconvenience of recycling facilities can reduce the intention of the person to recycle even though there are positive attitudes and awareness. Wang et al. (2011) also reported that, perceived convenience is a strong determinant of the intention to practise e-waste recycling in Beijing. Barr et al. (2013) also found that the low participation in recycling resulted from the inconvenience caused by external conditions such as recycling facilities, accessibility, and others. In this context, perceived convenience represents the external factors that hinders or facilitates the intention of the students to perform e-waste recycling. Thus, the following hypothesis was formed.

H2: Perceived convenience has a positive correlation with the intention to practise e-waste recycling.

Next determinant is environmental awareness. Awareness is the ability to know and perceive, feel or be aware of events directly. It is described as a state in which some information is known to a subject when that information is directly available to bear in the direction of a wide range of behavioral processes (Chalmers, 1996). Also, a study in China by Huang et al. (2006) discovered that 64% of respondents who were aware of environmental labelling will likely have the intention to separate the waste according to the labelled waste container. Sivathanu (2016) in his study found out that consumers' awareness has been proved to have a direct relationship with the willingness of e-waste recycling. Therefore, the following hypothesis was formed.

H3: Environmental awareness has a positive correlation with the intention to practise e-waste recycling.

Perceived policy is defined by Wan et al. (2015) as the belief held by a certain individual towards the government's or other authorities' capability to conduct such elements of a policy. A study by Nguyen (2019) stated that enforcement of legislation is crucial in order to enable the society to practise e-waste recycling in Vietnam. Yu et al. (2014) showed that the laws and regulations had a positive impact on the intentions of residents in China to practise e-waste recycling. Wang et al. (2016) stated that promulgation and public spread of the laws and regulations would lead to higher intention to practise e-waste recycling in China. A recent study on waste management conducted by Chen and Jiwon Lee (2020) concluded that behavioural control is a significant determinant of recycling intention of an individual whereby the policy effectiveness will lead to higher intention to practise e-waste recycling. Thus, the following hypothesis was formed.

H4: Perceived policy effectiveness has a positive correlation with the intention to practise e-waste recycling.

According to Ajzen (1991), the subjective norm is the perception of an individual against the social pressure perceived whether a certain behaviour is right or wrong and it is the social factor determinant of behavioural intention to engage in certain actions or behaviour (Ajzen & Fishbein 2005). A few studies reported that the subjective norms have a significant impact on the behavioural intention in recycling (Tonglet et al., 2004; Xu et al., 2017). A study by Chan, (1998) found that subjective norms have positive impacts on the behavioural intention to practise e-waste recycling in Hong Kong. Thus, the following hypothesis was formed.

H5: Perceived norms have a positive correlation with the intention to practise e-waste recycling.

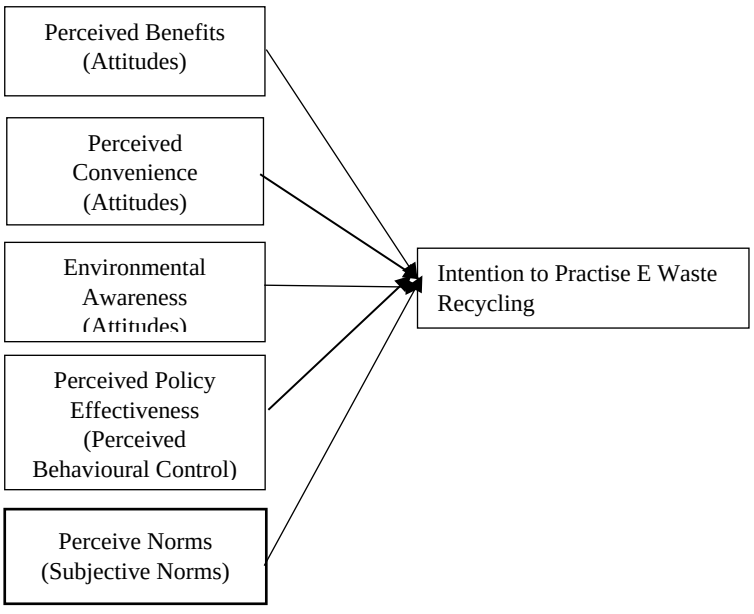

Figure 1: Conceptual Framework

METHODOLOGY

A study was undertaken using quantitative methods with a questionnaire survey as a means of collecting data. The purpose for this study was to examine the level of students' intention to practise e waste recycling and the correlations between its antecedents (perceived benefits, perceived convenience, perceived norms, perceived policy effectiveness and their environmental awareness).

The items were adapted and modified from previous study done by Wang, Guo & Wang (2016), Nduneseokwu et al (2017) & Shaharudin et al (2020). This included the questions of intention to practise e-waste recycling, perceived benefits, perceived convenience, perceived norms, perceived policy effectiveness and their environmental awareness. All of these questions use the 5-points-Likert scale ranging *1 Strongly disagree* to *5 Strongly agree*. The questionnaire also required the respondents to state their gender, faculty, year of study, level of study in UiTM Kedah and their place of residence. The gathered data were then analysed using descriptive and correlation analysis.

FINDINGS/RESULTS

The survey conducted has received 100 responses from UiTM Kedah students on the antecedents to their intention to practice e-waste recycling. It also studied on their demographic profile as follows. In terms of their gender, the data was distributed between 69% female and 31% male. The questionnaire was distributed to as many faculties as possible and respondents from the Faculty of Administrative Science and Policy Studies (FSPPP) 51% and non FSPPP with 49%. In terms of their year of study, respondents were from first, second and third year with 31%, 36% and 33% respectively. Most of these respondents are pursuing their degree with 53% while diploma level students made up 47%. For their place of residence, most respondents come from urban areas compared to rural areas with 58% and 42% respectively.

Table 1: *Experience with e-waste recycling*

Description	Frequency	Percentage
Proper disposal behaviour		
Practised e-waste recycling before		
Yes	38	38%
No	62	62%
Importance of pickup e-waste		
Not important	-	-
Less important	2	2%
Neutral	14	14%
Important	44	44%
Very important	40	40%
Importance of free recycling		
Not important	-	-
Less important	-	-
Neutral	16	16%
Important	32	32%
Very important	52	52%
Importance of distance to facility		
Not important	1	1%
Less important	-	-
Neutral	22	22%
Important	30	30%
Very important	47	47%
Importance of knowledge e-waste recycling		
Not important	-	-
Less important	1	1%
Neutral	13	13%

Important	37	37%
Very important	49	49%
Importance of incentives		
Not important	-	-
Less important	2	2%
Neutral	22	22%
Important	34	34%
Very important	42	42%

Based on Table 1, the respondents also were asked for their experience with practising e-waste and most of them had never practised e-waste recycling (62%) while only 38% had practised e-waste recycling. To understand their proper disposal behaviour, the respondents were questioned about the various importance related to e-waste that they might consider in performing e-waste recycling which included the importance of pickup e-waste with 44% agreed that it is *important* while for the importance of free recycling, distance to facility, knowledge of e-waste recycling, and importance of incentives52%, 47%, 49% and 42% agreed they were *very important* respectively.

Descriptive and the Correlational Analysis of the Study Variables

Table 2 explains the Cronbach alpha values respectively. Cronbach alpha was employed to determine reliability. As the values are between 0.757 and 0.896, the high reliability of each construct is indicated. Table 2 illustrates the level of students' intention to practice e-waste recycling and all the antecedents: perceived benefits (attitude), perceived convenience, environmental awareness (attitude), perceived policy effectiveness (behaviour control) and perceived norms (subjective norms). Based on the reported result it showed that most students were found to have moderate level of intention to practise e-waste recycling M (M= 3.9, SD= 2.94).

Table 2: *Summary of Mean(M), Standard Deviation (SD) and Correlational Between the Study Variables*

No.	Variable(s)	M	SD	Cronbach's Alpha	1
1	Intention to practise e-waste recycling	3.9	3.30	.894	-
2	PB	4.22	3.08	.896	**.785****
3	PC	3.34	2.88	.757	**.140**
4	PN	3.65	2.48	.759	**.342****
5	PPE	3.94	3.17	.815	**.259****
6	EA	4.18	1.92	.850	**.468****

Furthermore, Table 2 displays the results from Pearson Correlation analysis between the study variables. The researchers used the guidelines provided by Cohen (1998) in explaining the relationship between the study's variables by interpreting the coefficient values between the variables as shown in Table 2. The guidelines can also be used in explaining the relationship's strength between both independent and dependent variables. It was found that perceived benefits (PB), environmental awareness (EA), perceived policy effectiveness (PPE) and perceived norms (PN) were significantly related to the level of intention to practise e-waste recycling **(r=.785, p<0.05**; **r=.342, p<0.05; r=259, p<0.05; r=468, p<0.05** respectively). However, perceived convenience (PC) was not correlated significantly with the level of intention to practise e-waste recycling which equal to 140, p>0.05. Therefore, it can be concluded that this

study's second objective was achieved with all its developed hypotheses except PC were supported.

DISCUSSION

Firstly, based on the results, it is shown that most of the university's students had a moderate level of intention to practise e-waste recycling. Based on other study's findings, most of the respondents also had average level of intention to practise e-waste recycling. This finding is in line with the recent reported study by Shaharudin et al. (2020) among youth in Putrajaya where respondents similarly had average level of intention to dispose e-waste. However, these current results are not in line with the findings in Jakarta which reported by Siringgo et al. (2019) that found the e-waste recycling habits are still minimal and in the low participation rate.

Secondly, results revealed that there was association between the perceived benefits and students' intention to practise e-waste recycling. The public often realized that any recycling efforts have benefits to them and the environment. A study by Dhir et al. (2020) on personal and environmental benefits has shown that it does motivate people to have a favourable attitude towards e-waste recycling and engage in the desired behaviour. This is supported by Wang et al. (2019) where they stated that associated health and environmental benefits can trigger positive attitude and user intentions. As the e-wastes contain hazardous materials which caused harm to humans, the environment and population, the public might behave in the desired way and not just merely having the intention to perform e-waste recycling.

Next, based on the results, there was no correlation between perceived convenience with the intention to practise e-waste recycling. In the study by Kochan et al. (2016), they reported that improving the convenience of recycling will positively affect people's behavioural intention. In order to persuade the public to practise e-waste recycling, the collection points should be spread out near to the community and across states. This is supported by Wang et al. (2011) who suggested that the perceived convenience shall be on the facilities and services provided by the authorities to manage and recover the waste.

Besides, the findings showed that the environmental awareness was associated with the students' intention to perform e-waste recycling. This present finding was in line with the study by Sivathanu (2016) who found that consumers' awareness has been proved to have a direct relationship with the willingness to carry out e-waste recycling. The most probable explanation is that most of the respondents agreed with the environmental values that e-waste recycling possess if it is done in a proper way. Respondents were aware that e-waste recycling can reduce the greenhouse gasses, can be a new resource and should be separated from other wastes. By having them to agree on these environmental values, it is enough to conclude that the respondents have environmental awareness regarding their action towards the surrounding condition.

Furthermore, results showed that there was a positive association between perceived policy effectiveness with the intention to practise e-waste recycling. The effectiveness of any policy relies on the public's reaction towards the policy itself. Therefore, the policies implemented should be user-friendly and spread widely in the community to ensure participation. Environment assessment is defined by Echegaray et al. (2017) as a consumer's perception of the change in e-waste management situation during the last ten years. They also mentioned the potential influence of environmental situation on the strength association between antecedents and intention to perform e-waste recycling.

Lastly, the results also showed that there was a relationship between perceived norm and the intention of performing e-waste recycling. Factors such as university, environmental groups, and community were found to have a relationship with the respondents' attitude to practise e-waste. Being able to live in a community that stressed on good behaviour such as practising e-waste recycling can help nurture the correct attitude of respondents to react according to the desired behaviour.

CONCLUSION

In this present study, results showed that most of the students' intention to practise e-waste recycling was reported to be at the average level. Results revealed that most of the students' intentions to practise e-waste recycling were correlated with the perceived benefits, perceived norms, perceived policy effectiveness and environmental awareness rather than the perceived convenience. Nevertheless, in this study, it was found out that perceived convenience was unrelated to the students' intentions to practise e-waste recycling.

Consequently, the results of this study indicate the measures that can be taken to raise the awareness among university's students are through the initiatives on e-waste recycling programs that could increase their knowledge about e-waste, exposure on the method to manage e-waste properly, hazardous effects of e-waste as well as raise the environmental awareness of the students. The other significant initiatives that can be implemented to increase the participation in proper e-waste disposal among the university's students is by providing facilities such as e-waste drop-off bins near the campus. Thus, these initiatives will help to enhance their intention to practise e-waste disposal which could cultivate the behaviour of proper e-waste recycling. As the Covid-19 pandemic is taking place and is increasing the electronic usage, we hope that one day e-waste recycling can become a normal norm of the community as the youth have been given awareness to have the intention to perform it.

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