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Household Sustainable Consumption Intention

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Abstract: Household consumption could hurt the environment. What we collectively choose and consume on a day-to-day basis determines what's left for future generations. As household consumption is one of the largest activities in an economy, sustainable consumption is an important key to achieving sustainability goals. Improvement in the role of individual citizens in society, concerning sustainability is vital for a better future in all aspects of the environment, society and economy. The purpose of this article is to examine how education, sustainable awareness and attitude, as well as social influence impact the intention to consume sustainably among households. The method used is quantitative where cross-sectional data was collected through an online self-administered questionnaire in which a convenience sampling method was applied to 151 respondents. The data was analyzed using partial least square structural equation modeling (PLS-SEM) by utilizing SmartPLS3 software. The findings suggest that social influence and sustainable awareness and attitude had a significant influence on the intention toward sustainable consumption among households. Education however was found to be insignificant and not sufficient as the predictor in this study. Implications for policymakers and the directions of future research are proposed.

Keywords: *Household, Sustainable Consumption, Intention, Sustainable Attitude, Awareness, Education.*

1. Introduction and Background

Household consumption of goods and services is routine as it is necessary to meet our everyday needs and wants. It plays an even bigger role as one of the biggest elements that keep the economy running. However, what we choose and how we make decisions on what to consume daily may negatively affect the environment in many ways. It could emanate from household waste generation, food choices, clothing choices, transportation choices, and energy and water consumption. As such, sustainability consumption is becoming one of the major keys to achieving sustainability goals. If the issues are not managed properly today, it may lead to more serious consequences in the future. The data on the amount of solid domestic waste in Malaysia as released by SWCorp, still indicate an increasing trend from 36, 843 tons in the year 2018 to 39, and 936 tons in 2022 (NST, 2022). Thus, there is a need for change in the way we think, choose and consume. To achieve sustainability goals, everybody in society must consume sustainably and be responsible for the consumption choices they make.

The term sustainable consumption started from Kongress Oslo in 1994 (Shao, Taisch & Ortega-Mier, 2017) and the idea continued to be strongly upheld by the United Nations as they defined sustainable consumption as "the use of services and related products that respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials, as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations (United Nation, 2023). Therefore, the term 'sustainable consumption' could be simplified and understood as any household behaviors and actions that fulfill the needs of the current generation without jeopardizing the needs of future generations or the environment. Sustainability consumption is not only limited to the behavior of purchasing environmentally-friendly products (Fedrigo & Hontelez, 2010) but it has wider issues including lifestyle changes in society (Biswas & Roy, 2005), minimizing waste generation, enhancing resource efficiency and encouraging the use of renewable sources (Wang, Liu & Qi, 2014). In Malaysia, the concept of sustainable consumption among households was first promoted in the year 2003 through the Malaysia Consumer Master Plan 2003-2013 (Zen et al., 2020).

It was then strengthened through The National Sustainability Consumption and Production Blueprint 2016-2030 (EPU, 2016). A vast number of studies on sustainability consumption are rooted in Western countries which may mislead our policymakers to assume that our society is having the same behaviors. Even though studies on sustainability consumption in Malaysia are growing, they cover various aspects from green

product purchase behaviour to the role of the government. While some of the research on determinants yields mixed findings. Therefore, this paper adds to the literature by using current data to explore the determinants of sustainability consumption among households. As the role of individual citizens in society concerning sustainability is vital to be improved for future generations it is thus important to identify the factors. The findings could assist policymakers in planning programs to help households make better-informed choices and consume more sustainably. This paper examines the variables of education, sustainable awareness and attitude as well as social influence in investigating their effect on household sustainable consumption intention.

2. Literature Review

Underpinning Theory: According to the theory of reasoned action (Fishbein and Ajzen, 1975), an individual's intention to engage in a particular behavior is formed by their attitude towards the behavior and the subjective norm (their beliefs about what they should do and how important other people's opinions are to them), and this intention then tends to perform the behavior. Social psychologists believe that the key to understanding a person's behavior is their attitude (Kumar et al., 2023). However, it is a difficult effort to understand the relationship between attitude and behavior. Extensive literature has indicated that researchers assume attitude is the primary factor affecting behavior. Attitude is useful to understand and predict consumer behavior toward a particular product or service (Fishbein and Ajzen, 1975). However, the literature reported mixed results on attitude–behavior relationships. Consumer behavior is defined as "the process and activities that people engage in when searching for, selecting, purchasing, using, evaluating and disposing of products and services, to satisfy their needs and desires (Belch & Belch, 1993, p. 115)". Attitude is defined as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor and disfavor (Eagly & Chaiken, 1993, p. 1)". Education is important to underline the value of environmental awareness which can encourage sustainable behavior (Hanifah et al., 2016; Hanifah et al., 2017). Education is crucial in promoting moral competencies to solve issues relating to society and the environment (Valor et al., 2020).

Education and Sustainable Consumption: Implementation of strategies to achieve sustainable consumption must include education. According to Zenelaj (2013), education is the first step to building an understanding of sustainability, as learning enhances the transition toward the goal (Wals & Kieft, 2010). Through education, society receives adequate information and knowledge to develop a sense of responsibility. Knowledge of sustainability helps society to understand the impact of their actions on the environment, whether positively or negatively (Zenelaj, 2013). This will then facilitate an evaluation of lifestyle choices that would enable households to consume more sustainably. Gombert-Courvoisier et al. (2014) stressed the importance of having Higher Education for Sustainable Consumption (HESC) to create awareness of how consumption impacts the environment and society and to promote a sense of individual and collective responsibility. Through HESC students will be trained to have the capability to propose and implement solutions to ecological problems associated with the changing modes of consumption. Zenelaj (2013) suggested educating & instilling a sense of responsibility toward sustainable consumption as early as childhood.

She believed school levels are the best initial place to introduce good theoretical knowledge before moving up to higher education levels such as university education. She also suggested including practical training in the education of sustainable consumption and not simply teaching theoretical and conceptual knowledge. Merely understanding the concept will not help to change the habit or the way we consume unless they are applied in everyday life. Research by Geng, Liu and Zhu (2017) on the role of sustainable consumption understanding revealed that understanding is necessary to motivate sustainable consumption behaviors. They found that Chinese adolescents can understand the sustainable consumption concept through education and this influences the purchase of sustainable products. Chekima et al. (2016) however, found environmental knowledge to be insignificant to sustainable consumption in Malaysia. The result contradicted Ahamad and Ariffin (2018) who stated that knowledge is significantly related to sustainability consumption. Thus, the following hypothesis is proposed:
H1: Education is positively related to sustainable consumption intention.

Sustainable Awareness and Attitude and Sustainable Consumption: Attitudes are considered one of the most fundamental drivers of human behavior since they determine which stimuli a person approaches or avoids (Sweldens et al., 2014) and to build a certain attitude, one needs to be mindful or aware. Hutton and Baumeister (1992) state that self-awareness appears to make the person aware of his or her attitude. According to Geng, Liu and Zhu (2017), environmental awareness and attitude can lead to environmental treatment and disposal of products, however, understanding the sustainability concept is necessary. Wamsler and Brink (2018) identified a linkage between mindfulness and sustainability where they found that being aware or mindful motivates the adaptation actions (attitude and practice) towards sustainability and supports pro-environmental behavior. Bernal, Edgar and Burnes (2018) suggested that organizations wishing to excel in sustainability, need to be conscious of their values and be self-critical enough to see where it is necessary to make a change that leads to building real values of commitment to society and environment. This is also supported by Daniel, Gentina and Kaur (2023) who found that awareness supports a sustainability attitude in which mindfulness positively affects green purchase intentions and is significantly mediated by self-ethical identity. The results are similar in Malaysian society where Ahamad and Ariffin (2018), Al Mamun et al. (2018), Mohamad Azizan and Mohd Suki (2014) also found a significant relationship between attitude and sustainable consumption. Thus, this study proposes the following hypothesis:
H2: Sustainable awareness and attitude are positively related to sustainable consumption intention**.**

Social Influence and Sustainable Consumption: Social influence on sustainable consumption is another important aspect studied by researchers. A person or a group's opinion is believed to influence another's opinions, attitudes, emotions, or behavior (Goldsmith, 2015). Using a large sample of more than 3,000 households to investigate the role of peer pressure in determining sustainable consumption, Lazaric et al. (2020) found sustainable behavior from peers complements changing environmental values and stimulates pro-environmental behavior. They further stressed that the ability to learn in small networks is crucial to promote sustainable consumption behavior, especially in building trust and exchange of ideas and practices. Salazar et al. (2013) studied the social influence from peer groups (colleagues, family and friends) to see how it influences the decision to choose environmentally friendly products and the findings confirmed the positive effects of peer or social influence. They also tested different types of social influence ('herd behavior' vs. 'social learning') and they found clear evidence for 'herd behavior' and the data indirectly supports the presence of 'social learning' effects. The result is somehow contradicted by Rian et al. (2021) who found in Malaysia, sustainable consumption is not directly affected by social value. Thus, the following hypothesis is posited:
H3: Social influence is positively related to sustainable consumption intention.

3. Research Methodology

This is a cross-sectional study conducted through an online self-administered questionnaire with a convenience sampling method. The questionnaire comprises 18 items that consist of two parts: (1) demographic characteristics of households, and (2) factors influencing sustainable consumption intention. All measurement items were measured using a 5-point Likert scale ranging from 1=strongly disagree to 5=strongly agree. A total sample of 151 complete questionnaires was collected in Klang Valley, Selangor areas. This sample size exceeds the minimum sample size required of 119 as calculated using the GPower software with an effect size of 0.15 and power analysis of 0.95. An analysis of the demographic characteristics of the respondents is shown in Table 1 below. A majority of the respondents are between the ages of 21 to 23 years old (52.98%) while 77.48% of the respondents hold an undergraduate degree (diploma or bachelor's degree) as their highest academic qualification.

Table 1: Demographic Characteristics

VARIABLE	FREQUENCY	PERCENT (%)
Gender		
Male	73	48.34
Female	78	52.66
Age		

18 – 20 years old	24	15.89
21 – 23 years old	80	52.98
24 – 26 years old	26	17.22
27 – 30 years old	21	13.91
Ethnic		
Malay	111	73.51
Chinese	24	15.89
Indian	16	10.6
Academic qualification		
SPM or below	30	19.87
Diploma	54	35.76
Bachelor Degree	63	41.72
Postgraduate	3	2.65
Occupation		
Executive	24	15.89
Non-executive	32	21.19
Unemployed	13	8.61
Students	82	52.32

Partial least square structural equation modeling (PLS-SEM) was used to analyze the data by using SmartPLS3 software (Ringle et al. 2022). PLS-SEM is a two-step process analysis that includes a measurement model and a structural model. The measurement model comprises convergent and discriminant validity, while the structural model is a path analysis. The normality test was tested using the WebPower statistical power analysis online tool. The Mardia's multivariate skewness and kurtosis results showed that the data are multivariate non-normal since the p-values are less than 0.05.

4. Results

This section presents the results of the data analysis using the measurement model and structural model.

Measurement Model: The convergent validity and discriminant validity were assessed by the measurement model. The results of convergent validity including item loadings, composite reliability (CR) and average variance extracted (AVE) of the variables are shown in Table 2. The values of factor loadings greater than 0.5, CR more than 0.7 and AVE exceeds 0.5 fulfill the requirements as suggested by Hair et al. (2017).

Table 2: Descriptive Statistics

Variable	Item	Loadings	CR	AVE
Education	ED1	0.852	0.874	0.699
	ED2	0.859		
	ED3	0.796		
Sustainable awareness and attitude	SA1	0.764	0.804	0.577
	SA3	0.747		
	SA4	0.768		
Social Influence	SI1	0.799	0.829	0.621
	SI2	0.895		
	SI3	0.651		

Sustainable consumption behaviors	PSC1	0.731	0.886	0.527
	PSC2	0.801		
	PSC3	0.702		
	PSC4	0.726		
	PSC5	0.670		
	PSC6	0.659		
	PSC7	0.778		

The discriminant validity was evaluated using the heterotrait-monotrait ratio (HTMT) as recommended by Henseler et al. (2015). The results of the HTMT ratio values in Table 3 showed that all variables were less than 0.85 indicating discriminant validity is confirmed (Kline, 2011).

Table 3: HTMT Ratio

	ED	PSC	SA	SI
ED				
PSC	0.445			
SA	0.778	0.534		
SI	0.606	0.565	0.786	

Structural Model: After assessing the validity and reliability under the measurement model, the hypotheses testing on the variables of the model were tested using the bootstrapping procedure of 5000 re-samples (Hair et al., 2017) to produce the results of the path of coefficients that includes beta coefficients, t-value, p-values and confidence intervals. The results of the path coefficients for all hypotheses of this study are presented in Table 4.

Table 4: Hypothesis Testing

Hypotheses Relationship	Std beta	Std error	t value	p-value	BCI LL	BCI UL	f^2
H1: ED -> PSC	0.156	0.096	1.623	0.053	-0.007	0.319	0.022
H2: SA -> PSC	0.164	0.097	1.688	0.046	0.010	0.331	0.021
H3: SI -> PSC	0.315	0.09	3.501	0.000	0.126	0.432	0.089

(*p<0.05; **p<0.01).

As shown in Table 4, sustainable awareness and attitude (β=0.164,p<0.05) and social influence (β=0.315,p<0.01) had a positive significant effect on sustainable consumption indicating H2 and H3 were supported. The f^2 values of 0.021 and 0.089 indicated a small effect of sustainable awareness and attitude and social influence on sustainable consumption. While education (β=0.156,p>0.05) did not have a significant effect on sustainable consumption. The R^2 value of 0.284 indicated that 28.4% of the variation in sustainable consumption was explained by education, sustainable awareness attitude and social influence. The predictive relevance was tested using the PLS Predict procedure as recommended by Shmueli et al. (2019) and the results are shown in Table 5. The difference of the roost mean squared error (RMSE) values for endogenous variables between PLS-SEM and naïve LM were negative indicating the model has high predictive power.

Table 5: PLS Predict Assessment

	PLS-SEM		LM	PLS-SEM-LM
	Q^2 predict	RMSE	RMSE	RMSE
PSC2	0.16	0.943	0.964	-0.021
PSC3	0.049	0.971	0.985	-0.014
PSC7	0.245	0.868	0.882	-0.014

PSC1	0.164	0.822	0.836	-0.014
PSC4	0.036	0.994	1.028	-0.034
PSC5	0.012	0.948	0.966	-0.018
PSC6	0.077	1.005	1.058	-0.053

5. Discussion and Conclusion

Sustainability is an important worldwide agenda initiated by the United Nations to ensure better well-being of future generations in the aspects of environment, society and economy. How we collectively and massively consume today determines what is left for the future. Thus, the agenda of sustainability consumption is vital. This study analyses the intention of households towards sustainable consumption where three influencing variables were examined; education, sustainable awareness and attitude, and social influence. The result of this study provides useful information to policymakers and future research. The findings of this study suggested that social influence and sustainable attitude and awareness had a significant impact on the household's intention to consume sustainably. Both H2 and H3 were supported. This is in line with the findings from previous literature (Lazaric et al., 2020; Salazar et al., 2013; Daniel, Gentina & Kaur, 2023; Wamsler & Brink 2018; Bernal, Edgar & Burnes, 2018). Education however was found to be insignificant and not sufficient as a predictor in this study. The result contradicts most literature in predicting the behavior towards sustainable consumption. However, it is similar to Jaishwal and Singh (2018) and Chekima et al. (2016) who also found that environmental knowledge was insignificantly related to sustainability.

Consumption with a focus on the attitude towards purchase intention of green products behavior. The News Straits Times (2019) reported that the gap between knowledge and environmental issues among Malaysians still exists. Haron, Paim and Yahaya (2005) found a low level of environmental knowledge among households in Selangor which reflected their lower level of environmental education. Although there have been efforts and programs made by the government to educate our society, the emphasis on environmental and sustainability education might still be insufficient. More information dissemination and programs to impart knowledge are needed. Aminrad et al. (2012) proposed that the government should invest more in sustainability education. The integration of the subject matter in Malaysia's education system must start as early as possible, not only formally but also informally. The emphasis on practical activities alongside the theory must be taken into consideration to improve the attitude and awareness of sustainability consumption. Aminrad et al. (2013) stressed that practical programs where students implement and learn the theory simultaneously are more beneficial and an effective strategy rather than integrating it into formal syllabus in education systems.

As a social influence, sustainable awareness and attitude were significantly associated with consuming sustainably, the use of social media platforms as a tool should be optimized by the authority to tap the current generation who are mostly social media literate. More programs and policies that focus on promoting environmental awareness which highlights the advantages of sustainable consumption should be carried out. Collaboration programs with more hands-on activities are also recommended especially with pro-environment implementers and NGOs. These programs are expected to improve sustainability literacy and attitudes among households in Malaysia. Nevertheless, the variables studied were found to have low explanatory power to overall sustainable consumption intention, which suggests further research where more variables should be examined such as environmental concern and sensitivity (Jaiswal & Singh, 2018; Prastiwi & Rabia, 2019) and neighborhood and cultural values (Moroke et al., 2019; Chekima et al., 2016). In addition, a bigger sample size with more diverse household respondents is also recommended for future research to achieve a more detailed study.

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