

Accountable Behavior towards Sustainable Development: The Role of Knowledge and Attitude of University Graduates

Norlaila Md Zin¹, Eley Suzana Kasim^{1,2*}, Nur 'Iishah Mohamed Azmi³,
Ahmed Abdullah Saad Al-Dhubaibi⁴ and Nurazilah Zainal⁵

¹Faculty of Accountancy, Universiti Teknologi MARA Kampus Seremban,
Negeri Sembilan, Malaysia

²Accounting Research Institute (HICoE),
Universiti Teknologi MARA Shah Alam, Malaysia

³Universiti Kuala Lumpur

⁴College of Business Administration, Prince Sattam bin Abdulaziz University, Saudi Arabia

⁵Faculty of Business and Management, Universiti Teknologi MARA Kampus Seremban,
Negeri Sembilan, Malaysia

ABSTRACT

Although many studies have examined sustainability from the organisational corporate viewpoint, limited studies have focussed on the role of individual accountable behaviour in supporting sustainable development agenda. Studies have shown that knowledge and attitude of individuals are essential requirement to achieve sustainable development. However, little is known on how university graduates' knowledge and attitude contribute to accountable behaviour. Given that university graduates are viewed as agents of change, this study aimed to examine the effect of knowledge and attitude on their accountable behaviour. This study collected data through quantitative survey involving 385 university graduates from various universities in Malaysia. To gain a deeper understanding of the research issues and to follow up on the queries of the open-ended survey, we conducted qualitative interviews with five university graduates. The outcome revealed that both knowledge and attitude significantly influenced accountable behaviour towards sustainable development. These findings add to the body of knowledge founded on Malaysia's reality as a developing nation seeking to advocate sustainable development.

Keywords: sustainability, sustainable development, knowledge, attitude, accountable behaviour, university graduates

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* Corresponding author: Eley Suzana Kasim. Email: ekasim@uitm.edu.my

INTRODUCTION

The world today is facing sustainability issues that need to be addressed urgently (OECD, 2020). Nations pursuing sustainable development face the challenge of environmental problems that have been on the increase such as waste materials and their disposal method; acidification of the sea; acid rain; depletion of the ozone layer; global warming or climate change; loss of biodiversity; depletion of the trees/forest; and destruction of nature over development of infra-structures (Suberu, Mustafa, & Bashir, 2014). This calls for a proper management of natural resources and sustainable development programmes. Sustainable development necessitates the conservation of natural resources via sustained and optimised utilization of the resources to provide for both generations of today and tomorrow (Bierwiazzonek et al., 2020; Srivastava et al., 2016). The failure to implement effective sustainable development programmes could lead to various environmental degradation issues (Nasrollahi et al., 2020; Suberu et al., 2014). Attainment of sustainable development can be considered as a dynamic and on-going participation (Marcelino-Sádaba, González-Jaen & Pérez-Ezcurdia, 2015) of various actors to productively utilize resources in fostering sustainable development (Shen, Li & Wang, 2020). As a developing country, Malaysia faces challenges to promote and maintain a sustainable development even though appropriate planning has been conducted at the local, state and federal levels of government (Gordon, 2016).

Although many studies have examined sustainability from the organisational corporate viewpoint, limited studies have focussed on the role of individual accountable behaviour in supporting sustainable development agenda (Jeronimo et al., 2018). Studies have shown that knowledge and attitude of individuals are essential requirements to achieve sustainable development (Abhayawansa, Adams & Neesham, 2021). However, little is known on how university graduates' knowledge and attitude contribute to accountable behaviour. One of the factors leading to greater accountability towards sustainable development is knowledge as it helps people to be aware of the importance of sustainable development (Kim, Gibbs, & Scott, 2019; Kalsoom, 2018). For example, Rieckmann (2018) suggests that education on sustainable development in the form of competencies enables learners to be more responsible and can contribute to more accountable societies. In addition, individuals' attitude is important in promoting sustainability

(Nousheen et al., 2020; Vatavu et al., 2021). Attitude strengthens people's values and regards towards the environment (Fang et al., 2018) which subsequently leads them to accountable behaviour.

Despite the importance of accountable behaviour on sustainable development, studies on knowledge and attitudes towards sustainable development is still inadequate, particularly in Malaysia. Failure to acquire adequate knowledge and having positive attitude towards sustainable development may hamper the progress to achieve sustainable development. Thus, the objective of this study was to investigate the effect of knowledge and attitude towards sustainable development among Malaysian university graduates.

This study contributes in a number of ways. Firstly, it highlights the importance of proper education, positive attitude and awareness activities in fostering accountable behaviour in achieving Sustainable Development Goals (SDGs). Secondly, these findings add to the existing literature on sustainable development from a developing country perspective which will benefit policy makers in developing measures to improve sustainable development progress status. The remainder of this paper is organised as follows. We continue with a discussion of accountable behaviour towards sustainable development followed by elaboration on the effect of knowledge and attitude in achieving accountable behaviour. Next, we explain the mixed methodology used as well as the findings of this study. We conclude with the need of renewed commitment by higher education institutions to improve accountable behaviour through enhancement of knowledge and attitude towards sustainable development.

LITERATURE REVIEW

Sustainable Development and Accountable Behaviour

According to the Brundtland Commission Report (1987), sustainable development is defined as development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs (WCED, 1987). Sustainable development is reinforced by doctrines that encourage people to maintain a sustainable life so that they

can live in harmony (OECD, 2020). The doctrines are protecting democracy and social security; preserving the environment and natural resources; and improving production and consumption. sustainable development highlights our dependence on the environment, economy, society and cultural diversity (Lynch et al., 2016). Baker (2014) defined sustainable development as an integrated approach of development that promotes the transformation in relationships between people and the environment. This denotes that development should be approached from many angles where the relationship between society and the environment should be harmonious in nature. The model on sustainable development has been elaborated in *Agenda 21* across its three-dimensional perspectives, covering the fundamental criteria for development. Table 1 illustrates the properties of the three dimensions of sustainable development as suggested by United Nations (2015a & 2015b) and Purvis, Mao and Robinson (2018).

Table 1: Properties of Three Dimensions of Sustainable Development

Element	Criteria
Economic Sustainability	Growth, Development, Productivity, Trickle Down
Social Sustainability	Equity, Empowerment, Accessibility, Participation Sharing Cultural Identify, Institutional Stability
Environmental Sustainability	Eco-system Integrity, Carrying Capacity, Biodiversity

There remain several key challenges relating to implementation of the strategies and action plans required to achieve the sustainable development. One of the challenges is the attainment of accountable behaviour (Karlsson-Vinkhuyzen, Dahl & Persson, 2018). Behavioural science and methods have been utilised by different entities to formulate effective policies and programs for behaviour change towards sustainable development. For instance, interventions have been carried out in developing countries to enhance the efficiency of sustainable development projects (Mensah, 2019). Behaviour or conduct of a person or group, could be changed by introducing a certain condition or stimulus from the environment such as knowledge or information (Kim et al., 2019). Casaló and Escario (2017) found a significant influence of attitude on behaviour. In addition, Mohd Suki (2016) noted a significant influence between knowledge and attitude with accountable behaviour regarding sustainable development. As such, in this study, it was posited that accountable behaviour will be influenced by knowledge and attitude.

Knowledge

Knowledge is a crucial factor in achieving sustainable development by year 2030. The ongoing acquiring, applying and sharing of knowledge will improve competencies and spread opportunities. However, knowledge on sustainable development can be very complex (Khan et al., 2020, Rutkauskas, Stasytyte & Michnevic, 2014). To manage and sustain the environment we need a system that is flexible and innovative enough, to enable us to use resources effectively. There were also experiential discoveries of correlation between knowledge and behaviour (Hidayanto et al., 2015, Baxter & Barata, 2011). However, previous studies have identified that mere knowledge is not sufficient to alter people's attitudes or to inspire them to embrace a new behaviour and thus becomes a hurdle for change in behaviour (Cogut et al., 2019). Knowledge on sustainable development can be acquired through formal and informal education such as through esthetic, visual art and various creative projects and corporate social responsibility programs (Juzefovič, 2015; Krajiňáková, Navickas & Kontautienė, 2018). Accountable behaviour positively correlates to an individual's degree of understanding for sustainable development problems (Van Der Linder, 2014). This indicates that there was a strong association between knowledge in the form of regular information and guidance supplementation and accountable behaviour towards sustainable development (Salas et al., 2018). Based on the arguments presented above, the hypothesis for this study was stated as:

H₁: There is a significant influence of knowledge on accountable behaviour towards sustainable development

Attitude

Attitude towards sustainable development may be defined as endearing feelings of concern towards the environment, society, or economy. Attitude incorporates the evaluation parts of ideas, sentiments, intents and conducts. An attitude, shaped through years of lifetime involvement and learning, is the influencing factor for accountable behaviour (Paço & Lavrador, 2017). This attitude could be inspired through education, rational governance, equality, and rational economic policies at all levels. In order to attain sustainability, people's values, attitudes and behaviours need to be changed accordingly. Previous research has shown inconsistent outcomes on the

effect of attitude towards accountable behaviour. For instance, Streimikiene and Akberdina (2021) and Abroud et al. (2015) noted that an individual's attitude is found to be beneficial for developing accountable behaviours towards sustainable development. On the other hand, Ahmed et al. (2013) revealed a moderate correlation while Andreassen and Streukens (2013) and Xu et al. (2017) discovered a weak correlation between attitude and intention towards accountable behaviour. Overall, one's attitude toward environmental concerns is rooted in their idea of self, as well as their degree of awareness, with positive attitude leading to positive action. Based on the arguments presented above, the hypothesis for this study was stated as:

H₂: There is a significant influence of attitude on accountable behaviour towards sustainable development.

METHODOLOGY

This study adopted a mixed methodology utilising a correlational research design complemented by semi-structured interviews. The population of the study was university students with samples from those residing in the most developed state within Malaysia. It was believed that a more developed state, faces more issues on sustainable development relative to other states in Malaysia, which is consistent with Tufail et al. (2021). The selection of university students was also consistent with Paco and Lavrador (2017) since this target group are those expected to be cultivating a more environmentally conscious population through education and outreach.

The sample size was calculated using the Krejcie and Morgan (1970) formula for determining sample size where an additional 5% of the sample size was added to offset incomplete questionnaires. A 5-point Likert scale was utilised to measure data comprising of: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, (5) strongly agree as suggested by Sekaran and Bougie (2016) and Nemoto and Beglar (2014). There are four (4) sections in the questionnaire comprising of demography, knowledge, attitude and accountable behaviour. These measurement of knowledge, attitude and accountable behaviours variables have been adapted from Michalos et al. (2009), McGuirk and Neill (2016) and McCusker and Gunaydin (2014). Questionnaires were disseminated and hand-collected from the university graduates.

To gain deeper insights of the study, we conducted five semi-structured interviews lasting on average of one hour. The aim of the interviews was to follow up on the queries of the open-ended survey questions as suggested by Adams (2015). The interviewees consisted of university graduates in public universities. The interview questions drew on the importance of knowledge and attitude towards sustainable development. The interviews were recorded and later transcribed before analysed using thematic analysis.

RESULTS

Table 2 shows the profiles of respondents which involved 160 male (41.6%) and 225 female (58.4%) respondents. This indicated that there were more female respondents than males.

Table 2: Profile of Respondents

Profile	Frequency (n)	Percentage (%)
Total respondents	385	-
Gender		
Male	160	41.6
Female	225	58.4
Age group		
21 – 30 years old	150	39
31 – 40 years old	98	25.5
41 years old & above	137	35.6
Level of Education		
Diploma/ STPM	184	47.8
Degree/ Professional	156	40.5
Master	32	8.3
PhD	8	2.1
Others	5	1.3

Based on the statistics, the majority of the respondents were between “21 to 30 years old” consisting of 150 respondents (39%). While the age of “41 years old and above” was represented by 137 (35.6%) respondents, followed by the “31 to 40-year-old” category with 98 (25.5%) respondents.

To test the reliability of the questionnaire, the developed questions were analysed using Cronbach’s Alpha and the findings are shown in Table 3:

Table 3: Reliability Test Result

Variables	Cronbach's Alpha	N of Items
Independent variables:		
Knowledge	.873	24
Attitude	.699	18
Dependent variable:		
Accountable behaviour towards sustainable development	.887	16

To be considered reliable, Alpha should have a value of at least 0.60. (Sekaran & Bougie, 2016). The results as shown in Table 3 indicated that all variables in this study were reliable and good. Pearson correlation analysis was used to examine the relationship between the two independent variables (i.e., knowledge and attitude) with the dependent variable (i.e., accountable behaviour towards sustainable development). The results are illustrated in Table 4.

Table 4: Pearson Correlation Analysis

Variables	Accountable behaviour towards SD	P-value
Accountable behaviour	1.000	.000
Knowledge	.360	.000
Attitude	.443	.000

Significant (p-value 0.01)
Source: SPSS Analysis

Findings showed that there is significant correlation between knowledge and accountable behaviour regarding sustainable development, as can be realised from the value $p < 0.01$ (Borges, 2019; Aziz et al., 2013). This correlation can also be considered a weak correlation because the r value was 0.360 and this is consistent with Borges (2019) and Michalos et al. (2009). The relationship between attitude and behaviour regarding sustainable development was also found significant when the p value < 0.01 (Jones et al., 2017; Mohd Suki, 2016), with moderate correlation since r value was equal to 0.443 supported by Mohd Suki (2016). The outcomes also indicated that there was a significant correlation between knowledge and attitude with $p < 0.01$ (Borges, 2019), and the correlation was regarded as a moderate correlation where $r = 0.584$ (Borges, 2019; Michalos et al., 2009).

Regression Analysis

A regression analysis was conducted to examine the relationship between independent variables (knowledge and attitude) on the dependent variable (accountable behaviour towards sustainable development). Table 5 displays the results of the multiple regression analysis.

Table 5: Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.460 ^a	.212	.207	.53051	51.244	.000
Coefficients ^a						
Model	Unstandardised Coefficients		Standardised Coefficients	T	Sig.	Results
	B	Std. Error	Beta			
(Constant)	26.776	3.586		7.467	.000	
H1 Knowledge	.116	.042	.154	2.759	.006	Accept
H2 Attitude	.334	.053	.352	6.298	.000	Accept

a. Dependent Variable: Accountable Behaviour towards Sustainable Development
Source: SPSS

Based on the Table 4, both the independent variables knowledge and attitude had asignificant effect on accountable behaviour of university graduates towards sustainable development. The model was significant, $p < .000$ with the independent variables explained 21.2% of the variance. The standardised coefficient beta for variable attitude (.352) indicated that this factor made the largest contribution to the dependent variable, followed by the independent variable of knowledge (.154). The result for H1 indicated that the beta for regression test was positive and significant ($\beta = 0.116$, $p = 0.006$). Thus, H_1 was accepted.

These results suggested that the correlation between knowledge and accountable behaviour towards sustainable development was significant, even though the correlation between them is weak. The findings were consistent with previous studies by Borges (2019) and Aziz et al., (2013). Therefore, this study suggested that in order to enhance knowledge, higher learning institutions should emphasise education on sustainable development. Similar to Paco and Lavrador (2017), this study suggested that higher levels of education may have a significant impact on people's ability to learn and retain information. These efforts are necessary to inculcate

awareness on the importance and grave necessity of maintaining sustainable development for the survival of future generation.

In addition, the qualitative findings supported and complemented the results of the quantitative data based on university graduates' perceptions and experiences. This was confirmed by an interviewee who commented:

I believe that knowledge on reduced use of plastics and recycling of materials is important to protect the environment. In the past, I never thought of bringing my own bag for groceries shopping. But, as learned about the damage caused by plastic, I am now more concerned.

The other factor which has a significant effect on the accountable behaviour towards sustainable development was the attitude of university graduates. The result as shown in Table 4 indicated that the beta for regression test was positive and significant ($\beta = 0.334$, $p < 0.01$). Therefore, H2 was accepted. The findings of this study indicated a moderate significant effect of attitude on accountable behaviour towards sustainable development. The findings were consistent with previous studies by Jones et al. (2017) and Mohd Suki (2016). Furthermore, this study suggested that people's attitude can be enhanced through education or knowledge on sustainable development which is consistent with Peterlin et al. (2018) and Sady, Žak and Rzepka (2019), that higher education institutions play an important role in fostering education on sustainability among the students.

This is exemplified in the following statement a student association leader:

We have to support the university's effort to promote responsible actions among students for the benefit of environment; we have to be serious in ensuring the success of the national agenda towards the environment.

DISCUSSIONS OF FINDINGS

This study confirmed the assertion by Zareie and Jafari Navimipour (2016) that there is a significant influence between knowledge and attitude on behaviour in sustainable development. This study supports Kim et al. (2019) suggestion that knowledge will also enhance awareness and help inspire accountable behaviour towards sustainable development. More effective policies could be formulated in creating ideas and planning for regulations and measures to undertake and/or overcome sustainable development issues. This is important to those in the government or organizations in order to identify the key areas of their problems and issues at hand, to create, amend, assimilate and implement current policies regarding sustainable development. When they can identify the problems regarding sustainable development, they will be more aware of the situation and will be able to improve their policies towards enhancing the quality of sustainable development. Employers will also subsequently reduce the negative issues surrounding them by adjusting their policies and focusing on the problems occurring regarding sustainability.

The findings of the study are potentially helpful for the government or business sectors to mutually achieve sustainable development goals and further improve the situation of sustainable development efforts in Malaysia. Sustainable development initiatives to identify the key areas of the problems or issues in order to perform better in their practices are crucial. The awareness on the importance of sustainable development will have a great impact on all parties involved in making efforts to achieve sustainable development goals particularly in Malaysia.

Academics also play an important role in educating or delivering knowledge to individuals or masses on the importance of sustainability especially in the education system. Sustainable development can be inculcated as early as from the elementary level, where the students are taught the importance of maintaining sustainability in their lives from early childhood. This will be followed by proper education on sustainability development at secondary and tertiary levels. They will then grow up into adolescence and manhood aware of the importance of sustainable development. When it's their turn to take positions in the government, or organizations, sustainable development will always be etched into their lives and maintained.

CONCLUSIONS

The purpose of this study was to investigate the influence of knowledge and attitude on accountable behaviours towards sustainable development. Based on the findings, both knowledge and attitude significantly influenced accountable behaviour towards sustainable development. More importantly, accountability in achieving sustainable development among university graduates can be enhanced through proper education, awareness activities and positive attitude. These findings add to the existing literature on sustainable development behaviour based on the evidence from a developing country. This current study is useful for the policy makers in developing measures to improve sustainable development progress status. This study will be highly useful for higher learning institutions to promote the philosophies of sustainable development, to identify the key areas of the problems or issues in order to perform better in their practices. However, only two variables, i.e., knowledge and attitude, were investigated. Hence, other variables may be added to improve the prediction capability of the proposed model such as skills, practices, and habit. Additionally, the application of Structural Equations Modelling (SEM) analytical model can be utilised by future research projects so that more robust analysis can be achieved.

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