Examining Students' Sustainability Awareness, Sustainability Knowledge, Behavioural Attitude and Sustainability Information Sources

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Abstract

This study examines the relationship of sustainability awareness with sustainability knowledge, behavioural attitude and sustainability information in an institution of higher learning. The study is quantitative in nature, using questionnaire survey to draw samples of students from six programmes at University College Sabah Foundation (UCSF), labelled as a boutique green university. The research is motivated by the UN sustainable development goals through the green campus concept. The green campus concept endeavours to extend learning beyond the campus learning settings to develop responsible attitudes and commitment to the environment, both at home and in the wider community. Quantitative research using questionnaire survey was used to measure the level of sustainability awareness of the students and to examine the relationship of variables that influence sustainability awareness. Data collected is analysed using SPSS. Results from the study showed that sustainability knowledge and sustainability information have a significant influence in determining the level of sustainability awareness of the students. Based on the results obtained in this study, it can be deduced that efforts to further increase the awareness of the students can come from formal education and through the use of online websites to obtain sustainability information.

Keywords: Students, Green campus, Sustainability awareness, Sustainability knowledge, Sustainability information.

Introduction

Many organisations have adopted the concept of sustainable development and due to its pervasiveness, sustainability has almost become a household topic. Institutions of higher learning have also jumped on the bandwagon where sustainability is known by the green campus concept. This is especially so after the United Nations (UN) made climate change a defining issue because its impacts are global in scope and unprecedented in scale (UN, n.d.). As a result of the issue of climate change, sustainable development has become synonymous with every facet of developed as well as developing societies.

According to Foo 2013, the government of Malaysia is highly committed to promote sustainable development through the country's education system at all education levels with the objective to educate and to bring about awareness to the young generation on the importance of sustaining human needs and preserving the environment for the future.

Public universities such as Universiti Sains Malaysia (USM), Universiti Kebangsaan Malaysia (UKM) and Universiti Teknologi Mara (UiTM) have played active roles in

sustainable development through their various programmes (Foo, 2013; Ahmad, Noor & Ismail, 2015).

University College Sabah Foundation (UCSF), established in the late 2014 and located at Kota Kinabalu, Sabah, Malaysia has taken a lead role in cultivating the culture and practice of sustainable development through its green campus concept. A study to examine sustainability awareness of its students is therefore timely and will contribute to new knowledge.

Motivation of study, research objectives and research question

UCSF made a bold move to embrace the green concept through the labelling of its new institution as a boutique green university. UCSF made some concerted efforts to live up to its name by incorporating green concept and philosophy in all its programmes, through its green talk series and numerous student activities conducted within and outside the campus grounds. However, no study has been conducted to determine the level of sustainability awareness of the students. A research study to conduct a survey on the students' knowledge and attitudes toward the environment is therefore timely. The findings from this study would be used as a guide by the university to further enhance their greening efforts.

The purpose of this study is firstly, to determine the level of sustainability awareness of UCSF students, and secondly, to examine the association of sustainability knowledge, behavioural attitude and sustainability information to sustainability awareness of UCSF students.

The key research question therefore is: *'Is sustainability awareness of UCSF students associated to sustainability knowledge, behavioural attitude and sustainability information?'*

Scope of research

This study uses sustainability awareness index to determine the level of awareness of UCSF students and further examine the association of three independent variables, namely, sustainability knowledge, behavioural attitude and sustainability information and their influence on sustainability awareness. These variables have been examined in prior studies (Sivamoorthy, Nalini, & Kumar, 2013; Ahmad et al., 2015; Mahat & Idrus, 2016; and Fu, Zhang, Xiong & Bai, 2018), to name a few. This research is therefore limited by the variables under study.

A sustainability awareness research has never been conducted on UCSF students before and this study will build on the limited understanding on this subject. Findings from this study is significant in providing a platform where the university can build on to further enhance their sustainability programmes.

Literature Review

Definition and concept of sustainable development

The World Commission on Environment and Development (WCED), 1987, defines sustainable development as development that meet the needs of the current world's population without compromising the needs of the world's population in the future. This

definition is paramount to any study on sustainability because this definition is the starting point where every organisation and every concern and responsible citizen of the world will assess their actions whether they are in sustainable mode.

Agenda 21 is a blueprint that sets out actions that can be taken to contribute to global sustainability in the 21st century which was release by the United Nations in 1992. It recognises that most environmental challenges have their roots in local activities and therefore encourages Local Governments to promote local environmental, economic and social sustainability by translating the principles of sustainable development into strategies that are meaningful to local communities (UN, 2002).

Agenda 2030 also known as the Sustainable Development Goals (SDGs) is the successor to the Millennium Development Goals (MDGs). 2030 refers to the year by which the SDGs should have been attained globally. The issues on sustainable development will thus continue (UN, 2018).

Sustainable development and education

The UN believe that education will encourage changes in behaviour to shape a more sustainable future in terms of environmental integrity, economic and fair society for present and future generations (UNESCO, 2007). The United Nations (UN) through its declaration of 2005-2014 as the Decade of Education for Sustainable Development (DESD) aims to integrate the principles, values and practices of sustainable development into all aspects of education and learning.

Many researchers agree that education changes values, attitudes, skills and behaviour and the practice of sustainable development in the academic community can bring about these desired changes (Scott, 2013; Tilbury, Stevenson, Fien, & Schreuder, 2013).

Sustainability awareness

Sustainability awareness of university students is a very popular research topic. Among these studies are Tikka, Kuitunen & Tynys (2000) – Finland; Sivamoorthy et al (2013) – India; Heyl, Moyano Diaz, & Cifuentes (2013) – Chile; Chaplin and Wyton (2014) – UK; Zwickle, Koontz, Slagle, & Bruskotter (2014) – USA; Ahmad et al Ismail (2015) – Malaysia; Jeong, Jung, & Koo (2015) – USA; Mahat & Idrus (2016) – Malaysia; Garcia & Luansing (2016) – Philippines; and Fu et al (2018) – China. The literature on sustainability is vast but there is still plenty of room for new knowledge in view of the pervasiveness of the topic.

Methodology

A very simple quantitative approach was adopted for this research study. Responses were collected using questionnaire survey. Survey forms were distributed to UCSF students using Google Docs but the response was very slow. The use of printed forms yielded better results when the forms were completed in the classroom.

The data were analyzed descriptively in terms of measures of central tendency and measures of variability using SPSS. Correlations and regression analysis were conducted to measure the relationships between the dependent and independent variables.

Research framework and model

Sustainability Awareness index (SAi) = Sustainability Knowledge (SK) + Behavioural Attitude (BA) + Sustainability Information (SI)

where Sustainability Awareness index (SAi) is the dependent variable, while Sustainability Knowledge (SK), Behavioural Attitudes (BA) and Sustainability Information (SI) are the independent variables.

The hypotheses that support the theoretical framework of the study are:

H1:   There is a positive relationship between sustainability awareness and sustainability knowledge.

H2:   There is a positive relationship between sustainability awareness and behavioural attitude

H3:   There is a positive relationship between sustainability awareness and sustainability information

Measurement of the Variables

SAi is measured using a twenty (20) yes-no response to general questions related to sustainability. The number of correct responses is converted to percentages to derive the sustainability awareness index.

SK requires the respondents to answer twenty (20) multiple-choice questions that test the respondents' knowledge on sustainability related issues.

BA aims to identify the attitude of the respondents toward various aspects of the environment using ten (10) sustainability related statements.

SI examines the type of medium of communication that has helped the respondents to become aware of sustainability issues and initiatives.

Results and Discussion

A total of 276 students, both at the diploma and degree level, out of about 600 students participated in the survey. This corresponds to 46% sample size.

Descriptive statistics and analyses

Based on the results obtained (refer to Table 1 below), the level of sustainability awareness of the students is over 70% regardless of gender, age, level of study, programme and residence.

Table 1: Sustainability Awareness by Age, Gender, Level of Study, Programme and Residence

Descriptive analyses		Sustainability Awareness (Mean)
Age (Years)	18-20	73
	21-23	74
	24+	75
Gender	Male	74
	Female	74
Level of study	Diploma	73
	Degree	76
Programme	Accounting	80
	Business & Entrepreneurship	72
	Tourism & Hospitality	71
	Arts & Creative Media	76
	Social Sciences	78
	Sciences	77
Residence	City	72
	Urban	75
	Rural	75

Figure 1 below shows that the most popular source of sustainability information comes from the internet (94%), social media (89%), television (86%) and UCSF (78%).
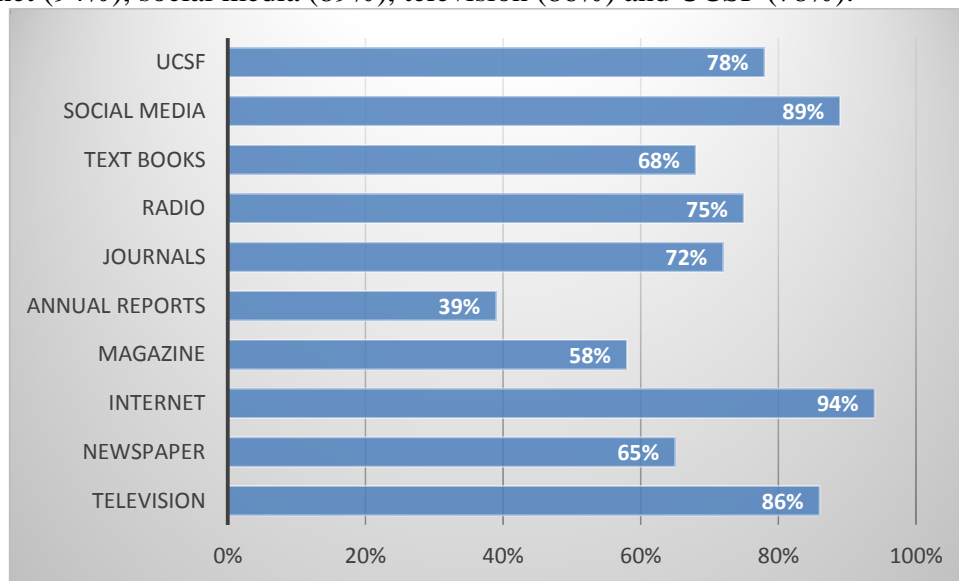

Figure 1: Sustainable Information Sources

Correlations analysis

The correlations analysis (refer to Table 2 below) shows that sustainability knowledge and sustainability information are significant predictors of sustainability awareness at the $P < .05$ and $P < .001$ levels respectively.

Table 2: Pearson Correlations

		SA	SK	BA	SI
SAi	Pearson Correlation	1	.142[*]	.057	.209[**]
	Sig. (2-tailed)		.018	.343	.000
	N	276	276	276	276

*. Correlation is significant at the 0.05 level (2-tailed).

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

Regression analysis

Based on the regression analysis (refer to Table 3 below), sustainability knowledge and sustainability information are significantly related to sustainability awareness at the $P < .05$ and $P < .001$ levels respectively. The data also do not have any collinearity problem. Tolerance is > 0.1 and VIF < 10 for all variables.

Table 3: Regression analysis

	Standardized Coefficients	t	Sig.	Collinearity Statistics	
	Beta			Tolerance	VIF
(Constant)		15.027	.000		
SK	.121	2.044	.042	.986	1.014
BA	.021	.357	.721	.977	1.024
SI	.194	3.254	.001	.972	1.028

Adjusted R^2=0.59   F=5.69   P<0.001

T-test analysis

An independent sample T-test was conducted to compare the level of sustainability awareness and the self-ranked sustainability awareness (S) where respondents rate themselves on their level of sustainability awareness.

There were significant differences in the scores for level of sustainability awareness (M = 73.79, SD = 14.99) and the self-ranked sustainability awareness (S) (M = 59.79, SD = 18.73), t (276) = 11.05, P = 0.000. One possible reason may be that the respondents are not aware of their sustainability level due to lack of practical applications.

Table 4: Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	SAi - SAi (S)	13.931	20.994	1.264	11.443	16.419	11.024	275	.000

Conclusion

The findings from the study showed that sustainability awareness of UCSF students is high with sustainability knowledge and sustainability information being the most significant influencing factors. The level of sustainability awareness also does not differ by gender, age, level of study, programme and residence. This implies that caring behaviour towards the environment and towards the future can be nurtured through education regardless of background. High sustainability awareness is also expected considering the fact that UCSF had been making a great effort in greening the university through its green talk series and incorporating a course in green concept and philosophy into all its programmes.

Limitations

This study, however, suffers a few limitations: the first limitation is the lack of generalisability because the study only covers UCSF students; the study is also limited by the variables being examined – other variables may produce different results; and lastly, response bias may have affected the accuracy of the data and thus, the results.

The research framework and model, however, may still be useful to measure sustainability awareness from other settings.

Implications and future directions

Being sustainability aware does not imply that an individual practises sustainability but being aware should make them more responsible for their actions especially where it concerns the environment. In fact, the implication is more serious if people are highly aware yet the tell-tale signs of irresponsible actions are glaring. The practice of sustainability can be very simple or it can also be very complicated and expensive to implement.

At the university level, the green campus concept which endeavours to extend learning beyond the campus learning settings to develop responsible attitudes and commitment to the environment is therefore an effective platform for a life-long learning experience which students can bring with them to their homes and into the wider community.

In this respect, UCSF's bold move in going green has yielded some positive results coming from the findings of this study; Mojilis (2019) study is also relevant. The more challenging

action would be to transform the mind-set of students to become full fledge advocate of sustainability in practice.

Acknowledgments

References

Ahmad, J., Noor, S.M. & Ismail, N. (2015). Investigating Students' Environmental Knowledge, Attitude, Practice and Communication. *Asian Social Science, 2*(16), 284-293.

Chaplin, G. and Wyton, P. (2014). Student engagement with sustainability: understanding the value–action gap. *International Journal of Sustainability in Higher Education, 15*(4), 404-417.

Foo, K.Y. (2013). A vision on the role of environmental higher education contributing to the sustainable development in Malaysia. *Journal of Cleaner Production 61*, 6-12.

Fu, L., Zhang, Y., Xiong, X. & Bai, Y. (2018). Pro-Environmental Awareness and Behaviors on Campus: Evidence from Tianjin, China. *EURASIA Journal of Mathematics, Science and Technology Education, 14*(1), 427-445.

Garcia, E.C. & Luansing, B. (2016). Environmental Awareness among Select Graduating College Students in Region IVA. *LPU-Laguna Journal of Multidisciplinary Research, 5(1), 1-10.*

Heyl, M., Moyano Díaz, M. & Cifuentes, L. (2013). Environmental attitudes and behaviors of college students: A case study conducted at a Chilean University. *Revista Latinoamericana de Psicología, 45*(3), 487-500.

Jeong, M.M., Jung, Y., & Koo, D.D. (2015). College Students' Perceptions of Sustainability: A Regional Survey. *Journal of Building Construction and Planning Research, 3,* 209-220.

Mahat, H. & Idrus, S. (2016) Education for sustainable development in Malaysia: A study of teacher and student awareness. *GEOGRAFIA OnlineTM Malaysian Journal of Society and Space 12*(6), 77 - 88.

Mojilis, F. (2019). Sustainability Awareness of Students from a Green University in Sabah, Malaysia. *Journal of Tourism, Hospitality and Environment Management,* 4(13), 24-33.

Scott, W. (2013) Developing the sustainable school: Thinking the issues through. *The Curriculum Journal 24*(2), 181-205.

Sivamoorthy M., Nalini R., & Kumar, C.S. (2013). Environmental Awareness and Practices among College Students. *International Journal of Humanities and Social Science Invention*, *2*(8), 11-15.

Tikka, P.M., Kuitunen, M.T., & Tynys, S.M. (2000). Effects of educational background on students' attitude, activity levels and knowledge level concerning the environment. *The Journal of Environmental Education*, *31*(3), 12-19. 33

Tilbury, D., Stevenson, R.B., Fien, J., & Schreuder, D. (Eds.). (2002). *Education* and *Sustainability*: *Responding* to the *Global Challenge*. *UK: IUCN Commission on Education and Communication*.

UN. (1992). *Agenda 21*. Retrieved from https://sustainabledevelopment.un.org/outcomedocuments/agenda21

UNESCO. (2007). *The UN Decade for Education for Sustainable Development* (DESD 2005-2014): The DESD at a glance. Retrieved from https://en.unesco.org/themes/education-sustainable-development/what-is-esd/un-decade-of-esd

UN. (2018). *About the Sustainable Development Goals*. Retrieved from https://www.un.org/sustainabledevelopment/sustainable-development-goals

UN. (n.d.). *Climate Change.* Retrieved from https://www.un.org/en/sections/issues-depth/climate-change/

Zwickle, A., Koontz. T.M., Slagle, K. M., & Bruskotter, J. T. (2014). Assessing Sustainability knowledge of a student population. *International Journal of Sustainability in Higher Education, 15*(4), 375-389.