



Assessing Sustainability Level of Academic Programs in Higher Educational Institutions; the Lecturers Perspective

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ABSTRACT :- The purpose of this paper is to find out if Universiti Kebangsaan Malaysia (U K M) is on course in meeting the U N goal of the Decade for sustainable education through assessing it's academic programs activities. Questionnaire was used to solicit for responses of lecturer's impression of the University's sustainability accomplishment in six relevant academic departments of Architecture, Chemical, Civil, Electrical, Mechanical, Social science & environmental development, and Psychology and human development. Findings of the study revealed that the lecturers agreed on the sustainability status of UKM academic programs, but differ significantly in their means in their departments. In conclusion, the sustainability level of the academic programs in the University is on course. The implication is that, though the academic programs are sustainable, they differ at departmental levels of commitments as such periodic reforms are needed to better educate the students so as to meet the sustainability needs of the society.

Keywords:- Academic programs, Education for Sustainable Development, Higher education, Research, Sustainability,

I. INTRODUCTION

The need to improve the quality of life for all was essentially linked to sustainable development as outlined in the Brundtland commission of 1987[4]. This was followed by the December 2002 United Nations Resolution which established the Decade for Education for Sustainable Development (DESD) between2005-2014. Sustainable Education or Education for sustainable Development is an integral part of DESD and therefore defined by UNESCO (2005) [13] as a dynamic concept that utilizes all aspects of public awareness, education and training to create or enhance an understanding of the linkages among the issues of sustainable development and to develop the knowledge, skills, perspectives and values which will empower people of all ages to assume responsibility for creating and enjoying a sustainable future. Hence many nations decided to work together to achieve the said goal of Decade for Education for Sustainable Development. The overall objective of which was to “integrate the values inherent in SD into all aspects of learning to encourage changes in behaviour that allow for a more sustainable and just society for all” (Michalos 2009) [8]. Other U N international initiatives with comparable impacts as DESD includes; the Millennium Development Goal (MDG) process, Education for all (EFA) movement, United Nation Literacy Decade (UNLD), whose aims were to “improve the quality of life” particularly for the most deprived and marginalized (UNESCO Education Sector 2006, p 18-20) [12]. Universities have been consistently considered significant contributors to the pursuit of regional sustainability initiatives for over two decades. The composite nature of sustainable development (SD) has appointed Universities to critical partners to all relevant efforts, always in firm collaboration with other local actors (Karatzoglou 2013) [6]. In that case, Velaquez et al (2006) [14] proposed a comprehensive definition of sustainable university as “a higher educational institution, as a whole or as a part, that addresses, involves and promotes, on a regional or a global level, the minimization of negative environmental, economic, societal, and health effects generated in the use of the resources in order to fulfil its functions of teaching, research, outreach and partnership, and stewardship in ways to help society make the transition to sustainable lifestyles. In line with this definition, Alshuwaikhat and Abubakar (2008) [2] proposed an integrated approach for achieving campus sustainability, which consists of three elements: 1) university environmental management systems, 2) public participation & social responsibility, and 3) sustainability teaching and research.

As more universities become interested in, and engaged with, sustainability, there has been a growing need to assess how their curricula addresses sustainable development and its myriad issues (Lozano & Young 2013) [7]. According to Minguet et al (2011) [9], a key objective in diffusing knowledge, values, attitudes and behaviours that favour sustainability is training university teachers to apply sustainability criteria to their respective discipline. Though significant differences exist across the staff from various disciplines and their ideas towards introducing sustainability into curricula are not always understood or appreciated. There is widespread support for introducing sustainability across the university's curricular. The expectation is that higher education curricula which purports to incorporate education for sustainable development (ESD) supports university graduates in becoming more sustainable. It would then follow that if academics are to offer such curricula they need to be adequately equipped with the motivations, knowledge and skills to teach it (Wahr et al 2013) [15].

In order to show its commitments to sustainability activities on campus, the Malaysian government together with other 178 countries signed and agreed on the implementation of the sustainable development SD under the Agenda 21, signing of the Tailories Declaration. UKM on the other hand is committed to this goal as demonstrated by the establishment of Centre for environmental development and management (LESTARI) and Centre for solar energy research (SERI) in 1994 and 2005 respectively (Abdulghani 2010) [1]. According to Halimatoa (2013) [5], UKM has been running many sustainability programs and course at undergraduate and graduate levels and has launched its sustainability charter since in 2007 and also has signed and ratified the Tailories Declaration since 2009 and is a partner in the decade for sustainability education 2005-2014 that looks at academic curriculum on sustainability. The purpose of this study was therefore to find out if SD concepts and values were integrated into the learning process in understanding the sustainability level of U K M academic activities and how the tempo can be sustain so as to have a long term positive impact on the students who will in turn make the difference in their various endeavours. This hopefully will be used as an element towards the future rating and ranking of its activities.

The profile of the study population (294), sample size (70) and frequency of the respondents used for this study is shown in table 1.0

Table 1.0 Lecturer's Response Distribution Department By Department

	Pop.	Sample	Frequency	%	Valid %	Cumulative
Architecture	25	10	4	9.3	9.3	9.3
Civil	29	10	7	16.3	16.3	25.6
Chemical	33	10	3	7.0	7.1	32.6
EE	68	10	10	23.3	23.3	55.8
Mechanical	46	10	4	9.3	9.3	65.1
Soc. Sc. & Env Devp.	48	10	5	11.6	11.6	76.7
Psy. & Human Devp.	45	10	10	23.3	23.3	100.0
Total	294	70	43	100.0	100.0	

Population source; UKM registrar's office 2012

The above table shows that Electrical and Psychology departments have 100% sample response rate with a frequency of 23.3% each, Civil 7 (16.3%), Social development 5 (11.6%), while Architecture & Mechanical 4 (9.3%) each and Chemical 3 (4.3%). Table 2 below shows the working experience of lecturers in these departments.

Table 2: Lecturers working experience

	Frequency	%	Valid %	Cumulative %
Valid Over 10 yrs	15	34.9	34.9	34.9
Under 10yr	26	65.1	65.1	100.0
Total	43	100.0	100.0	
Missing system	0			
Total	43			

There are 26 out of 43 lecturers with less than 10 years working experience giving a 65.1%, while those with over 10 working experience having 15 or 34.9% of the total of 43 lecturers.

II. METHODOLOGY

A mail survey was administered on the 43 lecturers, the questionnaire was developed based on the Sustainability Tracking Assessment and rating systems (STARS) 2010 [11] Education and Research category. The choice of STARS was because it provides a substantially more meaningful assessment of institutions sustainability performance than others. More so that it is most widely accepted than, open development process, fully transparent methodology, has high quality data, self-reporting framework and has a comprehensive common standard of measurement in all sectors and functions on campus (AASHE 2012) [2].

The questionnaire was divided into two parts, the first part is about the demography of the respondents, while the second part solicited the respondents to answer the items by a tick to indicate their level of agreement based on the 5 points likert scale of strongly agree(5) to strongly disagree (1). The 16 structured questionnaire items were carefully drafted to measure sustainability related issues on staff and students issues relating to green organizations and groups, events, materials, publications, courses, programs, research, knowledge evaluation and skills, faculty , scholarship, campus community & partnership. The study distributed 70 questionnaires 10 each to lecturers in the seven departments selected and a response of 43 (61%) was recorded. The data collected and analyzed from the 43 Lecturers are as follows; Architecture (4), Electrical engineering (10), Civil engineering (7), Chemical engineering (3), Mechanical engineering (4), Social Science and Environmental (5) and Psychology and Human development (10) see table 1 above.

The paper used survey questionnaire because it is a simple statistical analysis that can be accomplished using SPSS, Excel and other software for getting means, standard deviation, t-test, ANOVA among others. It is said to be easy to analyse statistically and more suitable for large number of respondents (Mora 2008) [10]. The study set up a null hypothesis H_0 ; "that there is no significant difference in the mean response of lecturers on sustainability issues as regards to Education and Research in UKM. ANOVA was used to test if there is no significant difference among the lecturers in the 7 departments.

III. RESULTS

Mean scores of the lecturers were collapsed into three groups as low level of sustainability (1.0-2.4), medium level of sustainability (2.5-3.4), and high level sustainability (3.5-5.0). In Table 3 below, the mean of 10 out of the 16 questionnaires were more than 3.5 which show that the lecturers are in high level agreement that UKM sustainability activities in Education and Research are adequate. On the other hand only 6 means are having a medium level of agreement with no low level of agreement.

Table 3; Academic Program Evaluation

Education and Research sustainability in UKM	Mean	Level
Students and green group sustainability education program (orientation, outreach campaign to peer group e t c)	3.63	High
Student sustainability related issues e.g. green groups, organic gardens, model dormitory, periodic outdoor outings	3.35	Medi.
Sustainability events, materials and publications to enhance students learning e.g. conference, symposia for its semester/yearly theme from books e t c	3.70	High
Sustainability focus and related courses (concepts, principles as distinct components of sustainability)	3.74	High
Sustainability major course programs at undergraduate/graduate level by department	3.65	High
Sustainability literacy assessment for students	3.70	High
Department involve in sustainability research	3.79	High
Sustainability learning outcomes programs for total literally knowledge evaluation and skills	3.40	Medi
Incentives for research and development in related courses on sustainability are provided for staff/students	3.12	Medi
Faculty involved in sustainability identification, research topics and faculty scholarship	3.77	High
Multi/interdisciplinary research during faculty promotion and tenure decisions	3.53	High
Sustainability course identification and sharing programs with campus community	3.51	High
Sustainability partnership at local, regional, national and international levels	3.67	High
Break program for students volunteer environmental social justice exist	3.14	Medi
Socio-cultural sustainability eco-village for skill acquisition	3.40	Medi.
Research on sustainability ethics and culture extended to the local community	3.40	Medi.

The above analysis shows that academic programs sustainability assessment in UKM as far as Education and Research are concerned is good. By implication, this finding is a confirmation of the statement credited to Halimatoa that UKM has ratified the TD, launched its sustainability charter and a partner in the decade for sustainable education that looks after academic curriculum on sustainability, hence the result of this study supported the claim that educationally UKM is a sustainable campus.

IV. HYPOTHESIS TESTING

The analysis in Table 4 below shows that the P-value (0.014) of the ANOVA is less than 0.05; we therefore reject the H_0 ; and conclude that there is a significant difference in the mean response of lecturers from the 7 departments on the issue of sustainability in Education and Research.

Aggregate	Sum of Squares	df	Mean Square	F	Sig.
	6.472	6	1.079	3.136	.014
Within Groups	12.382	36	.344		
Total	18.854	42			

A post hoc test conducted to see where the significant difference really existed among the lecturers in these departments shows that significant differences exist in table 5 below.

AGGREGATE LSD	(I) Lecturer's department	(J) Lecturer's department	Mean Difference (I-J)	Std. Error	Sig.
Soc. Sc. & Env Dev. Architecture Civil Chemical Electrical Mechanical	Psy & Human Devpt.	Soc. Sc. & Env Dev.	1.05000*	.32123	.002
		Soc. Sc. & Env Dev.	-.98438*	.39342	.017
	Mechanical	Soc. Sc. & Env Dev.	.82812*	.36759	.030
		Soc. Sc. & Env Dev.	-.95833*	.42830	.032
	Soc. Sc. & Env Dev.	Soc. Sc. & Env Dev.	-1.08125*	.32123	.002
		Soc. Sc. & Env Dev	-1.51562*	.39342	.000

*. The mean difference is significant at the 0.05 level.

The result of the post hoc test in Table 5 multiple comparisons shows that the mean is significantly different between lecturers in the departments because their significant values are less than 0.05 as shown in the last column.

V. CONCLUSION

The research was set out to investigate the sustainability level of U K M Education and Research activities based on the Sustainability Tracking, Assessment and Rating Systems. A hypothesis was formulated to determine if there is any significant difference in the mean response of the lecturers. The findings revealed that 2/3 of the lecturers have high level of agreement that UKM Educational and Research activities are sustainable, while only 1/3 has medium level of agreement. However, ANOVA test conducted revealed that the lecturers differ significantly based on their departments. While the L S D post hoc test conducted shows that the significant difference existed between 6 departments on one hand and Sociology and social science on the other as well as between civil and mechanical engineering. The study therefore concluded that U K M is a sustainable campus in terms of its education and research. The paper then recommended that U K M information units be presenting periodic sustainability progress through news, titbits, and jingles to further sensitize the community, develop sustainability model blocks, develop a data bank on sustainability issues and establish more organizations, programs, scholarship researches e t c.

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