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SUSTAINABLE DEVELOPMENT CONCEPT AWARENESS AMONG STUDENTS IN HIGHER EDUCATION: A PRELIMINARY STUDY

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Abstract: Higher education institutions play a primary role as knowledge producers, and they can serve as a powerful means to create a more sustainable future, which involves educating students on the necessity of sustainable development. This study aims to survey students' awareness, attitudes and actions in regards to sustainable development. The study was conducted at a Malaysian public university in Kota Samarahan. A questionnaire was developed based on the learning objectives provided by UNESCO, and the collected data were analysed using the ANOVA test. A total of 79.2% (N=507) of students from the same programme participated in the study. Results indicated that 40.7% (N=239) of the students surveyed have insufficient knowledge on sustainable development. Further findings revealed that final-year students have the highest level of sustainability awareness (M=3.918, SD=.517), attitudes (M=4.349, SD=.514) and actions (M=4.365, SD=.538), compared with first-year and second-year students. In order to support the evolution of sustainability education, universities need to embed sustainability aspects into their mission, vision, objectives and philosophy in their management structure, which include the considerations of formal committees, roles and responsibilities, and an assessment framework for performance.

Keywords: Sustainable development, awareness, higher education, Kota Samarahan, Malaysia.

Introduction

The United Nations defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Emas, 2015). Therefore, sustainable development does not only deal with environmental issues, but economic, social and cultural issues as well. At the same time, global action is needed to create a more sustainable future as there have been increased demands placed on society and the environment (Clayton & Radcliffe, 2018). As higher education institutions play the primary role as knowledge producers, they can help in achieving the Sustainable Development Goals (SDGs), and they serve as a powerful means to create a more sustainable future.

Higher education holds the responsibility of shaping students in terms of sustainability awareness and changing the attitudes of future generations towards the importance of sustainability. Universities have the potential to educate the younger generations on sustainability, such as environmental sustainability, through their education systems, curricula, syllabi, practices and "green" university visions (Hamid *et al.*, 2017). They have a significant role in creating a sustainable future and they will presumably take on a greater importance as the world continues to become increasingly globalised and interdependent, as the propagation of sustainability in higher education (HE) for sustainable development is a recent (Aleixo *et al.*, 2018) and promising research area (Hugé *et al.*, 2018).

Therefore, there is an increasing need to educate students on sustainability by encapsulating the practices and strategies of energy efficiency, risk reduction, sustainable design, climate change, and sustainable

consumption of resources (Laurischkat & Jandt, 2018) into universities' curricula or programmes. This will consequently enhance students' competencies (Palacin-Silva *et al.*, 2018) in whichever field they venture into. While it is acknowledged that it is of interest to higher education, to what extent awareness of sustainability grows among students is still uncertain and yet to be discovered.

The awareness of sustainability among students is generally associated with the environment (Malik *et al.*, 2017). There has been a lack of attention towards highlighting sustainability and embedding it into our education curricula (Tejedor *et al.*, 2018), particularly in the arts and humanities programmes, such as human resource development, even though HRD is known to be a strategic department that focuses on driving an organisation towards its vision and mission, theoretically. This study, therefore, investigates students' overall awareness of, attitudes towards and the likelihood of taking action on sustainability, as well as the relationship between students' year of study and their sustainability awareness, attitudes, and actions.

Education for Sustainable Development

UNESCO defines education for sustainable development (ESD) as a process of learning how to make decisions that consider the long-term future of the economy, ecology and equity of all communities (Kagawa, 2007). Subsequently, the World Conference on Education for Sustainable Development (2009) further defines ESD as an approach to teaching and learning based on the ideals and principles that underlie sustainability (Kopnina & Meijers, 2014).

According to Schroter (2010), the general objectives of ESD cover human, social, economic and environmental sustainability. Additionally, Uitto *et al.* (2011) highlighted that ESD incorporates education to enhance sustainable development (SD) by integrating practices, values and principles of SD into all parts of education. Moreover, UNESCO (1992), as mentioned by Al-Naqbi and Alshannag (2018), concluded that education is a critical component for promoting SD and improving people's capability to address environmental and developmental issues.

According to McKeown (2002), education and the diffusion of knowledge are essential for achieving sustainability. McKeown (2002) added that ESD includes environmental, economic and societal aspect; and, learners must acquire basic knowledge from the natural sciences, humanities and social sciences before they can understand the principles of ESD. When appropriate knowledge and skills have been acquired, learners can then make appropriate environmental choices in their behaviour (Scott & Oulton, 1998).

This study looked at three areas that led to sustainable development among students – awareness, attitude and action. Awareness is defined as social groups and individuals being conscious and sensitive towards the environment (Keles, 2007). Prior studies acknowledged the possibilities of increasing awareness in terms of consciousness and sensibility (Cimsir & Uzuboylu, 2019). Contemporary studies defined attitude as a summary evaluation of a psychological object, captured in attribute dimensions such as good-bad, harmful-beneficial, pleasant-unpleasant, and likable-dislikable (Ajzen, 2001). Others defined attitude as a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour (Eagly & Chaiken, 1993). Davidson (1980) explained that an action, in some basic sense, is something an agent (individual) does that was "intentional under some description." Other philosophers supported him by further noting "there is a conceptual tie between genuine action, on the one hand, and intention, on the other" (Wilson & Shpall, 2016).

As higher education institutions play an important role in spearheading ESD (Moore, 2005), the education at higher education levels is deemed as critical in promoting Sustainable Development and in improving the capacity to address environmental and developmental

issues (Al-Naqbi & Alshannag, 2018). Additionally, authors highlighted that higher education institutions are important places to develop the necessary perceptions and attitudes among future professionals towards SD, which ultimately paves the way for humanity to achieve the goals of SD.

The International Environmental Education Program (IEEP) was established to raise awareness of environmental problems and to build environmental education (EE) capacity across member states (Wright, 2002). UNESCO (1977), as mentioned by Al-Naqbi and Alshannag (2018), emphasised that the main goals of EE are to enhance awareness regarding economic, social, political and ecological interdependence; promote the abilities to obtain the knowledge, attitudes and skills needed to protect and improve the environment; and, create new patterns of behaviour towards the environment.

In regards to the ESD, Shephard (2008) believed that students acquired their knowledge, attitudes and behaviour regarding sustainability through their cognitive and affective domains of learning. According to Shephard (2008), cognitive learning is related more to knowledge and the affective domain is related to values, attitudes and behaviour. Prior to that, Laroche, Bergeron and Barbaro-Forleo (2001) also mentioned that students' knowledge about SD and the environment is exemplified by their ability to identify concepts and behavioural patterns related to sustainability, as well as environmental problems and possible solutions to those problems.

Interestingly, studies by Bamberg and Moser (2007) and Bartiaux (2008) revealed that an increase in the knowledge of students does not necessarily result in behavioural changes. Subsequently, Vermeir and Verbeke (2006) and Vicente-Molina *et al.* (2013) found that an attitude is not a significant variable in explaining pro-environmental behaviours. According to Eagly and Chaiken (1993) and Milfont and Duckitt (2010), environmental attitude is a psychological predisposition that is articulated by evaluating the natural environment with some degree of favour or disfavour.

Even though the relationship between knowledge, attitude and behaviour is not necessarily linear, some studies, such as Hsu (2004), Roth (1992) and Sia *et al.* (1986), proposed that environmental behaviour of individuals reflect their environmental knowledge. Finally, Vicente-Molina *et al.* (2013) concluded that knowledge is a necessary, but insufficient condition for pro-environmental behaviour because of the presence of external factors that affect human behaviour.

Materials and Methods

The research design used is a correlational study, where a 5-point Likert scale questionnaire was developed based on the learning objectives provided by UNESCO. The respondents were students enrolled in the Human Resource Development programme in a public university in Kuching District. The population of the students were 640, inclusive of those in Years 1, 2 and 3.

A total of 507 students (79.2%) participated in the study using the convenience sampling method. For awareness, the items began with "My knowledge of ... is." For attitude, items began with "I feel" or "I do not feel." For action, each item was preceded by "I will share…" (about or how to). The questionnaire was divided into four (4) sections, which are demographic background, awareness, attitude and action sections. The value of the Cronbach's alpha was 0.969, exceeding 0.7, which indicated that the questionnaire is reliable. Examples of questionnaire items are shown in Table 1.

The students were given a link to a Google Form shared by the Programme Coordinator of the Faculty via messaging application WhatsApp with each cohort group chat as it is the fastest and most efficient way to reach the students. The data were analysed using SPSS Statistics version 25 using the one-sample Kolmogorov-Smirnov test and Kruskal-Wallis H test as the data distribution was found to be not normal,

hence why non-parametric tests were used. The demographic background of the students is shown in Table 2.

Results and Discussion

This study investigates the students' overall awareness of attitudes towards, and likelihood of action on sustainability in higher education. The relationship between the students' year of study and sustainability awareness, attitude, and actions were examined. Table 3 summarises the results show that the majority of the students has a moderate level of awareness of sustainability (60.8 %), high level of attitude (66.3%) and high willpower to take action (64.3%).

A study has shown that students receive good support from the Faculty Management and the university. Some of the sustainability awareness programmes were incorporated in the course assessments. The results were in line with the studies conducted by Mcillin and Dyball (2009) and Barth and Rieckmann (2012), which indicate that sustainability should be aligned with faculty objectives and involves communities in education.

Table 1: Examples of questionnaire items

Categories	Items
Awareness (I.e, "My knowledge of ... is")	My knowledge of which human activities contribute most to climate change
	My knowledge of the role of education for ensuring the equality of males and females
	My knowledge of the health impacts of energy production
Attitude (I.e. I feel" or "I do not feel.")	I feel that education for sustainable development is important
	I feel that we need to do something about industries that are polluting our environment
	I feel that sustainable energy use is important
Action (I.e. I will share…" (about or how to)	I will share about the environmental impacts of technology production
	I would like to learn about renewable energy
	I would like to be involved in programmes focusing on reduce inequality to society

Table 2: Demographic background

Variables	Category	Frequency (Percentage)
Gender	Male	19.7%(N=100)
	Female	80.1%(N=407)
Age	18 -21	41.3%(N=210)
	22 -25	54.7%(N=278)
	26 -29	1.8%(N=9)
	30 and above	1.2%(N=6)
Year	Year 1	18.1%(N=92)
	Year 2	36.8%(N=187)
	Year 3	44.9%(N=228)
Have you heard of the Sustainable Development?	Yes	32.5%(N=165)
	No	20.3%(N=103)
	Yes, but I do not understand what it means	40.7%(N=239)

Table 3: Students' overall awareness, attitude and likelihood to take action on sustainability

Variables	Category	Frequency	*M*	*SD*
Awareness	Low	8.1 (N=41)	3.831	0.547
	Moderate	60.8 (N=308)		
	High	31.1 (N=158)		
Attitude	Low	5.5 (N=28)	4.259	0.561
	Moderate	28.2 (N=143)		
	High	66.3 (N=336)		
Actions	Low	4.9 (N=25)	4.274	0.594
	Moderate	30.8 (N=156)		
	High	64.3 (N=326)		

In order to encourage the teaching of knowledge on sustainability in higher education institutions, programmes should be flexible and involve students-centred learning. In this study, most of the respondents were involved in Faculty events that encourage students' involvement in volunteerism projects that enhance their critical thinking, such as recycling. This view is supported by Alkhayyal *et al.* (2020), who highlighted that support from faculty members will strengthen the awareness of and knowledge on sustainability in higher education institutions, especially among the younger generations.

Mojilis (2019) reported a level of awareness of 70% among students in another university in Malaysia, regardless of age, gender and level of study. A similar study conducted in the United States of America revealed that although the majority of the students (54.8%) agreed that their university advocates for policies that promote campus sustainability, 60% of the students do not have knowledge on whether or not the university has signed the "American college and university presidents' climate commitments," nor do they know whether the university is a member of "the association for the advancement of sustainability in higher education." This supports the notion that sustainability awareness among university students globally are at a similar level (Msengi *et al.*, 2019).

As for action, the frequencies are at 66.3%, which is relatively close to the attitude variable. There is an indication that the students do have the desire to contribute to activities related to sustainable development. Similarly, Msengi *et al.* (2019) reported in their study that about 72% of their sample indicated that student clubs engage in environmental outreach or recycling, as well as participate in events such as Earth Day. However, 43% of the students reported that sustainability was not included in the student orientation programme and 57% reported that their student publications did not focus on sustainability. Overall, the findings are consistent with previous studies that showed students were indeed concerned with sustainability issues (Meyer, 2016; Duarte *et al.*, 2017). These results also imply that the students initiated and expanded their efforts to ensure that environmental aspects are sustained.

Table 4 shows there was a statistically significant difference among the year of study in terms of sustainability awareness (p =.001), sustainability attitude (p =.007) and sustainability action (p=.011). Overall, students from the three different years (Year 1, Year 2 and Year 3) showed a high level of sustainability awareness, attitude and action. However, the results revealed that third-year students have the highest mean of sustainability awareness (*M*=3.918, *SD*=.517), attitude (*M*=4.349, *SD* =.514) and action (*M*=4.365, *SD*=.38), compared with first-year and second-year students. A generally higher score for those in Year 3 may indicate that students are more exposed to sustainability awareness campaigns as they progress in their education.

Table 4: Year of study and sustainability awareness, attitude and action

Variables	Category	*M(SD)*	*Kruskal Wallis (H)*	*p*
Awareness	Year 1	3671(.630)	13.726	0.001
	Year 2	3.786(.522)		
	Year 3	3.918(.517)		
Attitude	Year 1	4.145(.589)	10.069	0.007
	Year 2	4.206(.588)		
	Year 3	4.349(.514)		
Action	Year 1	4.148(.630)	9.085	0.011
	Year 2	4.227(.627)		
	Year 3	4.365(.538)		

Social media is also one of the factors that raises sustainability awareness. The findings of this study are consistent with the study by Suraya *et al.* (2019), which indicated that social media is able to influence awareness of environmental sustainability among staff members and students. Sustainability practices conducted at the university level, such as recycling, reduction of electricity and water consumption, engage students on environmental matters. For staff members, social media can act as a platform to convey the university policy and assist in their quest to become full-fledged "green" universities. Interestingly, this is consistent with prior studies that showed more mature college students exhibited more positive attitudes towards environmental issues (Levine & Strube, 2012).

Implication of the Research

Sustainability awareness among higher education students ensures the understanding of our co-dependence with the environment that we live in. As such, universities, through educators, play an important role in the education and development of students' awareness, attitude and behaviour towards sustainability development. Although there is increasing value placed on educating students in this area, there is still room for improvement in increasing the level of awareness among individual students of sustainable development.

In light of these findings, there are several implications. First, revisions of curricula are recommended to enhance students' knowledge to create the so-called new skillset, which are the green skills. The development of green skills is suggested to control human activities that affect the environment as the focus of 21st-century skills should not be limited only on the technical and generic skills, but also on the knowledge, abilities, values and attitudes related to sustainability. Sustainability education may be embedded in offered courses so that students are aware of the interdisciplinary connections of the sustainable development agenda. Alternatively, a stand-alone sustainability development course will assist students to acquaint themselves with the topic.

Second, further training and development of academic staff members are needed to help them be effective advocates of sustainability and sustainable development in their fields. This will boost their confidence in teaching-and-learning activities. Thirdly, is policies and best practices for long-term focus. Periodic reviews of The Malaysia Educational Blueprint 2015-2025 for Higher Education Institutions by the Ministry of Education is recommended.

The aspects of mission, vision, objectives and philosophy in management structures, which include the considerations of formal committee, roles and responsibilities, as well as assessment frameworks for performance,

are the biggest first step towards supporting the evolution of sustainability educational. The big impact of these practices, of course, will be directly changing the programme structure and staff performance appraisal in terms of key performance indicators. In addition, sustainability initiatives and outreach continuity needs to be addressed in terms of the scope of responsibilities and leadership, rather than just being a one-time effort. With such adjustments in the educational blueprints, a Centre of Responsibility, also known as PTJ, can be developed and needs to be championed by leaders with a reputable background in sustainability matters.

With this formal work structure and authority ladder, the centre can easily access higher education institutions' resources, funds, commitment and engagement. It also will specify the work description of the centre, such as a standard system developed by the higher education sector to implement, monitor, reporting procedure, and translate the sustainability integration among stakeholders.

Conclusion

This study investigated students' awareness and attitudes towards the likelihood of action on sustainability in one HRD program in a higher education setting. Our study makes the following conclusions: (i) Students have insufficient knowledge on sustainable development, (ii) there are differences between students' year of study and their sustainability awareness, attitude and actions, and (iii) final-year students recorded the highest level of sustainability awareness, compared with first-year and second-year students. The evolution of sustainability education can be included during a revision of the educational blueprint to embed sustainability aspects into the higher education institutions. This study is limited to one programme offered in one university. It is suggested that further studies be conducted to explore the extent of sustainability awareness among other disciplines. It is also suggested that future studies explore how best to inculcate sustainability awareness and understanding among students in higher education institutions.

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