

The Relationship Between Sdg Knowledge And Sustainability Behaviour of UiTM Negeri Sembilan Students

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Abstract

Higher Education Institutions (HEIs) are presently aiming to achieve a range of SDG goals by creating a sustainable environment in education. By ensuring that everyone in the system is concerned about and understands these goals, institutions can develop strategic plans to achieve this quality education agenda. This research aims to examine the relationship between SDG-related knowledge and sustainability behaviour among students in higher education. The sustainability consciousness questionnaire (SCQ) can assess knowledge related to the SDGs and sustainable development by incorporating the UNESCO framework and sustainability behaviour. The questionnaire was distributed randomly to students at the Negeri Sembilan branch of Universiti Teknologi MARA. Using the SPSS version 20, Correlation Tests were used in this research to determine the relationship between SDG knowledge and sustainability behaviour. The study's findings show that SDG knowledge has positively and significantly converted actions into sustainable behaviour. The findings also reveal that students in higher education institutions had a low to moderate level of SDG-related knowledge. As a suggestion, higher education institutions are essential for promoting SDGs. Moreover, universities can encourage and support all students to participate in SDG-related activities, events, and collaborations

Keywords: Sustainable Development Goals; Higher Education; Students

INTRODUCTION

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The Sustainable Development Goals (SDGs) established in 2015 that include 17 goals with 169 targets and 232 specific indicators have previously called for a deep transformation of human, social, and environmental development objectives (Moyer & Hedden, 2020; Griggs et al., 2013, UNGA, 2015). These goals represent an ambitious global action plan to respond to major global challenges such as poverty, social exclusion, and environmental degradation, and to achieve sustainable development for all by 2030 (Pineda-Escobar, 2019). Therefore, complementary actions by governments especially Higher Education Institutions (HEIs), are required to ensure the achievement of SDG objectives towards its 2030 Agenda for Sustainable Development.

'Quality Education', named as one of the 17 development goals (SDG Goal 4), has been defined as a way to 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' (UNESCO, 2016; Webb et al., 2017). In general, SDG 4 expresses a vision to ensure inclusive and equitable quality education

and promote lifelong learning opportunities for all. A study by Unterhalter (2019) detailed seven targets associated with quality and equality within the different phases of education, which comprise the quality education outlined in SDG 4. The first three targets are to ensure that all children and adults have access to high-quality education, from early childhood through primary and secondary school, and on to technical and university levels.

The following target (4) is to enhance the work-related skills of youths and adults. Next, the fifth (5) target is concerned with the distribution of educational access across a range of demographics, taking into account the needs of people with disabilities, indigenous peoples, and vulnerable groups. Meanwhile, the sixth target aims to ensure literacy and numeracy for all youths and significantly reduce adult illiteracy. Finally, the seventh target is the only one that addresses educational content, with the goal of developing knowledge and skills to promote sustainable development, human rights, gender equality, and cultures of peace and non-violence. All these targets are illustrated below in Figure 1.



Figure 1: *The Seven (7) Targets of SDG 4: Quality Education*
 Source: Unterhalter (2019)

Thus, specifically in relation to SDG 4 (quality education), Higher Education Institutions (HEIs) are currently focusing on achieving this goal by providing a sustainable ecosystem within the education setting by ensuring everyone in the system is aware of and understands the goals so that institutions can establish strategic plans to execute this quality education agenda (Iyer-Raniga & Kashyap, 2021). In fact, studies of sustainability development in HEIs have experienced growth for several years. Therefore, in principle, this knowledge is important for communities to understand and be aware of the SDGs so that they can demonstrate sustainable behaviour in practice and contribute to achieving the 2030 agenda. This is widely acknowledged that one of the factors that contributes to the success or failure of the SDGs is sustainability practices (Kioupi & Voulvoulis, 2019). Thus, given that the aim is to shift behaviour positively towards sustainability, SDG-related knowledge is considered a significant way to influence this form of behaviour.

Responding to this issue, this study is empirically done to examine the association between SDG Knowledge and Sustainability Behaviour among students in the Higher education setting. It is hoped that this study is would be able to indicate the level of knowledge towards SDG agenda in higher education institutions that may influence the behaviour towards sustainability practices. This study is critically important to assist the university's strategic plan in line with the sustainability agenda to support the national inspiration towards the achievement of the 2030 Agenda for Sustainable Development.

LITERATURE REVIEW

SDG-related Knowledge Among Students in Higher Institutions

The Sustainable Development Goals (SDGs), also known as the Global Goals, were implemented by all United Nations Member States in 2015 as a global call to eradicate poverty, protect the environment, and ensure that all people would live in peace and prosperity by 2030 (Ghazi et al., 2020). The 17 SDGs are connected because they acknowledge that actions taken in one area impact outcomes in others. Development must strike a balance between social, economic, and environmental sustainability (Gericke et al., 2019).

According to Zamora-Polo et al. (2019), the Sustainable Development Goals (SDGs) are the blueprint with which the global community can make a better place for successive generations. Therefore, Igbinoia and Osuchukwu (2018) agreed that higher institutions must ensure adequate sharing of knowledge and information connected to the Sustainable Development Goals. These Goals are generally unknown amongst university students. In this context, higher education institutions face the challenge of developing competencies relevant to the SDGs (Zamora-Polo et al., 2019). In addition, Igbinoia and Osuchukwu, (2018) pointed out that to make a significant contribution to achieving the SDGs, higher education institutions must ensure good sharing of knowledge on the SDGs and the associated information.

According to a prior study, higher education institutions have a relationship between a strong knowledge foundation and a favourable attitude. This relationship can be divided into two groups: students with a high educational understanding who have a good attitude but are less knowledgeable of the SDG. Nusrat Afroz and Zul Ilham, (2020) proved that students with good knowledge and attitudes had underperformed in SDG implementation. Meanwhile, Omisore et al., (2017) found that the awareness and attitudes toward SDG were merely fair and were also incorporated. However, the lack of understanding of SDG itself has severe consequences for achieving the goals.

In the second group, well-versed students in learning education who are well-versed in SDG knowledge would result in a good attitude towards their lifestyle (Mohd Nizar et al., 2019). According to Ghazi et al., (2020), medical students at one of Malaysia's private universities have a good understanding of SDG. Moreover, in their study, Al-Naqbi and Alshannag (2018) found that the students demonstrated a high degree of knowledge, highly favourable attitudes, and somewhat good knowledge to conduct toward SDG and the environment.

Sustainability Behaviour

Sustainability entails satisfying our demands without jeopardising future generations' ability to meet their own. According to the University of Alberta (2021), sustainability is a comprehensive strategy that considers the ecological, social, and economic elements while understanding that all these factors must be employed to achieve long-term success. Choi (2016) believed that sustainability necessitates preserving both natural and human (social) ecosystems. This was supported by Tapia-

Fonllem et al. (2016), who also claimed that sustainable development strives to improve people's lives by ensuring human needs are met while also protecting the environment. Today, sustainability has become a highly significant discussion, mainly in the academic world. Education has been regarded as a soft metric for attaining long-term sustainability (Barth, 2016).

Education is essential for the transmission of information as well as the promotion of long-term growth. Thus, developing the appropriate awareness, values, and attitudes is crucial to accomplishing long-term growth. Hence, educational institutes, such as universities, have been viewed as forums for turning the challenges that humanity faces into solutions. Some commentators, such as Eizaguirre et al. (2019), are of the opinion that universities play an essential role in addressing sustainable development issues via education. Universities are a critical vehicle for exploring, testing, developing, and communicating the necessary conditions for long-term growth. Students are exposed to social changes at university and can execute sustainable development through several channels: organisational, educational, and curricular, as well as through research (Caeiro & Azeiteiro, 2020). Indirectly, education helps to change students' behaviour.

Geng et al. (2017) believed that students, particularly teenagers and young people, are more receptive and form long-term behaviours more easily. They also stated that this group is more likely to spread sustainable behaviours to others. Furthermore, students are the future environmental policymakers, marketing planners, decision-makers, and educators in the new economy (Joshi & Rahman, 2017). In general, university students should be taught how to understand and resolve social, environmental, and economic issues. This means including students in the consulting process, which includes formulating corporate strategies, and planning events, as well as lecturing on and modelling behaviour (Dedu et al., 2020).

Education for sustainability aims to rethink and improve educational SDG-focused programmes that are significant for current and future communities (Faham et al., 2017). Empirical research on the impact of the SDGs on learning concepts and educational practices reveals discrepancies, methodological inconsistencies, and curriculum deficiencies (Kioupi & Voulvoulis, 2019). Therefore, the adoption of the Sustainable Development Goals (SDGs) is not progressing as quickly as expected. There appears to be a general lack of knowledge of the Sustainable Development Goals

(Zamora-Polo et al., 2019). According to Stephens and Graham (2010), educational approaches can be applied from the preschool to university levels to educate students about knowledge, sustainability principles, skills, perspectives, and values.

Universities worldwide have begun to change their instructional mission and methods to incorporate sustainability into the educational system. Zamora-Polo et al. (2019) stated that the other characteristics of a university's activities, such as governance, the university environment, and responsibility to society, should be included when assessing a university's activities. Each of these university aspects might contribute to creating a more just society and, as a result, achieving sustainable knowledge and behaviour among students in higher education institutions (Owens, 2017). Nonetheless, more education and promotion are required to achieve those objectives. Several researchers, including Ahamad and Ariffin (2018), concur that social media is the most important source of environmental information for higher education students.

METHODOLOGY

The sustainability consciousness questionnaire (SCQ) was used in this study to assess SDG knowledge of sustainable development based on the UNESCO framework and sustainability behaviour. Michalos et. al. (2012) provided the foundation for the SCQ instrument, which was then developed and expanded by others. This paper employs two constructs only which are SDGs knowledge and sustainable behaviour. The SDGs Knowledge construct is made up of eight questions derived from Zamora-Polo et al (2019), while the Sustainability Behaviour construct is made up of 16 items adapted from Gericke et. al. (2019). All items were assessed on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The questionnaire was distributed randomly to the students in Universiti Teknologi MARA, Negeri Sembilan branch at three different campuses; Kuala Pilah, Seremban and Rembau. The total number of the respondents was 345 where 91 samples (26.38 percent) were from Kuala Pilah campus, 137 samples (39.71 percent) were from Seremban and 117 (33.91) were students in Rembau campus. To assess the reliability or consistency of the questionnaire, the Cronbach's alpha test was calculated for each

construct. The Cronbach’s alpha for the SDGs Knowledge and sustainability behaviour were 0.925 and 0.733 respectively.

Table 1: Respondent Distribution According to Faculty and Level of Study

Faculty Code	Faculty	Levels of Study			Total
		Diploma	Degree	Master	
1	Applied Sciences	36 (32.4)	53 (22.9)	2 (66.7)	91 (26.4)
2	Sports Science & Recreation	1 (0.9)	37 (16.0)	0 (0.0)	38 (11.0)
3	Computer & Mathematical Sciences	21 (18.9)	2 (0.9)	0 (0.0)	23 (6.7)
4	Administrative Science & Policy Studies	1 (0.9)	74 (32.0)	1 (0.9)	76 (22.0)
5	Communication & Media Studies	39 (35.1)	1 (0.4)	0 (0.0)	40 (11.6)
6	Information Management	1 (0.9)	59 (25.5)	0 (0.0)	60 (17.4)
7	Business & Management	12 (10.8)	5 (2.2)	0 (0.0)	17 (4.9)
Total		231 (100.0)	3 (100.0)	345 (100.0)	

Note: Percentage value in parentheses

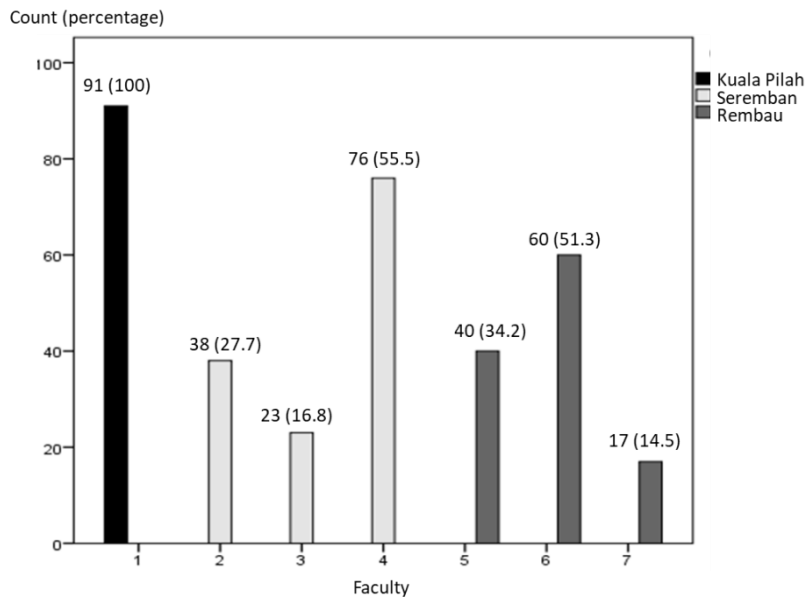


Figure 2: Respondent Distribution According to Campus

The association between SDGs Knowledge and Sustainability Behaviour was calculated by correlation tests. The correlation data was the average score (mean) of the

items. However, four items under SDGs Knowledge were not taken into account while getting the mean score. The four items were SDGs Knowledge sources (1-email and/or Social Networks, 2- traditional media, 3- formal education, and 4- informal training). As ordinal data was commonly not normally distributed, non-parametric correlation methods such as Spearman's rank-order coefficient and Kendall Tau-b were acceptable. According to Akoglu (2018), non-normal distribution correlation coefficients should be calculated using rankings rather than actual values. These two correlation tests were created specifically for this purpose and were insensitive to monotonic relationships.

Correlation coefficients have values ranging from minus one to one. A positive correlation would show that the ranks of both variables are increasing. A negative correlation, on the other hand, would suggest that while one variable's ranking increases, the other variable's ranking decreases. The null hypothesis states that the two have no association, while the alternate hypothesis states the opposite. The standard confidence interval of 95 per cent was applied. Correlation values of ± 1.00 to ± 0.70 suggest a strong association; correlation coefficients of ± 0.7 to ± 0.4 indicate a moderate association; and correlation coefficients of ± 0.4 to ± 0.2 indicate a weak association; these featured as the rule of thumb devised by Saha and Paul (2020). Nevertheless, some statisticians and researchers differ in their views on the correlation interpretation cut-off point. All the analysis was conducted using SPSS version 20.

RESULTS

Table 2 shows the percentage and mean of SDG Knowledge and Sustainability Behaviour. In general, the students have a low to moderate SDG Knowledge by looking at the low percentage in higher scale and mean score. On the other hand, the mean scores of the items in Sustainability Behaviour were larger than the mean scores obtained in SDG Knowledge.

Table 2: *Percentage Value and Mean Score of the Items in Constructs*

Items	Percentage					Mean
	1	2	3	4	5	
<i>SDGs Knowledge</i>						
I know what the Sustainable Development Goals are.	7.2	13.6	34.5	37.1	7.5	3.24
I know the countries to which the Sustainable Development Goals are addressed.	9.3	20.0	41.4	25.2	4.1	2.95

I know the time horizon for which the Sustainable Development Goals are designed.	8.4	26.4	42.0	21.2	2.0	2.82
I know the number of Sustainable Development Goals and could indicate one of their goals.	9.6	19.4	36.2	29.6	5.2	3.01
Sustainability Behaviour						
Where possible, I choose to cycle or walk when I'm going somewhere, instead of travelling by motor vehicle.	6.1	25.5	28.1	31.0	9.3	3.12
I never waste water.	3.5	15.1	34.8	35.4	11.3	3.36
I recycle as much as I can.	1.4	13.0	33.6	42.6	9.3	3.45
I pick up rubbish when I see it out in the countryside or in public places.	3.8	25.2	49.3	21.7	3.8	3.89
I always separate food waste before putting out the rubbish when I have the chance.	1.7	17.4	23.8	39.4	17.7	3.54
I have changed my personal lifestyle in order to reduce waste (e.g., throwing away less food or not wasting materials).	.6	6.7	23.8	53.6	15.4	3.77
When I use a computer or mobile to chat, to text, to play games and so on, I always treat others as respectfully as I would in real life.	.9	1.7	10.4	53.9	33.0	4.17
I often make lifestyle choices which are not good for my health.	7.0	21.2	36.2	29.9	5.8	3.06
I work on committees (e.g., the student council, my class committee, the cafeteria committee) at my school.	8.1	27.0	23.5	34.5	7.0	3.05
I treat everyone with the same respect, even if they have another cultural background than mine.	.6	1.4	8.1	45.8	44.1	4.31
I support an aid organization or environmental group	.6	1.4	15.1	49.3	33.6	4.14
I show the same respect to men and women, boys and girls.	.6	.9	8.1	47.8	42.6	4.31
I do things which help poor people.	.6	14.8	51.6	33.0	.6	4.17
I often purchase second-hand goods over the internet or in a shop.	3.8	15.4	32.5	34.8	13.6	3.39
I avoid buying goods from companies with a bad reputation for looking after their employees and the environment.	.6	2.3	23.8	42.9	30.4	4.00
I watch news programs or read newspaper articles to do with the economy.	2.6	10.7	42.0	35.7	9.0	3.38

Note: 1- Strongly Disagree, 2- Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree

This paper examined the relationship between SDG Knowledge and Sustainability Behavior for individual campuses, as well as the combination of both (overall). Figure 3 depicts the scatter plots that show the association between these two constructs. As expected, all four cases revealed the likelihood of a positive relationship between SDG-related knowledge and sustainability behaviour. It was hypothesised that if students have greater knowledge and awareness of the SDGs, they will behave in a more sustainable manner, and vice versa.

The results in Table 3, indicate that Spearman's rho (ρ) and Kendall's tau_b (τ_b) coefficients of all associations were significant at the $p < .05$ level. The results were robust when both tests were consistent and not too far from one another. The association between SDG Knowledge and Sustainability Behaviour in Kuala Pilah ($\rho=-0.226$, $\tau_b=-0.300$, $p<0.05$), Seremban ($\rho=-0.231$, $\tau_b=-0.314$, $p<0.05$) and Rembau ($\rho=-0.228$, $\tau_b=-$

0.310, $p < 0.05$) were positively correlated to each other. However, the magnitudes of the correlation for all associations were weakly correlated based on the cut-off point by Saha and Paul (2020). A weakly positive significant correlation between SDGs Knowledge and Sustainability Behaviour could also be observed when all campuses were considered ($\rho = -0.229$, $\tau_b = -0.345$, $p < 0.05$).

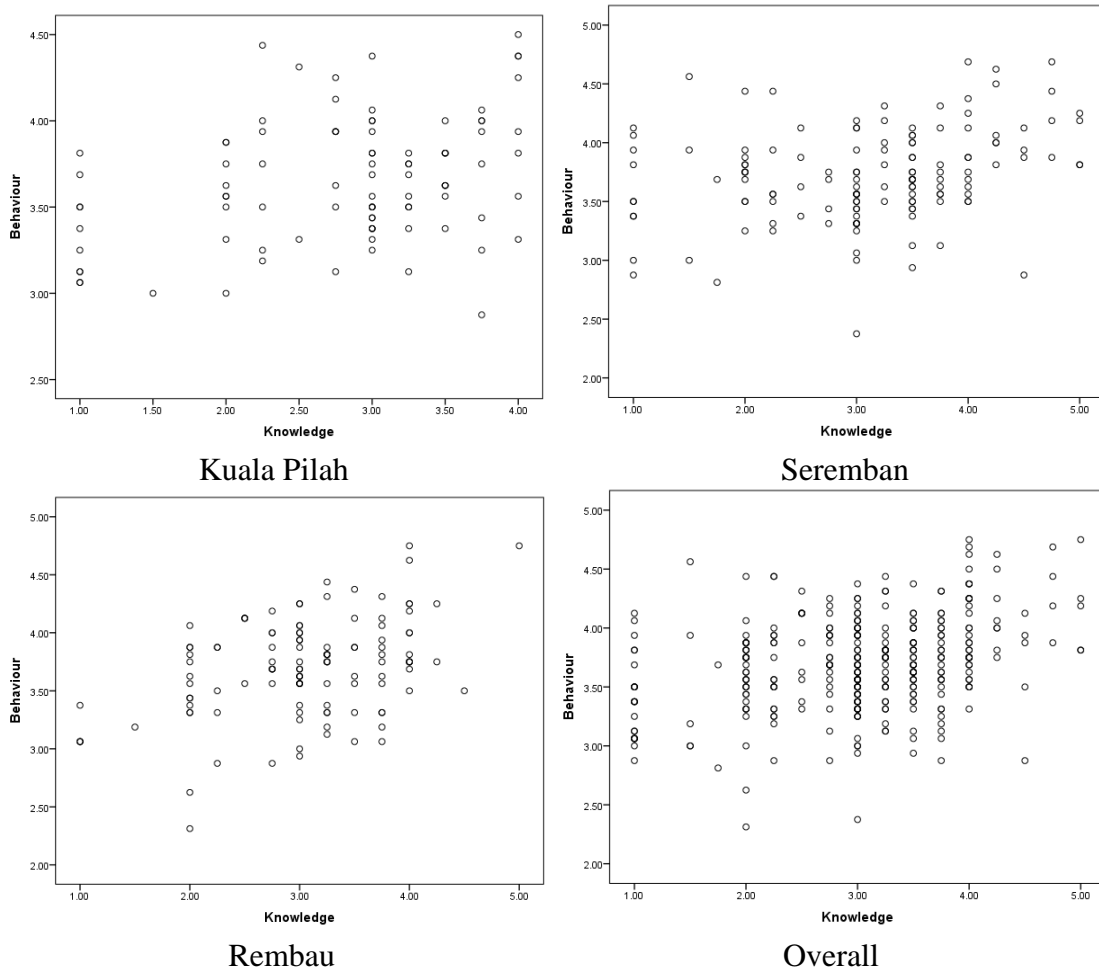


Figure 3: Scatter Plot between SDGs Knowledge and Sustainability Behaviour

Table 3: Association between SDGs Knowledge and Sustainability Behaviour

Campus	Test Statistics	r	p-value
Kuala Pilah	Kendall's tau_b	.226	.003
	Spearman's rho	.300	.004
Seremban	Kendall's tau_b	.231*	.000
	Spearman's rho	.314	.000
Rembau	Kendall's tau_b	.228	.001
	Spearman's rho	.310	.001
Overall	Kendall's tau_b	.229	.000
	Spearman's rho	.345	.000

The results reveal that SDG knowledge has converted actions into sustainability behaviour positively and significantly. The findings are consistent with research carried out by Barloa et al. (2016) on solid waste management, where they disclosed respondents with higher knowledge scores were more likely to exhibit good practice. However, the students tend to practice sustainability behaviour weakly in relationship with SDG Knowledge. It might be due to low SDG Knowledge levels among students. The mean score for four SDG Knowledge was only 3.00. While the mean scores for the sources of SDG Knowledge which are email and/or Social Networks, traditional media, formal education and informal training were only 2.74, 2.94, 3.25 and 2.81 respectively.

CONCLUSION & RECOMMENDATION

One of the issues that must be addressed to achieve sustainable development is the lack of information and awareness about SDG. The findings of this study reveal that students at higher education institutions have a low to moderate degree of SDG knowledge. For example, just 35 percent of students agreed with the statement 'I know the number of Sustainable Development Goals and could indicate one of their goals'. This suggests that the students had not been well exposed to SDG. Even though the positive association between SDG Knowledge and sustainability behaviour was weak, it is to be expected that the association would be strengthened when students are better informed about SDG. Higher education institutions are one of the most important platforms for promoting SDG. For instance, by incorporating faculty members as experts on each SDG, they are then able to incorporate SDG into their teaching. Other than that, the institutions can promote and support all student clubs and organisations to

participate in SDG-related events, activities, and collaborations. Future research might look at the efficacy of various implementations as well as study the comparison between institutions and regions. This could give a better insight into SDG's implementation in higher institutions.

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