

Attitudes towards Green Economy Concerns among Higher Education Students in Oman

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Abstract

Across the world, people are highly concerned with environmental matters, while worries about risks and threats continue. In recent decades, environmental concerns have drawn more international and national attention, particularly, the green economy, an area of environmental awareness that aims to reduce environmental risks and ecological scarcities, fostering sustainable development without degrading the environment. The present study investigated green economy awareness among the higher education students in Oman in general and Sultan Qaboos University (SQU) in particular to assess their knowledge, attitudes and practice regarding the green economy. Data were collected via a structured questionnaire that was delivered to all students of the nine university colleges. The descriptive data analysis revealed that most respondents were aware of the concept of the green economy. While general knowledge and awareness about the concept were generally satisfactory, there were still some misconceptions and a lack of knowledge about some other themes. Statistical tools such as the Chi-square test, WAS and factor analysis were used to analyse any differences in the perception of male and female respondents as well as college background and majors.

Keywords

Green Economy, Perception, KAP, Higher Education, Oman

1. Introduction

While issues such as environmental sustainability, environmental conservation and investments in environmental activities have been discussed, the definition of the green economy is a little confusing, since it can refer to anything from green product development to the advertising campaigns of the concept itself. A comprehensive green economy is an option in contrast to the present prevailing

monetary model of the economy, which increases disparities and creates far-reaching dangers to the earth and human welfare. Over the previous decade, the green economy has emerged as a key need for some governments to transform their economies into drivers of sustainability. These countries must consider the major challenges of the 21st century, which range from urbanisation and resource scarcity to climate change and economic instability. The growing concerns about environmental consciousness have changed people's knowledge and perception that transitioning to a green economy has sound economic and social justification. In this regard, the government, as well as the private sector, has an important role to play in engaging in such economic transformation, which will have profound impacts on the way we produce, consume and earn a living.

2. Scope and Significance of the Study

As the Gulf Cooperation Council States (GCCs) in general and the sultanate of Oman, in particular, are highly concerned about better environmental awareness (Al Buloshi et.al., 2015), it is important to establish general standards by which they can achieve progress towards a green economy. This study seeks to explore the level of knowledge in Oman on issues and themes of green economy concepts and applications. The global economic and financial crisis of 2008-2009 and the subsequent fluctuation of oil and gas prices in 2014 and 2015 have also affected the socioeconomic development in these states. The gross domestic product growth has decreased in some states causing a decline in economic growth and an increase in unemployment rates. However, the green economy mostly focuses on the efficient use and management of principal resources to expand the economy, which delivers security against the possible stresses of the global economy.

Oman is working towards moving to green development strategies to transform the country into a state that realises the needed balance of sustainable development. This balance refers to attaining both social and economic stability while alleviating environmental risks. For this, the government is developing "green" national policies and investment decisions, that place more burden and complexities on the traditional sectors. Policies should be developed through an integrated decision-making process while pushing forward towards energy efficiency, emissions reduction, technological innovation and environmental security (Oman National Vision, 2017).

An examination of studies and research that focused on green economy issues concerning awareness about the concept and its applications revealed that numerous studies have focused on the role of education in fostering knowledge and promoting practices.

Education for Sustainable Development (ESD) is a concept and learning vision that seeks to find a balance between human and economic welfare, cultural traditions and the sustainability of natural and environmental resources, to en-

sure a better life for both individuals and society as well as future generations (Barth & Burandt, 2013; Brundiers & Wiek, 2011; Hansmann, 2010). Higher education institutions in Oman are highly concerned with the implementation of ESD principles, which requires the adoption of several educational approaches that raise awareness and boost determination for both individuals and organizations to develop and implement advanced solutions.

The well-known economist Pearce, who suggested that the environment and economy inevitably interrelate (Pearce et al., 1989), was the first to mention the concept of a green economy. UNEP gives a clear definition of a green economy as one that concentrates on human and natural factors and can create high-salary jobs (UNEP, 2008). In 2011, UNEP enriched the meaning of “green” to refer to an economy that is not only efficient but also fair, ensuring a just transition to an economy that is low-carbon, resource-efficient, and socially inclusive (UNEP, 2011). Many scholars find that the green economy has positive impacts (Engel & Kammen, 2009).

As stated by Rowe (2007), the discussed problems were brought to higher education by urbanisation and business. Several studies and initiatives (Wiek et al., 2012; Yarime, 2012; Sibanda, 2013) discussed the challenges posed by global environmental changes and their associated socioeconomic problems. Thus, sustainability has become the focus of various studies (Mensah & Enu-Kwesi, 2018; Tjarve & Zemite, 2016; Thomas, 2015). Tilbury (2011) and Gray (2010) discussed the concept to broadly accommodate sustainable and healthy economic, ecological and social systems for human development. Others highlighted the perception issue (Leiserowitz et al., 2005; Tikka et al., 2000; Pacheco, 2009) and Eilam and Trop (2012) indicated that the behaviour of individuals follows a course parallel to the attitude and risk perception towards the environment. Attitude is comprised of three components: cognitive (knowledge and beliefs), affective (emotional response), and behavioural (past and present behavioural response). Higher education institutions have a great responsibility towards achieving sustainability (Sharp, 2002). Although sustainability in higher education was first addressed in Stockholm Declaration in 1972 (Tiyarattanachai & Hollmann, 2016), the importance of education on increasing public awareness about sustainable development was strongly emphasised in Agenda 21 (UN, 1992), and the 2030 Agenda for Sustainable Development (UN, 2015). However, in addition, to integrating sustainability education into the curriculum, higher education institutions were recommended to improve their physical assets and continue their campus operations considering causing minimum environmental impact (Hansmann, 2010). Therefore, a myriad of higher education institutions is actively engaged in the globally emerged green campus movement. Focusing on the relationship between sustainability education and campus implementations, this study aims to understand the influence of education on students' sustainability perceptions and determine their green campus expectations via a questionnaire. The study findings are expected to enlighten the pathway for more efficient green campus implementations by concentrating on students' views about

sustainability and the green campus movement.

3. Methods and Data Analysis

The KAP study is appropriate to examine the level of awareness of Sultan Qaboos University students about the green economy, as it addresses key questions that will form the basis for a clear understanding, including what is the level of awareness? How does this level of awareness vary by gender, age, college and college major? What are current and potential sources that influence these perceptions?

A survey of students of Sultan Qaboos University was conducted to examine the levels of knowledge, attitudes and practices towards climate change. The researchers themselves with the assistance of field workers administered the survey. The intended sample size for this survey was 500 respondents and respondents were selected based on a stratified random sampling process, with 375 completing the questionnaire and a 50:50 ratio of males to females.

The quantitative data analysis was performed using SPSS software. In addition to data triangulation, the findings and recommendations were cross-checked with the relevant literature to search for areas of convergence and divergence. The data were analysed using Chi-square and t-tests, with the results presented in the tabulated form and appropriate pie charts.

4. Key Questions

As the main goal of the study was to understand the level of awareness among university students from different colleges (**Table 1**) regarding a green economy, the key questions were as follows:

- 1) Are students are aware of the concept of a green economy?
- 2) How does this level of awareness differ by gender, college major, and college level?

Table 1. Students' responses according to college.

Colleges	Number of respondents	Percentage of respondents
Economics and Political Science	58	15.5
Science	54	14
Nursing	11	3
Law	25	6.5
Agricultural and Marine Sciences	28	7.5
Medicine and Health Science	25	6.5
Education	54	14
Engineering	58	15.5
Arts and Social Sciences	62	17
Total	375	100

- 3) Students' awareness of the emotional aspects of the green economy?
- 4) Students' awareness of the behavioural aspects of the green economy?

5. Findings

Students' attitudes towards a green economy in this study were measured with 35 statements and questions, with students asked to indicate their level of awareness of a green economy (Table 2). The results show that more than half of the respondents reported that they do not know anything about the green economy, with female students tending to report a higher level of awareness.

The level of awareness of the green economy was also investigated by calculating the mean of the three variables 1) Knowledge, 2) Attitude, and 3) Practice and the independent sample t-test (Table 3). The mean score for female students was greater than their male counterparts for all variables of interest. As indicated by the independent samples t-tests, the only significant difference between male and female students was for variable 1, knowledge. The mean scores for individual items of var1 and var2 are presented in Tables 8-10 respectively.

Additionally, the level of awareness was also investigated by colleges (Table 4), showing that students from science and economics disciplines were more aware of the green economy. One-way analysis of variance was applied to test for significance between the mean scores from different colleges (Table 5).

The null hypothesis of no significant difference found between mean scores was rejected only for var2.

Correlation coefficients for the three variables were calculated to further investigate the level of awareness among students (Table 5), showing statistically positive intercorrelations between the variables.

Ordinal logistic regression was then applied for predicting the dependent variable (Students' level of awareness of green economy) (Table 6), revealing that three variables have a significant impact on predicting the dependent variables (var1, var2, and gender). The best predictor of students' level of awareness of the green economy is var1 ($p = 0.000$) (Figure 1 and Figure 2) (Tables 7-11).

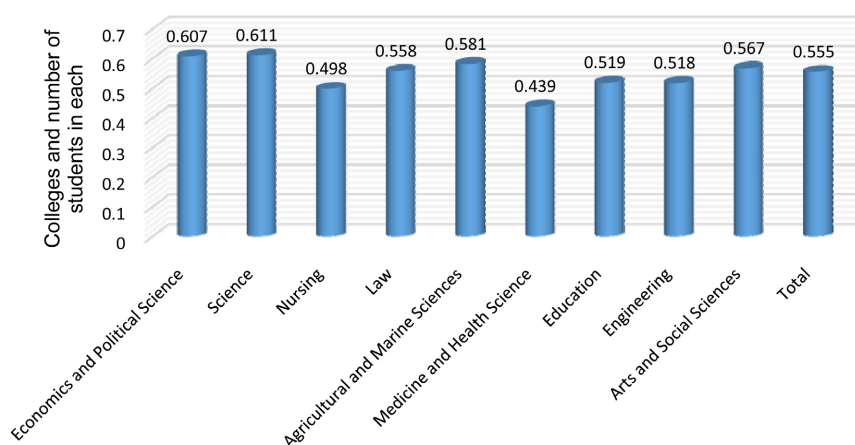


Figure 1. Average responses by colleges.

Table 2. Students' level of awareness of a green economy according to gender.

Values	Responses					
	Male		Female		Total	
	Frequency	%	Frequency	%	Frequency	%
I do not know anything	108	28.8%	96	25.6%	204	54.4%
Low	27	7.2%	55	14.7%	82	21.9%
Medium	25	6.7%	52	13.9%	77	20.5%
High	4	1.1%	8	2.1%	12	3.2%

Table 3. Results of the t-test and descriptive statistics of students' attitudes by gender.

variables	Male (n = 164)		Female (n = 211)		t-value	Prob
	Mean	SD	Mean	SD		
Var1	0.90	0.573	1.12	0.551	3.745	0.000
Var2	2.74	0.795	2.80	0.837	0.724	0.470
Var3	3.29	0.588	3.32	0.526	0.642	0.522

Table 4. Mean scores of students' attitudes by college.

Colleges	Var1	Var2	Var3
Economics and Political Science	1.15	3.04	3.37
Science	1.08	3.06	3.35
Nursing	0.85	2.49	3.30
Law	0.96	2.79	3.21
Agricultural and Marine Sciences	0.80	2.90	2.98
Medicine and Health Science	0.99	2.19	3.22
Education	0.93	2.59	3.35
Engineering	1.11	2.59	3.36
Arts and Social Sciences	1.02	2.84	3.34

Table 5. Results of ANOVA of students' attitudes by college.

variables	t-value	Probability
Var1	1.524	0.147
Var2	4.405	0.000
Var3	1.671	0.104

Table 6. Ordinal logistic regression for the variables predicting students' awareness of green economy.

Variables	Estimate	Std. Error	Wald	df	Probability
Var1	2.019	0.247	66.834	1	0.000

Continued

Var2	0.332	0.152	4.752	1	0.029
Var3	0.190	0.237	0.642	1	0.423
Gender	0.529	0.225	5.514	1	0.019
College	-0.003	0.037	0.007	1	0.934

Table 7. The knowledge about the concept of the green economy according to college.

Colleges	Responses					
	Yes		No		Total	
	Frequency	%	Frequency	%	Frequency	%
Economics and Political Science	24	6.4%	34	9.1%	58	15.5%
Science	24	6.4%	30	8.0%	54	14.4%
Nursing	1	0.3%	10	2.7%	11	2.9%
Law	3	0.8%	22	5.9%	25	6.7%
Agricultural and Marine Sciences	6	1.6%	22	5.9%	28	7.5%
Medicine and Health Science	9	2.4%	16	4.3%	25	6.7%
Education	9	2.4%	45	12.0%	54	14.4%
Engineering	19	5.1%	39	10.4%	58	15.5%
Arts and Social Sciences	27	7.2%	35	9.3%	62	16.5%
Total	122	32.5%	253	67.5%	375	100.0%

Table 8. Level of awareness about the green economy.

Values	Responses					
	Male		Female		Total	
	Frequency	%	Frequency	%	Frequency	%
I do not know anything	108	28.8%	96	25.6%	204	54.4%
Low	27	7.2%	55	14.7%	82	21.9%
Medium	25	6.7%	52	13.9%	77	20.5%
High	4	1.1%	8	2.1%	12	3.2%

Table 9. Students' attitudes about the green economy.

Statements	Responses in percentages by gender					
	Male		Female		Total	
	Mean	%	Mean	%	Mean	%
Q1	2.38	47.7%	2.29	45.9%	2.33	46.7%

Continued

Q2	2.58	51.6%	2.58	51.6%	2.58	51.6%
Q3	2.49	49.8%	2.65	53.1%	2.58	51.6%
Q4	2.70	54.0%	2.86	57.3%	2.79	55.8%
Q5	2.96	59.1%	3.04	60.8%	3.00	60.1%
Q6	2.77	55.5%	2.71	54.2%	2.74	54.8%
Q7	3.20	64.1%	3.42	68.5%	3.33	66.6%
Q8	2.82	56.5%	2.84	56.9%	2.83	56.7%

Table 10. The level of awareness of students about the behavioural aspects of the green economy.

Statements	Responses					
	Yes			No		
	Male	Female	Total	Male	Female	Total
Q1	20.3%	32.2%	52.5%	23.5%	24.0%	47.5%
Q2	17.6%	25.1%	42.7%	26.1%	31.2%	57.3%
Q3	13.6%	9.1%	22.7%	30.1%	47.2%	77.3%
Q4	23.7%	27.2%	50.9%	20.0%	29.1%	49.1%
Q5	26.2%	34.9%	61.1%	17.6%	21.3%	38.9%
Q6	14.4%	16.8%	31.2%	29.3%	39.5%	68.8%
Q7	30.9%	41.1%	72.0%	12.8%	15.2%	28.0%
Q8	21.9%	29.8%	51.7%	21.9%	26.4%	48.3%
Q9	27.7%	34.2%	61.9%	16.0%	22.1%	38.1%

Table 11. Students' awareness of the green economy in general.

	Students' awareness of the university's role in promoting a green economy		Students' awareness of the green economy in general	
	Mean	Standard deviation	Mean	Standard deviation
Economics and Political Science	3.04	0.850	3.37	0.560
Science	3.06	0.934	3.35	0.650
Nursing	2.49	0.751	3.30	0.386
Law	2.79	0.813	3.21	0.450
Agricultural and Marine Sciences	2.90	0.698	2.98	0.597
Medicine and Health Science	2.19	0.650	3.22	0.555

Continued

Education	2.59	0.682	3.35	0.559
Engineering	2.59	0.735	3.36	0.506
Arts and Social Sciences	2.84	0.816	3.34	0.507
F-statistics		4.405		1.671
Sig		0.000		0.104

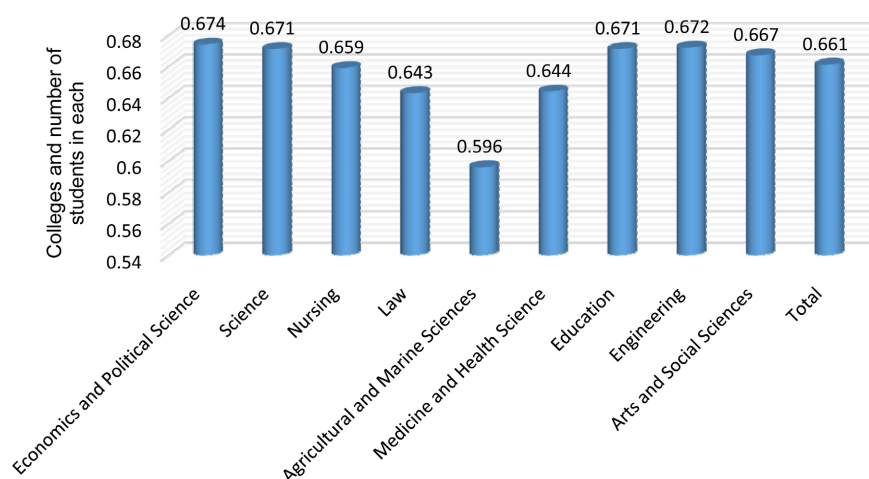


Figure 2. Students' awareness of the green economy in general.

6. Conclusion

The present study explored the awareness of Sultan Qaboos University students towards a green economy via a questionnaire. The local opinions of people are shaped by various characteristics, yet they represent a solid base for further actions. The results revealed that student awareness of a green economy is high, attributed to the fact that higher education students are the most enlightened, educated and relatively young segment of the Omani population. However, the results exposed varying degrees of awareness, with the students' college background and majors playing a key role in shaping the level of awareness. The present study is significant as it addresses general awareness through KAP analysis. Environment-related education is considered to have a major role in facilitating awareness towards green economy themes. Consequently, this study indicated that students with a college major related to the environment are more aware of a green economy. The college major may promote environmental awareness among university students, thus, education for sustainable development (ESD) should introduce an academic curriculum focused on environmental issues for all college courses to facilitate a better understanding of environmental themes in general and the green economy in particular. Further additional studies should be conducted to explore other factors influencing the level of awareness.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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