

# Impact of environmental sustainability course on enhancing environmental knowledge among university students in UAE.

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**Abstract.** This study evaluated how introduction of a university course on environmental sustainability can promote environmental responsibility among students. The research used a cross-sectional survey of 790 university students to study how formal environmental education together with demographic factors affect environmental knowledge and attitudes and practices (KAP). The research shows that students who attend university environmental courses develop better environmental awareness and female students consistently show higher environmental literacy. The study revealed that the main source for students to obtain environmental information is the social media platforms (52%) leading to doubts about the scientific accuracy of such content. The research aims to develop educational strategies for curriculum development that will merge traditional learning methods with new information channels to create environmentally aware graduates.

**Keywords:** Environmental education, environmental extracurricular activities, volunteering, sustainability, Knowledge, Attitude, practices.

## 1. Introduction

Environmental sustainability is gaining global concern as countries and societies are facing many negative environmental consequences associated with climate change, resource depletion and an overall ecological degradation. Away from international agreements, policies and technical application, instilling the environmental responsibility among our future generation is one of the long term goals that can lead to a significant change on medium and long term plans. Educational institutions particularly higher education play an important role in developing environmentally responsible graduates who can serve their community in future.

The impact of developing environmental knowledge, attitude and practices through a university educational course has been evaluated in literature (Esteban Ibáñez et al., 2020; Sady et al., 2019), with studies evaluating the impact of social media and internet ( ), as well as that of of extracurricular activities on improving environmental knowledge in the community (Thompson & Herriges, 2024). The formal academic courses are essential for offering structured, theoretical knowledge and developing critical thinking skills among university students (Ramadhan et al., 2023; Sady et al., 2019). On the other hand, volunteering, can provide a better hands-on, experiential learning that promotes emotional attachment and pro-environmental behaviours (Patrick et al., 2021;

Stylianou et al., 2023). Because of the wide spread, high impact and popularity of social media it can enhance the outreach and rapid dissemination of environmental information, thereby raising public awareness, however it may be challenging to offer the same scientific depth compared to structured coursework (Lopera-Perez et al., 2021). Environmental educators should follow different approaches to enhance KAP. Social media and volunteering has the potential to enhance environmental education through community engagement and practical experience, academic courses remain the cornerstone for developing in-depth environmental literacy. It is an ongoing process, it can start with any activity whether studying academic course, getting some information through internet or participating in extracurricular activities but the academic course can be the only source that can provide a balanced and academically sound scientific contents. In this study the authors evaluated the overall environmental knowledge of a group of university students in the UAE and assessed how taking an elective environmental course, can improve KAP among university students. Also assessed was the impact of demographic variations such as gender, major, scientific background on the environmental KAP among university students. The outcome of this study, can help the curriculum designers and decision makers in their future plans to improve environmental knowledge, attitude and practices among university students.

## Methods

A cross sectional study was conducted including 790 university students from UAE. For the purpose. a questionnaire of 36 questions covering demographic data, knowledge questions on general environmental issues, questions about environmental volunteering, and environmental attitudes and values was used. Also the questionnaire included questions on the source of information such as internet, social media or through engagement in various environmental activities.

## 1. Results:

Table 1 shows the association between environmental awareness and demographic variables of the studied sample. The highest percentages of Good, Fair, and Poor environmental awareness were among the age group 20 year to less than 25 years (73.5%, 65.2%, and 63.6% respectively). Similarly, the highest percentages of Good, Fair, and Poor environmental awareness were among female students (85.3%, 76.8%, and 77.4% respectively). (Thompson & Herriges, 2024) (Liang et al., 2018) found that female students outperformed male

students in all categories of environmental literacy, suggesting gender as a significant factor in environmental knowledge. The highest percentages of Good, Fair, and Poor environmental awareness was among Law, Arts, and Sharia colleges (55.9%, 57.1%, and 57.3% respectively). High percentages of Good and Fair environmental awareness were among students who attended a university course on environmental issues (67.6% and 51.3%), while the highest percentage of poor environmental awareness was among students who did not attend a course on environment (64.4%). A statistically significant association was detected between attendance of a university course on environmental issues and environmental awareness ( $X^2=0.001$ ). (Freije et al., 2017) discovered that 55% of science students at the University of Bahrain answered questions about global warming correctly, with fourth-year students (60%) outperforming first-year students (51%). This significant difference ( $p \leq 0.05$ ) between first and fourth-year students' knowledge suggests that university education positively impacts environmental awareness. When the students were asked about how they followed up the updates on environmental issues the order of answers showed that social media platforms were the most abundant source (52%), followed by YouTube (19%) and news articles, and university events (12%). The dominance of the social media and YouTube as the preferred source of information may raise a concern where some of the information may not be scientifically verified.

Table 1 Environmental awareness in association with the demographic variables

Age	Good		Fair		Poor		X <sup>2</sup>
	No.	%	No.	%	No.	%	
							0.08
15 -	6	17.6	167	32.2	82	34.3	
20 -	25	73.5	337	65.2	152	63.6	
25+	3	8.8	13	2.5	5	2.1	

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Gender							0.51
Male	5	14.7	120	23.2	54	22.6	
Female	29	85.3	397	76.8	185	77.4	
College							0.17
Med& H Sciences	10	29.4	77	14.9	40	16.7	
Scie & Eng.	5	14.7	145	28.0	62	25.9	
Law, Arts,...etc	19	55.9	295	57.1	137	57.3	
Attendance of a University course							0.001*
Yes	23	67.6	265	51.3	85	35.6	
No	11	32.4	252	48.7	154	64.4	

Calculation of the mean total environment awareness scores by attendance of a university course on environment issues where higher mean and standard deviation among all university students (indicating a higher environmental awareness) was scored for those who attended a university course on environment issues, A statistical significance was detected between attendance and awareness among all participating students ( $t=-3.21$ ).

## 2. Conclusion:

The research verifies that higher education institutions serve as essential institutions for creating environmentally literate citizens who will lead sustainable development. The research shows that university environmental courses create a statistically significant improvement in environmental awareness ( $p=0.001$ ) because 67.6% of students who took these courses demonstrated good environmental awareness. The research results show that female students demonstrated better environmental literacy throughout all categories as evident in previous studies. The dominance of social media (52%) and YouTube (19%) as students' main environmental information sources creates both learning opportunities and educational challenges for teachers.

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