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Article

Social Media as a Green Catalyst: How Digital Platforms Shape Environmental Awareness and Behaviour

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Abstract: Social media platforms have become influential tools in shaping public awareness and everyday behaviour. In the context of growing environmental challenges, these platforms play an increasingly important role in fostering environmental awareness and encouraging pro-environmental behaviour. This research paper explains how it is possible to use social media to increase environmental awareness and influence sustainable behaviour among people. The survey design employed was descriptive in nature where 46 persons randomly selected to complete the survey to determine how they interacted with the environmental content, the importance of digital platforms in shaping their knowledge, and how much online exposure is transferable into actual environmentally friendly practices. The findings revealed that participants have an intermediate level of interaction with environmental content on social media. The results showed that deficiency of environmental information among peoples, poor interaction, ineffective campaign coherence, and misinformation are some of the key issues that restrict sustainable environmental behaviours. The findings also indicate that social media could be a strong tool to increase environmental awareness with the help of visual elements like brief video, infographics, and digital campaign. Nevertheless, there is still an aspect between knowledge and sustained behavioural change which is due to the barriers of insufficient environmental content, inconsistent internet campaigns and low public engagement. The research paper highlights the need to integrate online school-environmental group programs to develop more effective behavioural interventions.

Keywords: *social media, environmental awareness, sustainable behaviour, digital campaigns, social interaction*

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Introduction

Social media has become one of the most significant agents that influence opinion and behaviour of the masses, and the third millennium is the time when a significant change in human communication occurred (Jensen, 2022; Firanti et al., 2020; Forgione et al., 2025; Best and Kellner, 2020; Veer et al., 2029). With the increasing stress on the environment as climate change, pollution, and resource depletion -related issues frighten people, the role of digital platforms in developing environmental awareness and environmental behaviour has become particularly pressing (Liu and Zhang, 2024; Xu et al., 2025; Khan et al., 2025; Ma et al., 2022; Korankye, 2025; Noor et al., 2025). Social media is no longer an instrument of communication prior to a discussion of the sophisticated socio-dynamics of interaction, which promotes information exchange, the creation of norms, and decision-making (Arpaci, 2020; Jabr, 2022; Taber et al., 2023; Masur et al., 2023).

In the environmental communication field, social media has reshaped the process of information sharing, shaping the debate, and mobilisation of the community (Chung et al., 2020; Bueno et al., 2024; Gori et al., 2020; Syarifuddin and Nurmidi, 2024; Sharma et al., 2024). According to Social Impact Theory, the greater the audience, proximity, and the credibility of the message sources, the more effective the communication will be; therefore, digital platforms will influence raising environmental awareness effectively (Liao et al., 2024; Xie et al., 2024; Zhang et al., 2024). The Theory of Planned Behaviour also demonstrates how online interactions contribute to environmental attitudes, norms, and the perceived behavioural control, which are the key determinants of intention and sustainable behaviour (Al-Hizami, 2024; Zaikauskaitė et al., 2023; Tsai and Tan, 2022; Correia et al., 2022).

It is particularly important to the Gulf region, which is a global leader in digital transformation and sustainability (Alqawasmi et al., 2024; Draz et al., 2023). The UAE is a promising environment for environmental messaging because of some of the highest rates of social media usage in the world (Apata, 2023; Kong and Chen, 2024; Adwan, 2023; Al-Hajri et al., 2024; Ahmed et al., 2024; El-Khasawneh, 2023). Sustainability topics are becoming more embedded in the digital communication of government and business entities already, such as Environment Agency Abu Dhabi and Emirates Airline among others (Al Naqbi et al., 2022; Derbal, 2019; Boufarss and Laakso, 2023).

The available literature demonstrates that social media has cognitive, emotional, and behavioural effects on engagement with the environment, and the former is the weakest (Sousa et al., 2025; Al-Ali, 2023; Boerman et al., 2022). However, the behavioural change is not that high to characterise the persistence of the awareness-action gap (Colombo et al., 2023; Karlsson and Lindstrom, 2020). Against this backdrop, this research paper seeks to provide a detailed discussion of how social media cultivates

environmental consciousness and environmental sustainability with specific reference to an effect on young adults.

Research Problem

The present research will examine the possibility of using social media to support the successful conversion of environmental awareness into sustainable behaviour among residents of Qatar. Total penetration and increased awareness of the platforms are very high, but still behavioural change is minimal, and so behavioural knowledge-action gap can be noted. The study focuses on how environment awareness and encouragement of sustainable behaviour among the youth in the universities are shaped by message design, influencer roles and credibility of the sources and poses the question: How can social media influence environmental awareness and behaviour among the youth in the universities?

Questions

The following research questions address the role of this study:

1. When it comes to social media, how much people use environmental-oriented social media applications?
2. How does social media contribute to improving environmental awareness in people?
3. What is the role of social media in the formation of environmental behaviour to individuals?
4. What are the challenges that reduce the effectiveness of social media in creating environmental awareness and behaviour?
5. How can social media be enhanced to play a significant role in creating environmental awareness and sustainable behaviour in people?

Hypothesis: The effect of social media on increasing environmental awareness and behaviour of individuals and the effect of the gender variable is not statistically significant, at the level ($0.05 \leq 0.05$).

Literature Review

In recent literature across the Arab region and beyond, there has been a growing awareness of the increasing impact of social media on environmental awareness, affective behaviour, and environmentally conscious behaviour. Albeit using a purposive sample of 50 youths in a descriptive investigation, Al-Absi (2025) reported that social networks such as Facebook and YouTube alleviated the environmental anxiety through informational scaffolding and encouragement of sustainable behaviour. Similarly, in a survey of 402 university students, Al-Hizami (2024) demonstrated strong emotional, cognitive, and behavioural consequences of environmental content which are a result of using visually rich formats such as before-and-after images, personal vlogs, and infographics, and thus shedding light on the effectiveness of visually oriented digital campaigns. Relying on the Social Learning. Theory and 585 members of online environmental communities in the study, Shen (2023) was able to demonstrate that being a part of

communities of 585 participants and interaction measures such as comments and likes made a significant predictor of pro-environmental behaviour, and there is no denying the critical role played by digital environmental communities in environmental conduct formation.

The general literature continues to homogenise the fine nexus between media exposure and environmental behaviour. Hao (2023) who used structural equation modelling but followed up a group of 182 university students, reported that although an exposure to the media increased the awareness and intention, it had no direct impact on the behaviour change, though the intentions served as the conduit, which, at the same time, examines the long-standing intention to behaviour gap. Al adequate interaction with the official Ministry of Environment Twitter account was found in Saudi Arabia to significantly increase the levels of environmental knowledge, attitudes and behavioural orientations of 271 users, thus demonstrating the effectiveness of formal digital outreach (Al Zahrani, 2023). In his survey of 110 students, Adwan (2023) noted that social media positively influenced the development of environmental knowledge and creativity, but it is unsurprising that this phenomenon also led to the loss of time and the decline of the face-to-face communication process, proving the urgency of ethical management of the digital.

These observations are supplemented by international research and its evidence. In a study of Generation Z students at Arizona State University (2022), Fischer found that social media was the main source of environmental information and a source of stimulation in a scientific discussion, although it could not predict behavioural results in one way or another. In line with these findings, in a descriptive and content analysis of Arab social-media content, Derbal (2019) found that environmental knowledge and engagement were significantly increased through Facebook-based environmental campaigns, thereby promoting the integration of official digital programmes into the formal education system.

Methodology

Research Design

The research design used was descriptive survey that aimed at investigating the impact of social media on improving environmental awareness and behaviour among students at Doha Institute University. A questionnaire was designed to be highly structured to gather information on the consciousness on environment among students, their environmental behaviour, and the degree to which they use social media to get environmental information. The objectives of the study were explained to the participants, and no information was disclosed, as the data were utilised as the tool of academic research.

Sample

The target population was students pursuing undergraduate programmes at the Doha Institute of graduate studies which includes academic units as Sociology, Psychology, Special Education, English and Arabic.

There are about 1,200 students who make up the entire population. Stratified random sampling method was used in choosing 46 students who fairly represented the five academic units. The study sample is presented in Table (1) based on the key demographic characteristics.

Table 1

Sharing of the Study Sample based on the Personal Variables

Variable	Category	Frequency	Percentage (%)
Gender	Male	23	50.0
	Female	23	50.0
	Total	46	100
Age	20–30 years	38	80.9
	31–40 years	7	14.9
	41–50 years	1	2.1
	Total	46	100
Family Size	Fewer than 4 members	8	17.0
	5–8 members	22	46.8
	9–12 members	14	29.8
	More than 12 members	2	4.3
	Total	46	100
Employment Type	Government sector employee	20	42.6
	Private sector employee	21	44.7
	Self-employed	5	10.6
	Total	46	100
Personal Income Level	Less than 1000 USA per month	9	19.1
	1000–2000 USA per month	18	38.3
	More than 2000 AED per month	19	40.4
	Total	46	100

The sample consisted of an equal distribution of male and female participants (50 percent each). Most were between the age brackets of 20-30 years. The units in households were generally of middle size with between five and eight individuals. The distribution of respondents was almost equal regarding both, public and private sector jobs, as well as the level of income was also evenly distributed. The sampling frame as a block is highly heterogeneous, though overly including young and female representatives.

Instrument

This study used a systematic questionnaire that was aimed at clarifying how the social media affected the environmental awareness and behaviour of the university students. The instrument was divided into two major parts the first section measured demographic variables prevalent, such as gender, age, occupational status, family size, and economic standing, whereas the other section consisted of five thematic constructs. These constructs covered: (1) exposure to environmental content; (2) the instrumental value of social media in increasing awareness; (3) the tangible effect on behaviour, including recycling practices, conservation practices and a decrease in plastic consumption; (4) barriers that weaken

effectiveness, i.e. misinformation and low engagement; and (5) the approaches to strengthen digital campaigns with collaborative efforts and visual media. The questions in the questionnaire were subject to scrutiny by sociologists to ensure that they had content validity and the resultant Cronbach alpha coefficient supported the existence of good internal consistency.

Table 2

Cronbach Alpha Coefficients of the Questionnaire Internal consistency

Dimension	Number of Items	Internal Consistency (α)
Level of student engagement with environmental social media content	5	0.91
Role of social media in enhancing environmental awareness	5	0.92
Role of social media in shaping environmental behaviour	5	0.90
Challenges limiting the impact of social media on environmental awareness and behaviour	5	0.89
Mechanisms for strengthening the role of social media in environmental awareness and behaviour	5	0.93
Overall reliability of the questionnaire	**25**	**0.97**

Cronbach alpha values ranging from 0.89 to 0.93 testify to the strong internal consistency of all questionnaire components, and in the process, substantiate high levels of coherence among the constituent items. At the aggregate level of reliability, a coefficient of 0.97 also justifies an exemplary degree of inter-rater consistency, thereby confirming the excellent reliability of the instrument for assessing the extent to which social media affected the environmental cognizance and behaviour predisposition of students.

Measures

Frequencies and percentages were used in the presentation of the analysis framework of the research to outline the demographic profile, whereas mean with standard deviation was used to evaluate the interaction with environmental materials. Reliability was rigorously reviewed with the help of Cronbach alpha and mutual correlation between the use of social media and environmental awareness as well as behaviour of students was examined with the help of the elementary correlational methods.

Results

Results of the First Question: When it comes to social media, how much people use environmental-oriented social media applications?

Means and standard deviations were used to provide responses to the first research question. These results are given in Table (3).

Table 3

Items Means and Standard Deviations of individuals Engagement with Environmental Social Media Content.

Rank	Item No.	Statement	Mean	Std. Deviation	Level
1	2	I regularly follow environmental accounts or pages on social media.	3.93	1.12	High
2	4	I spend part of my daily time following environmental news and updates on social media.	3.70	1.13	High
3	3	I engage with environmental content on social media (likes, comments, shares).	3.61	1.16	Moderate
4	5	I participate in digital environmental campaigns or initiatives shared on social platforms.	3.26	1.24	Moderate
5	1	My overall daily use of social media.	2.26	0.80	Low

Table (3) indicates the mean and standard deviation of the engagement of students with environmental content on social media. The top – rated product- environmental accounts is appears regularly (M = 3.93) and it means that the interest in environmental pages is strong. The moderate level could be noted in the liking, sharing, or joining digital campaigns (M = 3.613.26) and students prefer to observe and do not participate. The average that was the lowest was the daily social media use (M = 2.26), indicating that the general use is not a direct measure of the environmental engagement. Generally, the average of 3.35 is fairly moderate in terms of engagement, and there is more passive following than active engagement.

Results of the Question Two: What is the role of social media in the formation of environmental behaviour to individuals?

To respond to the second question, the means and standard deviation were computed as is illustrated in Table (4).

Table 4

Shows the descriptive statistics of the items used in assessing the role of social media in improving on environmental awareness among individuals.

Rank	Item No.	Statement	Mean	Std. Deviation	Level
1	5	I notice that digital environmental campaigns encourage the adoption of eco-friendly behaviours.	4.13	0.93	High
2	2	I believe that environmental content on social media increases my interest in environmental issues.	4.07	1.04	High
3	1	Social media has helped me learn about new environmental problems.	4.04	0.94	High
4	4	Social media contributes to increasing students' awareness of the importance of environmental protection.	3.96	1.15	High
5	3	I find the environmental information posted on social media accurate and reliable.	3.78	1.07	High
Overall Mean	—	—	**3.99**	**0.742**	**High**

Table 4 shows that students rated social media as significantly efficient in enriching environmental awareness. The highest influence was reported for the digital environmental campaigns (M=4.13, SD= 0.93), increased interest and awareness of the environmental issues (M=4.04-4.07). Vividness and usefulness of the content were also improved. All in all, the mean value (-3.99, SD=0.74) confirms a strong positive effect.

Results of the Third Question: 3. What is the role of social media in the formation of environmental behaviour to individuals?

Means and standard deviations were calculated in the process of addressing the third research question.

Table 5

Presents the descriptive statistics of the items that quantified the role of social media in shaping environmental behaviour among the study participants

Rank	Item No.	Statement	Mean	Std. Deviation	Level
1	1	I find that environmental content on social media is limited compared to other topics.	3.91	0.94	High
2	4	Low student engagement with environmental content reduces the effectiveness of social media in promoting environmental behaviour.	3.89	0.95	High
3	5	I prefer relying on other sources rather than social media for environmental education.	3.83	0.93	High
4	3	The lack of continuity in digital campaigns reduces their impact on environmental behaviour.	3.78	0.94	High
5	2	Some environmental information on digital platforms is inaccurate or unreliable.	3.76	0.95	High
Overall Mean	—	—	**3.83**	**0.802**	**High**

According to Table 5, students consider social media to have a significant amount of influence regarding environmental behaviour and all the items are rated high. The main obstacles that were detected included a lack of environmental content and student engagement. However, a sum total of the mean score (3.83) validates the idea that social media is effective to promote behavioural change, despite issues relating to content volume, accuracy, and engagement.

Findings of Research Question Four: What are the challenges that reduce the effectiveness of social media in creating environmental awareness and behaviour?

In order to respond to the fourth question, means and standard deviations were estimated, which are presented on Table (6).

Table 6

Mean Scores of Challenges Reducing the Effectiveness of Social Media in Promoting Environmental Awareness and Behaviour

Rank	Item No.	Statement	Mean	Std. Deviation	Level
1	4	Low student engagement with environmental content reduces the effectiveness of social media in promoting environmental behaviour.	4.60	0.64	High
2	1	I find that environmental content on social media is limited compared to other topics.	4.52	0.61	High
3	2	Some environmental information on digital platforms is inaccurate or unreliable.	4.34	0.92	High
4	5	I prefer relying on other sources (such as lectures or university activities) rather than social media for environmental education.	4.16	1.13	High
5	3	The lack of continuity in digital campaigns reduces their impact on environmental behaviour.	3.98	1.20	High
Overall Mean	—	—	**4.25**	**0.968**	**High**

Table 6 identifies the main obstacles limiting the use of social media to promote environmental awareness and stewardship among undergraduate students. The top challenges as singled out include limited of student interaction, comparative lack of substantial environmental material on mainstream resources, preponderance of untrustworthy information and dependence on third-party sources, including institutional outreach and experiential university programmes. The sharply high mean index of 4.25 is an indication of the extreme awareness of these obstacles among the students, and it is a strong indicator of an acute awareness that digital milieu needs to be changed so that it could effectively foster sustainability education.

Findings of Research Question Five: How can social media be enhanced to play a significant role in creating environmental awareness and sustainable behaviour in people?

In order to address the fifth question, the means and standard deviations were computed, which are illustrated in Table (7).

Table 7

The average and standard deviation of the items pertaining to the mechanisms of increasing the role of social media in environmental awareness and behaviour among students of Doha Institute University.

Rank	Item No.	Statement	Mean	Std. Deviation	Level
1	2	Collaboration between the university and environmental institutions to launch digital initiatives contributes to strengthening students' positive environmental behaviour.	4.11	0.95	High
2	4	Providing simplified and engaging environmental content (short videos, infographics) increases students' interaction with environmental messages.	4.09	0.94	High
3	1	Increasing environmental awareness campaigns on social media enhances students' understanding of environmental issues.	4.07	0.93	High
4	3	Using social media influencers to promote environmentally friendly practices helps in changing students' behaviour.	4.04	0.92	High
5	5	Linking digital campaigns with field activities (such as tree planting and recycling) strengthens the practical application of environmental behaviour.	4.00	0.99	High
Overall Mean	—	—	**4.25**	**0.968**	**High**

Table 7 outlines the key processes through which the social media can be used to promote environmental awareness and behaviour change. Respondents who gave the most favourable rating (M 4.11) to the cooperation of the university with the environmental institutions showed preference for official collaboration. In the second place, with an equivalent mean of 4.09, and confirming the effectiveness of visual narratives, close visual modalities, such as short video clips and infographics. Other interventions considered to be effective were manipulated digital campaigns, involvement of high-profile influencers, and an uninterrupted combination of web talk with experience in the field, which together enhanced the creation of a consistent ecosystem that connects the virtual information with the reality in the environment.

Hypothesis Results: The effect of social media on increasing environmental awareness and behaviour of individuals and the effect of the gender variable is not statistically significant, at the level ($0.05 \leq 0.05$).

The current hypothesis explores the gender-based differences in the effects of social media on the awareness of the environment and its behaviour afterward. Descriptive statistics, independent samples t -test, and effect -size calculations were used to analyse the mean scores, thus making it easier to determine the statistical and practical significance of the results.

Table 8

Descriptive Statistics of Environmental Awareness and Behaviour by Gender

Gender	N	Mean	Standard Deviation	Standard Error
Male	8	3.90	1.43	0.50
Female	38	4.02	0.80	0.13

Table (8) demonstrates that females students got a slightly higher mean score than males (4.02) compared with (3.90), with minor variations in terms of standard deviation (0.80 and 1.43 respectively). These preliminary differences indicate a minor benefit to the female students but they are not statistically significant unless an independent samples t-test is performed. See table 9.

Table 9

Independent Samples t-Test for Environmental Awareness and Behaviour by Gender

WA_MEAN	Levene's Test for Equality of Variances Sig.	t	df	Sig. (Two-Tailed)	Mean Difference	Std. Error Difference	95% CI of the Difference
Equal variances assumed	4.787	0.034	-0.320	44	0.751	-0.116	0.362	-0.845 to 0.614
Equal variances not assumed	—	—	-0.222	7.959	0.830	-0.116	0.521	-1.318 to 1.086

It was noted that the outcome of the analysis did not show any statistically significant gender differences either in variability or mean, both the F-test and the t -test showed no significant value thus indicating the same level of environmental knowledge and behaviour in both sexes.

Table 10

Effect Size Indicators for Gender Differences in Environmental Awareness and Behaviour

Variable	Indicator	Value	95% CI of the Difference
WA_MEAN	Cohen's d	-0.124	-0.887 to 0.639
WA_MEAN	Hedges' correction	0.947	-0.871 to 0.628
WA_MEAN	Glass's delta	0.803	-0.906 to 0.620

Table (10) indicates that the value of effect size of gender is very small with Cohen d = -0.124 which is supported by the correction of Hedges and delta of Glass. It means that there are no statistically significant gender-related differences between the effect of social media on the environmental awareness and behaviour. In each of the three tables, the statistical significance of the difference in mean scores in favour of females is insignificant and the effect size is not big. Thus, the hypothesis is accepted, gender does not play a significant role in the impact of social media on improving environmental awareness and behaviour among students of Doha Institute University.

Discussion

The results show that the students have a moderate level of engagement with environmental content on social media (Mean = 3.35). Mostly their work is passive, following accounts and reading updates, and the active one, becoming a member of campaigns or commenting, is not a typical characteristic. This trajectory points to the informational and not interactive character of a variety of environmental content and is consistent with Al-Abasi (2025), who orchestrated that social internet use among the young is often limited to perspective, and it is not participation. However, social media has a strong positive impact on environmental awareness, and students appreciate the contribution of digital promotions and attractive images to increasing their interest and knowledge levels. These sites serve the purpose of informal learning, which Al-Hizami (2024) identified as the case since simplified visual representation ability constitutes an environmental knowledge development among students.

Regarding behaviour, the findings tell that social media has a substantial effect, whereas there are numerous limitations to the complete effects of social media on behaviour. Lack of environmental information among students, poor interaction, poor cohesive campaigns and misinformation were reported factors to reduce the effect of long-term behaviour changes. However, the general positive average indicates that digital content may go ahead and trigger pro-eco behaviours, particularly when it is delivered in interesting formats like making short videos and infographics. This result is replicated in the study by Al-Zahrani (2023) who observed that having visually diverse content increases behavioural commitment to sustainability among the youth of the university. At the same time, students were particularly ready to understand obstacles, which was indicated by a high challenge score (M = 4.25), which confirms that the impact cannot be achieved exclusively on the quality of the message conveyed, but also engagement and credibility, which is the focus of Derbal (2019).

Lastly, mechanisms to strengthen the role of social media in the aspect of sustainability (M = 4.25) were highly supported in the case of institutional collaboration, visual appeal and engaging material, frequent campaigns, the involvement of an influencer and connecting the digital message to the real-life activity were strongly supported by students. No gender differences were found, which suggests similar impact despite group similarities- and this is supported in the work of Al-Absi (2025) who established that the quality content has the greatest influence on how the environmental responsiveness is perceived in an online world.

Conclusion

This study examined the role of social media in enhancing environmental awareness and behaviour among students at Doha Institute University. The results confirm that social media is an effective tool for raising environmental awareness and positively influencing sustainable behaviour. However, the gap

between awareness and practical behaviour is shaped by challenges such as limited content, low engagement, and irregular digital campaigns. By applying targeted strategies—such as institutional collaboration, visually engaging content, influencer involvement, and integrating digital campaigns with practical activities—social media can become a powerful driver of environmental action that supports Qatar's national sustainability goals.

Limitations

The study faced several limitations, including the restricted sample taken only from Doha Institute University, the reliance on self-reported data which may involve response bias, and incomplete responses from some participants. Additionally, academic schedules limited accessibility to all students simultaneously. Despite these challenges, measures such as follow-ups, confidentiality assurances, and structured data-collection phases helped improve reliability.

The recommendations made on this ground can be summarised as the addition of visual content to the environment of the university, significant commitment to strengthening the relationship with external bodies, diversification of dissemination channels, the strict verification of the information credibility, the improvement of the measures designed to enhance the degree of student attention, the systematic assessment of the campaign efficiency, and the inclusion of the environmental communication modules within the fundamental university programs aimed at maintaining the high level of awareness.

The future needs are to compare universities, analyse big-data social-media datasets, experimentally test various digital forms, use SEM to simulate behavioural routes, research eco-influencers, qualitative interviews, and conduct longitudinal experiments in changing behaviour.

Future studies must expand the sample size to cover various governmental and privately based institutions in order to increase external validity. The longitudinal research designs would be suggested to track the changes in the social capital and job satisfaction over various organisational levels. Mixed-method designs may also be useful in offering more detailed understanding of the processes by which relational and cognitive social capital is related to workplace outcomes. Moderating variables, including leadership style, organisational culture, work load, etc., can be studied further to see how social capital can impact job satisfaction.

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