International Journal of Environmental Sciences
ISSN: 2229-7359
Vol. 11 No. 17s, 2025
https://www.theaspd.com/ijes.php

The Influence Of Digital Media On Climate Change Awareness, Action, And Perceived Barriers Among Uae University Students

Suzana Dzamtoska-Zdravkovska[1] and Sabir Haque[2]

[1]Associate Professor, School of Arts and Sciences, American University of Ras Al Khaimah, United Arab Emirates suzana.zdravkovska@aurak.ac.ae
[2]Associate Professor, School of Arts and Sciences, American University of Ras Al Khaimah, United Arab Emirates sabir.haque@aurak.ac.ae

Abstract
This study examines the impact of digital engagement on shaping perceptions of climate change among university students in the United Arab Emirates (UAE). Utilizing a mixed-methods research design, a structured survey was administered to 221 students to assess their media consumption habits, perceptions of climate change urgency and impacts, awareness of government policies, and individual actions. The survey included both closed-ended and open-ended questions, enabling a comprehensive understanding of student perspectives. Quantitative data were analysed using descriptive statistics and correlational analyses. Thematic analysis was conducted on the open-ended responses to provide deeper insights into students' awareness, actions, and perceived barriers related to climate change. The findings reveal a firm reliance on social media as a primary news source, influencing students' awareness and concerns regarding climate change. Key challenges identified include economic dependence on oil, extreme climate conditions, and the need for enhanced public engagement. The study highlights the importance of targeted communication strategies and policy interventions in promoting climate action among UAE university students.

Keywords: *Digital Engagement, Climate Change Perceptions, UAE (United Arab Emirates), University Students, Social Media, Sustainability.*

INTRODUCTION

The escalating climate crisis necessitates a comprehensive understanding of how information is disseminated and perceived, especially among university students who represent a critical segment of future leaders and decision-makers (Bord et al., 2000). In the context of the United Arab Emirates, a nation grappling with unique environmental challenges such as water scarcity, desertification, and extreme heat, understanding the role of digital engagement in shaping climate change perceptions is particularly salient (Natalia et al., 2023).

Given the increasing penetration of digital technologies in the UAE, students are constantly exposed to information from various sources, from social media platforms and online news outlets to educational websites and interactive simulations. This constant influx of data can significantly influence their understanding of climate change, their attitudes toward environmental sustainability, and their willingness to adopt pro-environmental behaviors. Evaluating the quality and credibility of the information students encounter online is crucial, as misinformation and biased reporting can distort their perceptions and hinder effective climate action (Ajaps & McLellan, 2015). For example, misinformation might include denial of climate science or downplaying the severity of impacts.

Social media platforms have become essential tools for disseminating information and mobilizing individuals around social and environmental causes (Al-Adwan et al., 2020). Considering the increasing use of social media among university students, it is crucial to investigate how these platforms impact their perceptions of climate change and related environmental issues (Al-Adwan et al., 2020). The proliferation of smartphones and high-speed internet access in the UAE has led to a surge in social media usage among university students, making these platforms prime channels for accessing and sharing information about climate change (Abdelaih & Ahmed, 2021; Alquwez, 2023).

The proliferation of digital media has revolutionized how information is accessed, shared, and consumed, exerting a profound influence on public perceptions of critical global issues like climate change (Na'amneh, 2021). This transformation is particularly salient among university students, a demographic cohort characterized by their digital fluency and potential to shape future policies and societal norms (Carrillo-Nieves et al., 2024). Understanding the intricate relationship between digital engagement and climate change awareness is especially crucial in regions facing unique environmental vulnerabilities, such as the United Arab Emirates, where challenges like water scarcity and desertification demand innovative solutions and informed public participation (Carrillo-Nieves et al., 2024).

As articulated in its national strategies, the UAE's commitment to sustainable development underscores the importance of cultivating a climate-conscious citizenry capable of driving meaningful change. Digital platforms have become powerful tools for disseminating information, mobilizing support, and fostering dialogue surrounding environmental issues, yet their impact can be multifaceted and context-dependent (Li et al., 2024). Educational initiatives are pivotal in shaping individuals' understanding of the complex interplay between human activities and the environment, enabling them to evaluate information and engage in informed decision-making critically (Boulianne et al., 2020). Integrating digital tools into educational curricula presents exciting opportunities to enhance student learning and promote environmentally sustainable behaviors through interactive activities and technology-driven elements (Carrillo-Nieves et al., 2024; Douglas & Bräuer, 2021).

Given the urgency of addressing climate change, it is imperative to explore how digital media can be leveraged to foster greater awareness, inspire proactive climate action, and overcome perceived barriers among university students in the UAE. Examining the role of digital media in shaping climate change perceptions among university students in the UAE requires a multifaceted approach, considering the region's unique socio-cultural context and environmental challenges.

This study explores the perceptions of climate change among university students in the UAE and the role of digital engagement in shaping these perceptions. The research seeks to understand students' awareness, actions, and perceived barriers related to climate change. The following research questions guide this investigation:

- How aware are university students in the UAE of specific climate change policies and commitments, and what role does digital media play in shaping this awareness?
- What climate-related actions, if any, are university students in the UAE undertaking, and how do digital platforms influence their engagement?
- What barriers do university students in the UAE perceive as hindering climate action, and how are these perceptions shaped by information encountered through digital channels?

RESEARCH DESIGN

The study utilized a mixed-methods research design, employing a structured survey with both quantitative and qualitative components, to investigate how digital engagement influences university students' perceptions of climate change in the UAE. The goal was to gather data on students' media consumption habits, perceptions of climate change, and how these factors interact. This approach allows for statistical trend analysis across a large sample and in-depth exploration of individual perspectives.

Participants were university students aged 18 to 24 from various universities across the UAE. A total of 221 students participated in the survey. Convenience sampling was employed to recruit participants efficiently through digital means, primarily leveraging university networks and social media platforms to ensure a broad demographic representation. However, convenience sampling may introduce bias, as the sample may not fully represent the entire population of UAE university students.

Data was collected using a structured questionnaire comprising multiple-choice, Likert-scale, and open-ended questions. The survey consisted of 17 questions focusing on key areas related to digital engagement and climate change perceptions. Key questions included:

- **Demographic Information:** Collected via Q1-Q9 to provide context for each participant's background, ensuring comprehensive data analysis and interpretation. These questions included:
    - Q1 "Which emirate do you currently reside in?"
    - Q2 How old are you?
    - Q3 What is your gender?
    - Q4 What is your nationality / what passport do you hold?
    - Q5 How would you describe your cultural background? Dr. Bryn, for example, is Canadian with a British father and has lived 7 years in Japan and 14 years in the UAE.
    - Q6 What is your major?
    - Q7 How many people live in your household, including yourself?
    - Q8 What is the highest level of education you have completed?
    - Q9 What is your current employment status?

- **Digital Engagement:** Assessing primary news sources (Q10) and frequency of exposure to climate change media (Q11) to measure the extent and nature of digital platform use. These questions included:
    - Q10 What is your primary source of news and information?
    - Q11 How often do you see programs or advertising related to climate change issues?

- **Perceptions of Climate Change:** Questions evaluated the urgency perceived by students (Q12), specific climate impacts of concern (Q13), opinions on the role of community and cultural initiatives (Q14), awareness of relevant policies (Q15), and personal actions (Q16) and perceived barriers (Q17). These questions included:
    - Q12 Do you think climate change is an urgent issue that requires immediate action in the UAE?
    - Q13 Which of these climate change impacts in the UAE concerns you the most?
    - Q14 What role do you think community and cultural initiatives should play in addressing climate change in the UAE?
    - Q15 "Are you aware of any specific climate change commitments or policies by the UAE government? Please describe."
    - Q16 "What actions, if any, are you taking to reduce your impact on the climate?"
    - Q17 "What do you think are the biggest barriers or challenges to taking action on climate change in the UAE?"

Quantitative data were analysed using statistical tools, such as SPSS, to perform descriptive statistics, including frequencies and percentages. For instance, the primary news sources and exposure frequency were analysed to identify trends in digital engagement. Furthermore, correlations between digital engagement levels and perceptions of climate change were examined to understand their relationship better.

Thematic analysis was conducted on open-ended responses (Q15, Q16, and Q17) to extract qualitative insights that offer depth to the quantitative findings. The process involved identifying recurring themes and patterns in the responses, which were then categorized and interpreted to gain a deeper understanding of the students' perspectives. Specifically, the analysis followed these steps: 1) initial reading of the responses to gain familiarity; 2) coding of the data to identify key concepts and ideas; 3) grouping of codes into broader themes; 4) review and refinement of the themes to ensure accuracy and coherence; and 5) interpretation of the themes about the research questions. This dual-method approach helped create a robust understanding of the students' experiences and views.

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This methodology outlines a structured approach to understanding the perceptions of university students in the UAE regarding climate change and their digital engagement, providing a foundation for meaningful analysis and insights.

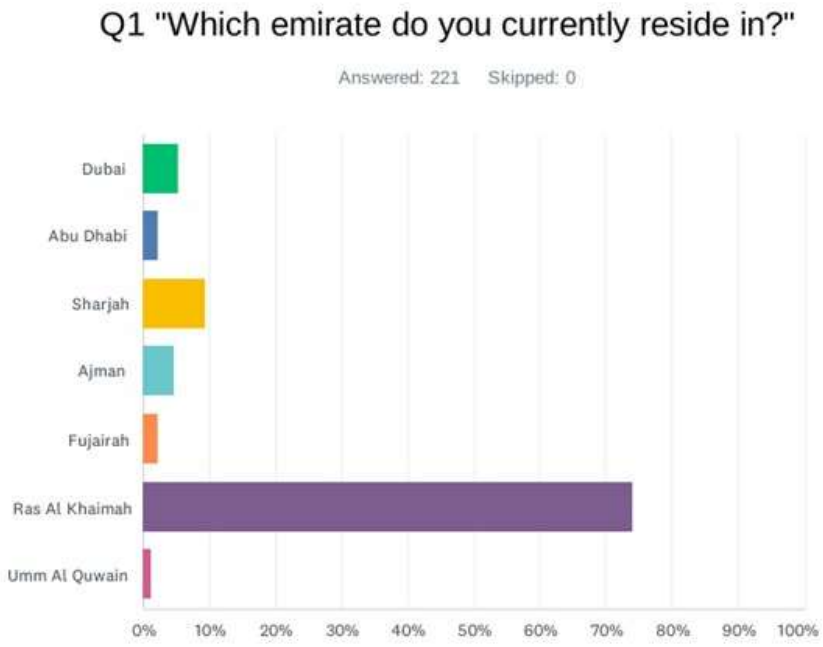
RESEARCH RESULTS

The recent survey, which included 221 participants from various emirates of the UAE, provided valuable insights into the demographics and perceptions of youth regarding climate change and digital engagement.

DEMOGRAPHIC INFORMATION

Most respondents (74.21%) reside in Ras Al Khaimah, indicating a strong representation from this emirate. Sharjah accounts for 9.50%, followed by Dubai at 5.43%, and Ajman at 4.98%. Abu Dhabi and Fujairah each represent 2.26%, while Umm Al Quwain accounts for 1.36% (Figure 1). The survey sample is heavily skewed towards residents of Ras Al Khaimah, suggesting that the perspectives gathered may particularly reflect this emirate. The representation of other emirates provides valuable insights into the diverse experiences and viewpoints within the UAE, contributing to a broader understanding of the issues under investigation.

Figure 1



ANSWER CHOICES	RESPONSES	
Dubai	5.43%	12
Abu Dhabi	2.26%	5
Sharjah	9.50%	21
Ajman	4.98%	11
Fujairah	2.26%	5
Ras Al Khaimah	74.21%	164
Umm Al Quwain	1.36%	3
TOTAL		221

The survey primarily captures the views of young adults aged 18-24, focusing on the perspectives of university-aged individuals. Most respondents (80.09%) are aged 18-24. A smaller percentage (14.93%) are under 18, 3.62% are 25-34, and 1.36% are 35 or older. The nearly balanced gender representation, with 49.32% identifying as male and 50.68% as female, ensures that the survey results reflect diverse perspectives and minimizes potential gender biases.

The survey includes a diverse range of nationalities, with the largest group representing the United Arab Emirates (27.60%), followed by Ethiopia (14.48%), Egypt (7.69%), India (7.24%), and both Jordan and the Syrian Arab Republic (7.69%). This multicultural composition enriches the understanding of varied viewpoints on climate change, underscoring the importance of considering diverse perspectives when addressing environmental issues in the UAE.
Most respondents live in households with 5-6 people (31.82%) or seven or more people (27.73%), while a smaller percentage resides in households with 3-4 people (24.09%), 2 people (12.73%), or alone (3.64%). This data suggests that most respondents come from larger households, which may influence their resource consumption patterns and environmental awareness.

The majority of respondents (80.45%) have completed secondary education, while smaller percentages indicate holding a bachelor's degree (8.64%), primary education (4.09%), a master's degree (0.45%), or a doctorate or higher (1.36%). This high percentage of respondents with secondary education suggests a focus on individuals who are likely in the process of pursuing higher education or entering the workforce.

The vast majority of respondents (88.37%) are unemployed, with smaller percentages employed full-time (5.58%) or part-time (6.05%). This high unemployment rate among respondents indicates potential challenges within the job market for youth in the UAE, which may influence their economic priorities and ability to engage in sustainable practices.

DIGITAL ENGAGEMENT AND CLIMATE CHANGE PERCEPTIONS

The survey revealed that 76.82% of participants primarily rely on social media for news and information, indicating a significant shift towards digital platforms among the youth demographic (Figure 2). Online news sources were the second most popular choice, selected by 13.18% of respondents. Traditional media formats, including television (4.55%) and newspapers (1.36%), showed much lower engagement, with radio not being utilized as a primary source. The 4.09% of respondents who selected "Other" may point to alternative news platforms not specified in the survey. This reliance on social media raises important questions about the quality and accuracy of the information consumed, highlighting the pressing need for media literacy initiatives to help young individuals navigate and critically assess online information.

Figure 2

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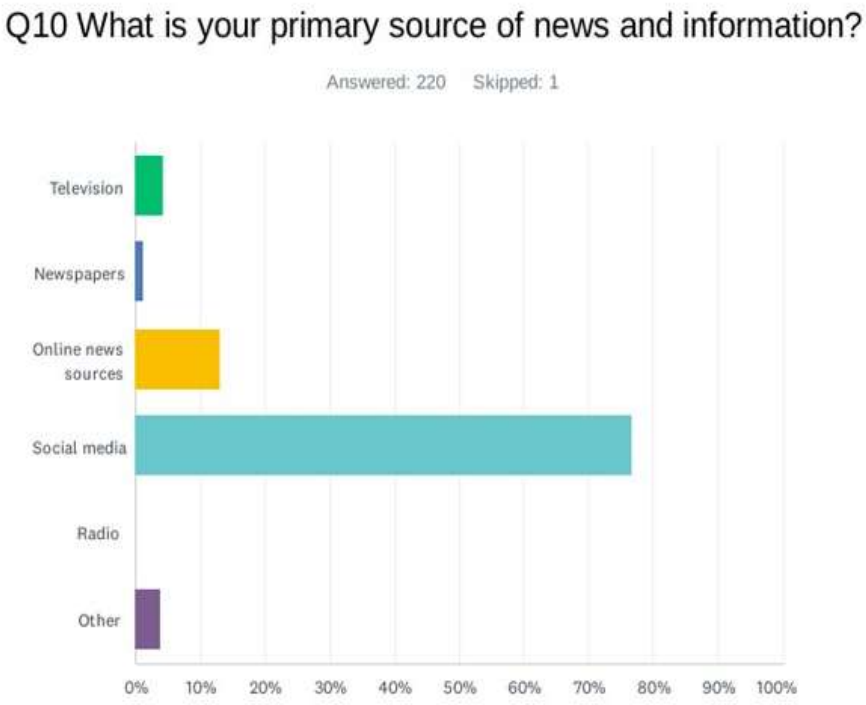

ANSWER CHOICES	RESPONSES	
Television	4.55%	10
Newspapers	1.36%	3
Online news sources	13.18%	29
Social media	76.82%	169
Radio	0.00%	0
Other	4.09%	9
TOTAL		220

Regarding exposure to climate change-related content, 36.99% of respondents see such content on a weekly basis, suggesting a relatively high level of engagement with climate-related messaging among a significant portion of the population (Figure 3). In contrast, 25.57% of participants reported rarely encountering climate change content, indicating that a notable segment of the population may not be consistently exposed to relevant information, which could hinder their awareness and engagement. Additionally, 17.35% see climate change content monthly, while 15.98% encounter it daily, suggesting varying levels of engagement among respondents. The lowest percentage, 4.11%, indicated they never see climate change-related programs or advertising, highlighting a small but concerning group entirely disengaged from climate discourse.

Figure 3

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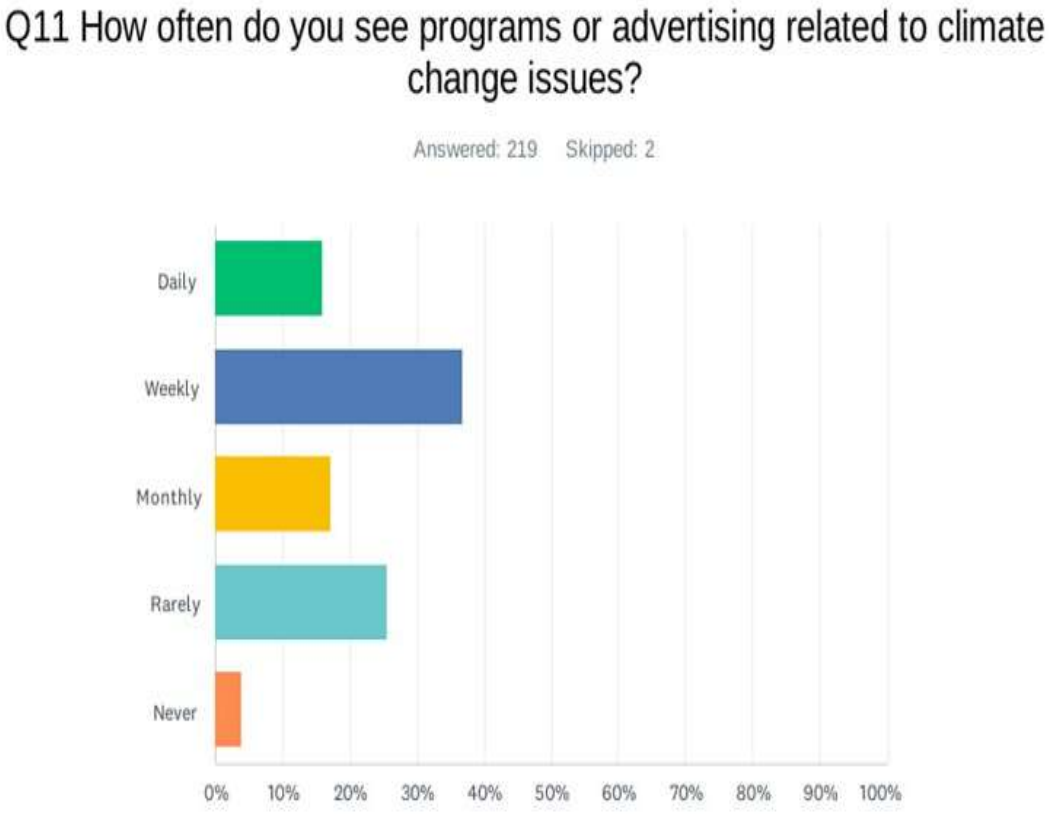

ANSWER CHOICES	RESPONSES	
Daily	15.98%	35
Weekly	36.99%	81
Monthly	17.35%	38
Rarely	25.57%	56
Never	4.11%	9
TOTAL		219

Within the survey, the question Do you think climate change is an urgent issue that requires immediate action in the UAE? Aimed to gauge the respondents' perception of the urgency of climate change in the UAE.

Out of the 219 participants who answered the question, a clear majority (58.90%) firmly believed that climate change is an urgent issue demanding immediate action (Figure 4). However, a substantial portion of respondents (31.51%) acknowledged the issue's urgency but favored a more gradual approach to addressing it, potentially reflecting concerns about the economic or social implications of immediate and drastic measures. A mere 2.74% believed that current measures are sufficient, while 6.85% did not perceive climate change as urgent.

Figure 4

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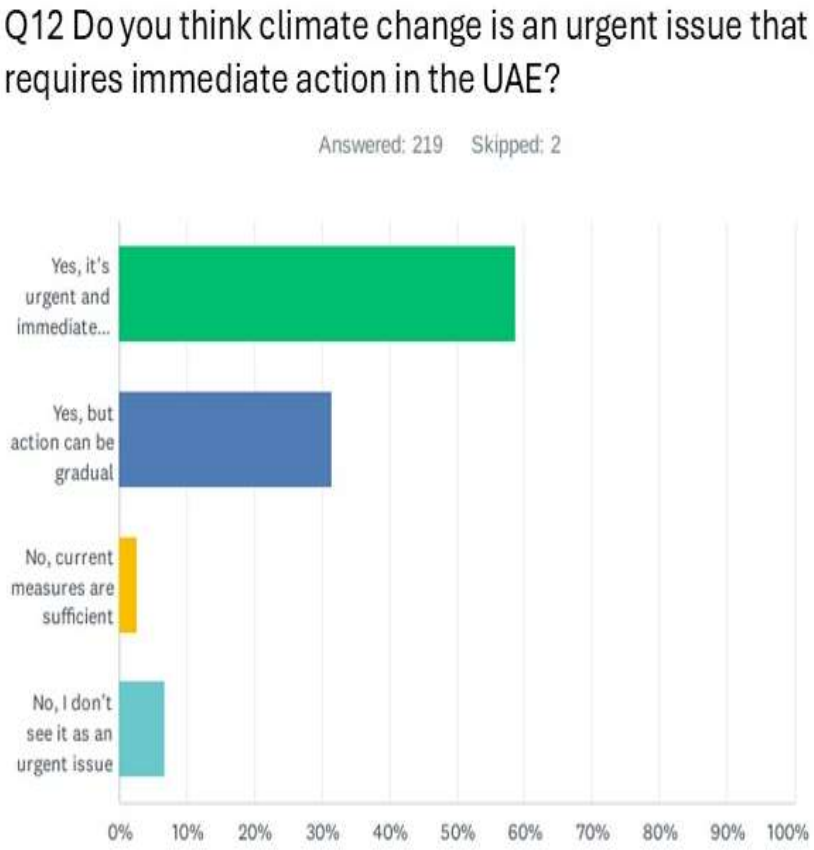

ANSWER CHOICES	RESPONSES	
Yes, it's urgent and immediate action is needed	58.90%	129
Yes, but action can be gradual	31.51%	69
No, current measures are sufficient	2.74%	6
No, I don't see it as an urgent issue	6.85%	15
TOTAL		219

When asked about the climate change impacts in the UAE that worried them the most, a clear and significant majority identified rising temperatures and heatwaves as their primary concern (60.73%) (Figure 5). Trailing significantly behind, air quality and pollution emerged as the second most pressing concern (17.35%). Water scarcity was identified as the primary concern by 10.05% of respondents. The impact on biodiversity and desert ecosystems garnered the least concern among most respondents (4.57%). Finally, a small segment of respondents (7.31%) expressed that they were not concerned about any of the listed climate change impacts.

Figure 5

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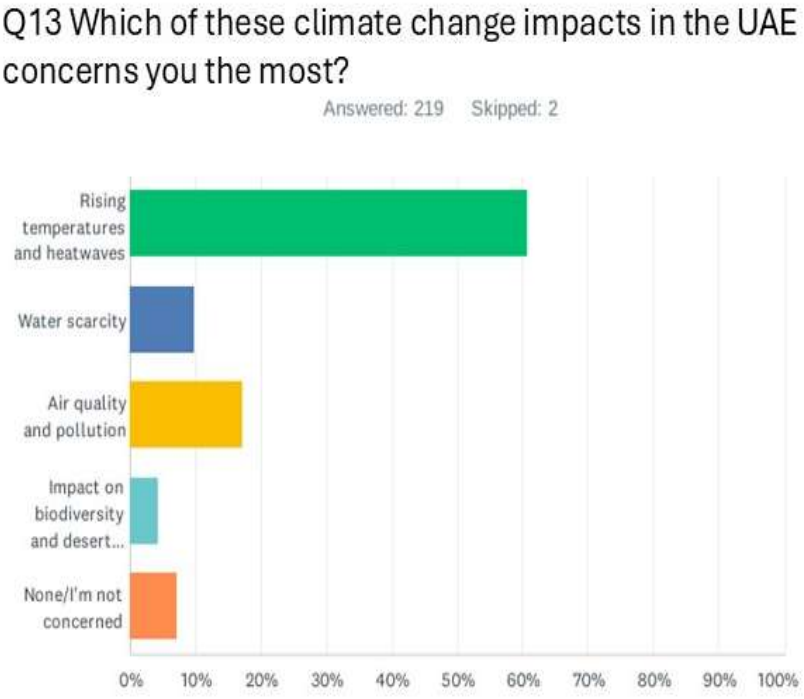
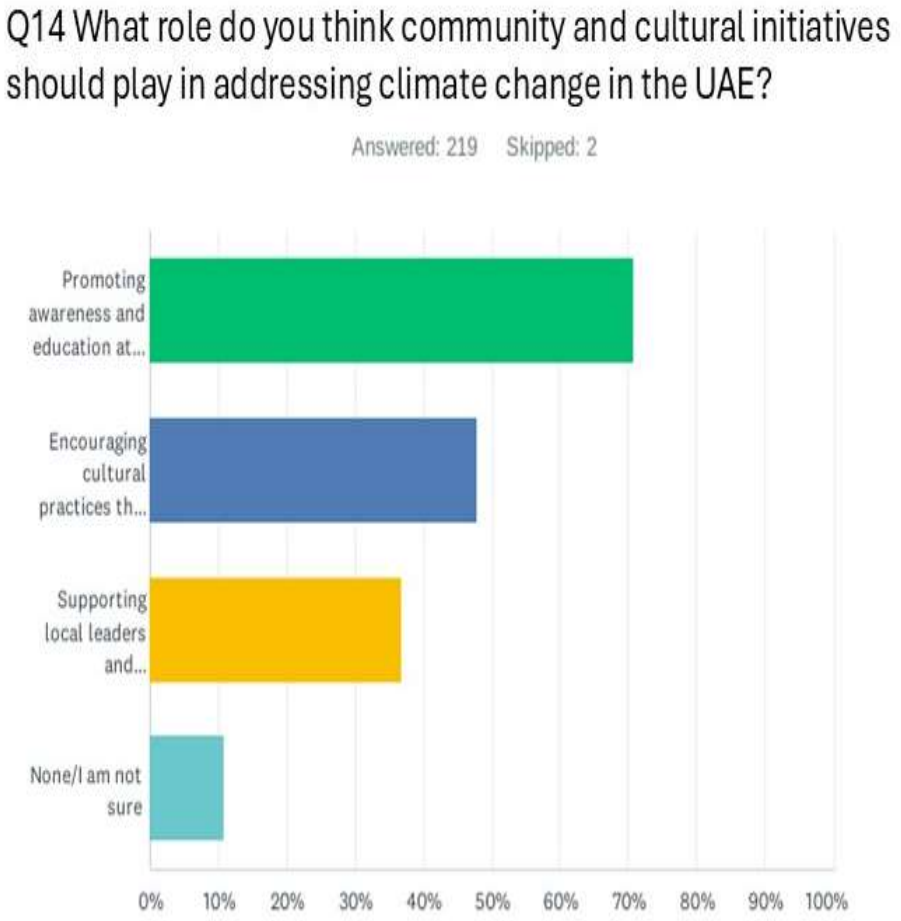


ANSWER CHOICES	RESPONSES	
Rising temperatures and heatwaves	60.73%	133
Water scarcity	10.05%	22
Air quality and pollution	17.35%	38
Impact on biodiversity and desert ecosystems	4.57%	10
None/I'm not concerned	7.31%	16
TOTAL		219

Regarding the role of community and cultural initiatives, the responses reveal a strong consensus on their importance, particularly in promoting awareness and education (Figure 6). Most respondents (70.78%) believe that community and cultural initiatives should promote awareness and education at a community level. Almost half of the respondents (47.95%) feel these initiatives should encourage cultural practices that align with sustainability. A substantial number of respondents (36.99%) also believe in supporting local leaders and organizations in environmental stewardship. A small percentage of respondents (10.96%) selected "None/I am not sure."

Figure 6



ANSWER CHOICES	RESPONSES	
Promoting awareness and education at a community level	70.78%	155
Encouraging cultural practices that align with sustainability	47.95%	105
Supporting local leaders and organizations in environmental stewardship	36.99%	81
None/I am not sure	10.96%	24
Total Respondents: 219		

AWARENESS OF CLIMATE CHANGE POLICIES

This section assesses students' awareness of specific climate change commitments or policies by the UAE government. Quantitative analysis revealed that a significant proportion of respondents (62.44%) demonstrated awareness of at least one specific climate change commitment or policy implemented by the UAE government. However, a notable segment of the participant pool (24.89%) explicitly stated a lack of awareness regarding specific initiatives. The remaining 10.86% of responses were either too ambiguous to categorize definitively or provided insufficient information to ascertain the respondent's level of awareness.

The most frequently mentioned initiatives were "Net Zero by 2050" (42.03% of aware respondents) and "Renewable Energy Investments" (36.96%). In contrast, the "Circular Economy Policy" (2.17%) had a low number of mentions, and a small proportion of responses (1.81%) contained misconceptions or inaccurate information.

The thematic analysis of the open-ended responses provided valuable context for these quantitative findings, revealing several key themes:

- **Theme 1: General Awareness of UAE's Commitment to Sustainability (Underlying the 62.44%):** Many students, while aware of some policies, expressed a general awareness that the UAE is committed to sustainability and climate action, but they often struggled to name specific policies beyond the most well-known initiatives. For example, one student stated, "I know the UAE is trying to be greener, but I do not know the details." Another student said, "I think they are doing something with renewable energy, but I am not sure what." This theme suggests a broad understanding of the UAE's overall goals, likely contributing to the relatively high percentage of respondents who indicated some awareness.

- **Theme 2: Strong Association with "Net Zero by 2050" and Renewable Energy (Explaining the Top Mentions):** The quantitative data showed "Net Zero by 2050" and "Renewable Energy Investments" as the most frequently mentioned initiatives. This was reflected in the qualitative data, with some students specifically mentioning renewable energy initiatives, such as solar power projects, as examples of the UAE's climate change efforts. A student commented, "I know they are investing in solar energy, like the Mohammed bin Rashid Al Maktoum Solar Park." This theme confirms the effectiveness of communication strategies around these specific initiatives.

- **Theme 3: Lack of Specific Policy Knowledge (Explaining the 24.89%):** The quantitative data highlighted that 24.89% of respondents explicitly stated a lack of awareness. This was echoed in the qualitative data, with many students admitting they were unaware of any specific climate change policies. One student stated, "I do not know any." Another said, "I am not really sure what the government is doing." This theme underscores a potential gap in public awareness regarding specific government policies and initiatives, particularly beyond the most prominent ones.

- **Theme 4: Confusion with General Environmental Efforts (Contributing to Ambiguous Responses):** Some students confused general environmental efforts, such as recycling programs, with specific climate change policies. For instance, one student said, "I think they have recycling programs, so that is good." This confusion likely contributed to the 10.86% of ambiguous responses, suggesting a need to differentiate between general environmental initiatives and targeted climate change policies in public communication. The low mention of "Circular Economy Policy" may also be due to this confusion or lack of awareness.

STUDENT ENGAGEMENT IN CLIMATE ACTION: AN ANALYSIS OF PERSONAL ACTIONS

To understand the extent of personal engagement, the study asked participants, 'What actions, if any, are you taking to reduce your impact on the climate?' The results of the quantitative analysis demonstrate that the vast majority of respondents indicated that they were taking some action to reduce their climate impact. Recycling (29.41%) and Reducing Plastic Use (28.05%) were the most frequently cited actions. Conserving Energy (14.93%) and Using Public Transportation/Walking/Biking (14.03%) were also mentioned by many respondents. Actions such as Reducing Waste (8.60%), Raising Awareness/Educating Others (7.24%), Using Reusable Items (5.43%), Planting Trees (3.17%), Sustainable Consumption (3.17%), Driving Electric/Hybrid Vehicle (2.71%), and Conserving Water (2.71%) were mentioned less frequently. Only one respondent explicitly stated "None."

The thematic analysis of the open-ended responses provided a deeper understanding of the motivations and nuances behind these actions, revealing the following key themes:

- **Theme 1: Convenience-Driven Environmentalism (Underlying Recycling and Reducing Plastic Use):** The high frequency of recycling and reducing plastic use suggests a focus on relatively convenient actions effortlessly integrated into daily routines. While students did not explicitly state "convenience," many responses implied this. For example, one student said, "I try to recycle whenever I can," suggesting that recycling is done when the opportunity presents itself. Another mentioned, "I always use reusable shopping bags," indicating a habitual behavior that is now part of their routine. This theme suggests that accessibility and ease of implementation are key drivers of environmental action.

- **Theme 2: Cost-Saving Measures with Environmental Benefits (Motivating Energy Conservation and Transportation Choices):** Conserving energy and using public transportation/walking/and biking were also frequently mentioned. The qualitative responses indicated that these actions were often motivated by a combination of environmental concerns and cost-saving benefits. For instance, a student stated, "I try to use public transport to save money and reduce pollution." Another said, "I turn off the lights when I leave a room to save electricity." This theme highlights the importance of framing environmental actions regarding tangible personal benefits.

- **Theme 3: Awareness-Driven Actions (Explaining Raising Awareness/Educating Others):** While less frequent, the mention of "Raising Awareness/Educating Others" suggests a segment of students actively promoting environmental consciousness within their social circles. A student commented, "I try to talk to my friends and family about climate change and encourage them to take action." This theme indicates a proactive approach to environmentalism that goes beyond personal actions.

- **Theme 4: Limited Engagement with More Demanding Actions (Explaining Less Frequent Mentions):** The less frequent mention of actions such as "Sustainable Consumption," "Planting Trees," and "Conserving Water" suggests a lower level of engagement with actions that require more effort, knowledge, or lifestyle changes. This may be due to a lack of awareness, limited resources, or perceived inconvenience. Further research is needed to understand the barriers to adopting these more demanding actions.

- **Theme 5: The "None" Response (Highlighting a Lack of Engagement):** The single response of "None" reminds us that not all students are actively engaged in climate action. This may be due to various factors, such as a lack of awareness, concern, or a belief that individual actions are insignificant.

BARRIERS TO CLIMATE ACTION IN THE UAE: STUDENT PERSPECTIVES ON KEY CHALLENGES

A key aspect of understanding climate action in the UAE involves identifying the challenges students perceive as hindering progress. To this end, participants were asked: 'What do you think are the biggest barriers or challenges to taking action on climate change in the UAE?' The data indicates that the most dominant theme was Economic Dependence on Oil/Fossil Fuels (38.46%). Extreme Climate Conditions/Water Scarcity (14.03%) and Lack of Public Awareness/Engagement (12.22%) were also frequently cited as significant barriers.

Other challenges identified by respondents include the Need for Infrastructure Changes/Technological Solutions (5.88%), the difficulty of balancing economic growth with Sustainability (5.43%), the need for International Cooperation/Policy Alignment (2.26%), and cultural/Societal Factors (2.26%).

The thematic analysis of the open-ended responses provided a deeper understanding of these challenges, revealing the following key themes:

- **Theme 1: Entrenched Economic Interests (Elaborating on Economic Dependence on Oil/Fossil Fuels):** The UAE's economic dependence on oil and fossil fuels was the most prominent barrier identified. The qualitative responses elaborated on this, highlighting concerns that the country's economic structure makes it difficult to transition to a more sustainable model. For example, one student stated, "The UAE's economy is based on oil, so it is hard to move away from that." Another said, "We rely too much on oil money." This theme underscores the perceived conflict between economic prosperity and climate action.

- **Theme 2: Environmental Constraints (Explaining Extreme Climate Conditions/Water Scarcity):** Extreme climate conditions and water scarcity were frequently cited as significant barriers. Students expressed concerns that the UAE's harsh environment makes it particularly vulnerable to climate change and that water scarcity poses a major challenge to sustainable development. A student commented, "It is so hot here, and we do not have much water, so it is hard to be sustainable." Another said, "The climate here makes it difficult to implement green initiatives." This theme highlights the unique environmental challenges facing the UAE.

- **Theme 3: The Need for Greater Public Engagement (Providing Context for Lack of Public Awareness/Engagement):** The lack of public awareness and engagement was identified as a key barrier. The qualitative responses suggested that many students feel that the public is not sufficiently informed about climate change and that there is a need for greater education and awareness campaigns. For instance, one student stated, "People do not understand how serious climate change is." Another said, "More needs to be done to educate the public." This theme emphasizes the importance of raising public awareness and promoting active participation in climate action.

- **Theme 4: Systemic and Infrastructural Challenges (Underlying Need for Infrastructure Changes/Technological Solutions):** The need for infrastructure changes and technological solutions was also mentioned. Students highlighted the importance of investing in renewable energy infrastructure, improving public transportation, and developing innovative technologies to address climate change. A student commented, "We need better public transport and more renewable energy sources." This theme underscores the need for systemic changes and technological advancements to support climate action.

- **Theme 5: Balancing Growth and Sustainability (Highlighting the Tension):** Another recurring theme was the difficulty of balancing economic growth with sustainability. Students expressed concerns that efforts to reduce emissions and promote sustainability may hinder economic growth. One student stated, "It is hard to balance the economy with the environment." This theme highlights the perceived trade-offs between economic development and environmental protection.

DISCUSSION AND RECOMMENDATIONS

The findings reveal a high level of awareness and concern regarding climate change among university students in the UAE, with a strong reliance on social media as a primary source of information. Key challenges include the economic dependence on oil, extreme climate conditions, and the need for greater public engagement.

To promote more effective climate action among university students in the UAE, the following recommendations are offered:

- **Enhance Media Literacy:** Implement media literacy programs to help students critically evaluate online information and combat misinformation.

- **Targeted Communication Campaigns:** Develop targeted communication campaigns to raise awareness of specific climate change impacts and to promote pro-environmental behaviors. Focus on initiatives with lower recognition rates (e.g., the Circular Economy Policy, National Climate Change Plan).

- **Accessible Information Resources:** Create accessible and user-friendly resources, such as a dedicated website or mobile app, that provide comprehensive and up-to-date information on the UAE's climate change commitments and policies.

- **Community Engagement Programs:** Implement community engagement programs to reach broader audiences and to foster a sense of collective responsibility for addressing climate change.

- **Diversify the Economy:** Implement policies to diversify the UAE's economy, reducing its reliance on oil and gas revenues.

- **Invest in Sustainable Infrastructure and Technology:** Invest in developing sustainable infrastructure and technological solutions to address the challenges posed by the UAE's climate and environmental conditions.

CONCLUSION

This study has illuminated the perceptions of climate change among university students in the UAE, revealing the significant role of digital engagement in shaping their awareness, concerns, and reported actions. The findings confirm a high awareness and concern, driven primarily by social media consumption, yet highlight persistent challenges in translating this awareness into tangible climate action. Specifically, the study underscores the salience of economic dependence on oil and gas, the harsh realities of the UAE's climate, and the critical need for enhanced public engagement as key impediments to progress.

The study's results suggest that while students consume information about climate change, particularly through social media, this consumption does not consistently translate into in-depth knowledge of specific UAE climate policies or widespread adoption of more demanding pro-environmental behaviors. While positive, the preference for convenient actions like recycling and reducing plastic use points to a need to encourage more substantial lifestyle changes. The thematic analysis reveals that cost savings and convenience often drive reported actions, suggesting that framing climate initiatives for personal benefit could be a more effective engagement strategy.

Furthermore, identifying "Economic Dependence on Oil/Fossil Fuels" as the most significant barrier underscores the complex interplay between economic realities and environmental concerns in the UAE. This perception and a lack of public awareness and engagement highlight the need for targeted interventions that address systemic challenges and individual attitudes.

Several key areas warrant further attention to build upon the study's findings. Firstly, enhanced media literacy programs are essential to equip students with the skills to critically evaluate online information and combat the spread of misinformation, ensuring that awareness translates into informed action. Secondly, targeted communication campaigns should be developed to promote specific climate change

impacts, focusing on initiatives with lower recognition rates, such as the Circular Economy Policy and the National Climate Change Plan. Making information more accessible through user-friendly resources, like dedicated websites or mobile apps, is also crucial.

Moreover, addressing the systemic issues requires a multi-pronged approach. Policies to diversify the UAE's economy and reduce its reliance on oil and gas revenues are paramount. Investment in sustainable infrastructure and technological solutions is also needed to address the unique challenges posed by the UAE's climate and environmental conditions. Community engagement programs can foster a sense of collective responsibility and promote wider participation in climate action.

This study was not without limitations. The reliance on convenience sampling and self-reported data introduces potential biases that must be acknowledged. Future research should employ more rigorous sampling methods to enhance generalizability and incorporate qualitative data collection, such as in-depth interviews or focus groups, to gain a richer understanding of students' experiences, motivations, and barriers to action. Specifically, future studies should aim to:

- Explore the nuanced relationship between social media engagement and specific climate change behaviors.
- Investigate the effectiveness of different communication strategies in promoting more demanding pro-environmental actions.
- Examine the role of cultural values and social norms in shaping climate change perceptions and behaviors in the UAE.
- Assess the long-term impact of digital engagement on climate change attitudes and behaviors.

In conclusion, this research provides a valuable snapshot of climate change perceptions among UAE university students and underscores digital engagement's critical role in shaping these perceptions. By addressing the identified challenges and implementing the recommended strategies, policymakers and educators can empower university students to become active agents of change, contributing to a more sustainable and resilient future for the UAE. Further research is essential to refine these strategies and ensure that the "climate change generation" is equipped with the knowledge, skills, and motivation to address this pressing global challenge effectively.

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