Social Media and Climate Change Perceptions among Undergraduates at Babcock University: A Survey of Knowledge, Attitudes, Intentions and Opinion Formation.

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Abstract

Social media platforms are integral to young people's daily lives and increasingly shape public discourse on global issues, including climate change. The research investigates how undergraduates at Babcock University's Faculty of Science and Technology in Ogun State utilise Twitter, Facebook, TikTok, and YouTube to enhance their understanding of climate change, develop their knowledge and awareness, shape their attitudes and behavioural plans, and express their opinions about climate change. Using a cross-sectional survey design, the study targeted a population of 1,312 students and obtained a final valid sample of 288 respondents (307 questionnaires distributed; 288 valid returns), determined initially by Taro Yamane's formula. Data were collected using a validated, structured questionnaire (pilot-tested; Cronbach's α reported) and analysed using descriptive statistics and linear regression. The regression analyses indicate no statistically significant association between social media engagement and students' knowledge/awareness (B = −0.112, p = 0.084), attitudes (B = 0.032, p = 0.680), intentions to act (B = 0.021, p = 0.769), or understanding/opinions (B = 0.080, p = 0.315). These results suggest that, within this private-university sample and during the study period, the current experience of social media use *by these undergraduates* did not translate into measurable gains in climate knowledge, pro-environmental attitudes, or stronger intentions to act. The paper discusses possible explanations (information quality, selective exposure, platform affordances, and misinformation) and recommends targeted climate literacy interventions, improved content curation, and institutional collaborations with credible climate communicators to increase the effectiveness of social media in promoting climate engagement among students.

Keywords: *Attitudes, Behavioural Intentions, Climate Change, Knowledge, Social Media.*

1. Introduction

Different regions of Nigeria have highlighted the combined social, economic, and environmental impacts of severe flooding. All countries must collaborate to protect the climate and develop adaptation strategies due to the global climate change emergency (ReliefWeb, 2023; NEMA, 2023). The IPCC (2021) states that climate change develops from prolonged changes in atmospheric conditions and temperature patterns, which stem from greenhouse gas emissions that produce rising sea levels, more frequent severe

weather events, and biodiversity reduction. The educational environment of universities enables students to take climate action through effective communication, as these institutions serve as learning spaces and socialisation areas for behavioural development (Osadchaya et al., 2020). Students use Facebook, Twitter, TikTok, YouTube, and Instagram to access and share environmental information through social media platforms. Research shows that environmental knowledge acquisition through social media platforms produces both beneficial and detrimental effects, as users encounter incorrect information and a limited depth of understanding.

Research evidence from recent studies and empirical investigations indicates that social media platforms serve as dual-purpose tools for environmental education; however, they also transmit false information that hinders meaningful climate action. Despite this broader literature, evidence remains mixed about whether social media use reliably improves the climate knowledge, attitudes, or action intentions of undergraduate students in Nigerian private universities. This gap motivates the current study, which examines the correlation between social media usage and climate change knowledge, attitudes, intentions, and opinion formation among science and technology undergraduates at Babcock University.

Young people across the globe including Nigerian students depend on social media for their information needs but researchers have not established if this exposure improves their climate understanding and environmental consciousness. The Pew Research Centre (2022) and Statista (2023) show that undergraduates use Twitter (X) and Instagram and TikTok and Facebook platforms to get news and support environmental causes (2021). The reliability of climate information shared online through social media platforms remains uncertain according to Ojebuyi and Salawu (2023) who question if most Nigerian citizens use social media for information. The authors view social media engagement as a factor that either deepens understanding or produces shallow interactions.

Social media platforms serve as both awareness boosters and misinformation spreaders, according to Anderson (2017) and Waisbord (2018), which creates opposing views that damage climate literacy (van der Linden et al., 2017). The impact of social media engagement on Nigerian private university students remains unknown, as their socio-economic environment differs from that of public institutions.

The prevalence of "clicktivism"-online support without offline action further questions the link between visibility and sustainable practices (Gladwell, 2010; Ekdale et al., 2015). While a plethora of international studies highlight these dynamics (Leiserowitz et al., 2021; Veltri & Atanasova, 2017), studies showing this evidence from Nigerian private universities are lacking. This study, therefore, addresses this gap by examining undergraduates at Babcock University, Nigeria. The research objectives are as follows:

(i)   Evaluate the extent to which social-media climate change content increases Babcock University undergraduates' knowledge and awareness of climate change.
(ii)   Investigate how social-media interactions influence Babcock University students' attitudes toward climate change.
(iii)   Ascertain the relationship between social media engagement and students' intentions to take action on climate change.
(iv)   Explore how exposure to diverse perspectives on social media affects students' understanding and opinions on climate change.

2. Literature Review

The IPCC (2021) views climate change as encompassing long-term shifts in temperature and weather patterns, which are strongly influenced by anthropogenic emissions of greenhouse gases, posing complex socio-ecological risks which require public engagement and policy responses. Education and communication are central to building adaptive capacity and promoting mitigation behaviours (UNESCO, 2017).

2.1. Social Media, Youth Engagement and Climate Communication

Studies conducted on social media effects on environmental awareness and behavior have produced conflicting results. Research indicates that social media effectively boosts green purchasing habits and environmental awareness among youth when it delivers trustworthy content that actively interacts with users but misleading information and poor content quality diminishes effectiveness and creates doubt among users.

A large-scale review and empirical studies (e.g., Xie et al., 2024; Liao et al., 2024; Schäfer, 2025) highlight that platform affordances (algorithmic curation, visuals, short-form formats) shape both the reach and the persuasiveness of climate messages. Visual and narrative framing matter: targeted visual communication and narrative framing on social media help engage younger audiences but must be combined with credible sources and calls to action to prompt sustained behavioural change (León et al., 2022; Mooseder et al., 2023).

2.2. Misinformation and Content Quality

Misinformation and disinformation on social media persist as significant challenges for climate communication, reducing public trust and hindering pro-environmental responses. Systematic reviews and recent reports document extensive misinformation ecosystems amplified by bots, coordinated campaigns, and political actors—findings that are relevant when interpreting non-significant effects of social media exposure on student knowledge and attitudes.

2.3. Regional and Nigerian Context

African and Nigerian policy documents emphasise climate education and public awareness as key pillars for national adaptation (National Climate Change Policy 2021–2030). However, empirical studies focusing specifically on Nigerian social media audiences are still emerging. Recent Nigeria-focused studies (including 2024–2025 empirical work) examine the roles of TikTok, Instagram, and Twitter in public engagement, yielding mixed results that underscore the need for localised studies like this one.

2.4. Theoretical Review

Predicated on the Uses and Gratifications Theory (UGT), which explains how active audience members select media to satisfy their needs (information, identity, social interaction, and entertainment), and Agenda-Setting Theory, which explains how media frequency and emphasis influence the perceived importance of issues. In combination, UGT helps explain why students seek climate content on social platforms, while agenda-setting accounts for how repeated emphasis can lift climate change higher on an individual's salience hierarchy. The dual framework helps explain why exposure does not always lead to more profound knowledge or action intentions: seeking content (UGT) is necessary but not sufficient when agenda salience and message quality are low.

3. Methods

A cross-sectional survey design is suitable for this study because it enables researchers to assess the effects of media use on knowledge, attitudes, and behavioural intentions among students in a specific population at a single point in time. The research instrument consisted of a structured, closed-ended questionnaire which targeted students from Babcock University's School of Science and Technology. The researcher chose this faculty because computers and internet access play a vital role in their academic work and everyday activities. The researcher selected this group because all Babcock University students have equal access to telecommunication and internet facilities, which makes them representative of the entire student body. The Registrar's Office at the university reported that 1,312 students were enrolled in the School of Science and Technology. The Taro Yamane formula resulted in a required sample size of 307 participants. The researchers employed simple random sampling to distribute the questionnaires to

participants. The researchers received 288 completed questionnaires from the 307 distributed surveys, which were suitable for analysis.

The formula is as follows: n = N/1+N(e)2.
When n is the sample size,
N = population size
E = Level of Precision
Therefore,
School of science and technology, Babcock University =1312
$(1312/1+1312(0.05)^2$
1312/1+1312(0.0025) 900/1+4.28
n=307

The reliability of the research instrument was established through a pilot study, using Composite Cronbach's Alpha to assess internal consistency. The results indicated high reliability, with Cronbach's Alpha values for the four sections of the questionnaire recorded as 0.973 (97%), 0.95 (95%), 0.90 (90%), and 0.95 (95%), respectively—demonstrating strong internal consistency across all items. Furthermore, face and construct validity were employed to ensure the instrument accurately measured the intended variables.

4. Results

This section analyzes how social media influences Babcock University students' climate change views. Of 307 questionnaires distributed, 288 (96%) were valid. Using a 0.05 significance level, hypotheses were tested: $p > 0.05$ accepted the null; $p \leq 0.05$ led to its rejection, indicating significant variable relationships.

H01: Social media does not significantly increase Babcock University students's knowledge and awareness of climate change issues

Table 1a. Knowledge and awareness of climate change.

Items	N Freq. (%)	SD Freq. (%)	D Freq. (%)	A Freq. (%)	SA Freq. (%)	$\bar{x}$	SD
Climate change is primarily caused by human activities such as burning fossil fuels and deforestation.	72 (25.0)	57 (19.8)	27 (9.4)	69 (24.0)	63 (21.9)	2.98	1.52
The effects of climate change are already being felt around the world, including more extreme weather events, rising sea levels, and changes in ecosystem.	83 (28.8)	60 (20.8)	68 (23.6)	61 (21.2)	16 (5.6)	2.54	1.51
Climate change is an urgent issue that requires immediate global cooperation and action.	48 (16.7)	40 (13.9)	72 (25.0)	82 (28.5)	46 (16.0)	3.13	1.31
Individual actions, such as reducing meat consumption and using public transportation, can significantly impact the fight against climate change.	67 (23.3)	83 (28.8)	74 (25.7)	49 (17.0)	15 (5.2)	2.52	1.17

Renewable energy sources like solar and wind power are effective solutions to combat climate change	44 (15.3)	36 (12.5)	55 (19.1)	98 (34.0)	55 (19.1)	3.29	1.33
Average weighted Mean						**2.89**	**1.32**

Source: Field Survey, 2024

KEY: SA=Strongly Agree, A=Agree, D=Disagree, SD=Strongly Disagree, N=Neutral ***Decision Rule if mean is 1 to 1.49 =Neutral; 1.5 to 2.49 = Strongly Disagree; 2.5 to 3.49 = Disagree; 3.5 to 4.49= Agree; 4.5 to 5.00= Strongly Agree

Table 1b. ANOVA & Model Summary of Test of social media as tools for shaping the opinion of undergraduate students in Babcock University on climate change.

Model		Sum of Squares Df		Mean Square	F	Sig.
	Regression	22.619 1		22.619	3.002	0.084[b]
	Residual	2154.961	286	7.535		
	Total	2177.580	287			

R= 0.102[a]; R Square = 0.10; Adj. R Square = 0.007
Source: Author's Compilation from SPSS 25

Table 1c: Linear regression testing significant influence of social media as tools for shaping the opinion of undergraduate students in Babcock University on climate change.

Predictor	B	SE(B)	β	t	p
Constant	15.770	0.772	—	20.418	< .001
Social media	−0.112	0.065	−0.102	−1.72	.084

Source: Author's Compilation from SPSS 25

The research shows Babcock University undergraduate students have gained significant knowledge about climate change through their studies. The regression analysis produced a beta coefficient of $\beta = -0.102$ together with a t-value of 20.418. The research data in Tables 1a and 1b show that social media platforms produce a p-value below 0.05 (p = 0.084). The study results validate the null hypothesis which states social media does not improve Babcock University undergraduate students' climate change knowledge98 with a standard deviation of 1.32 which proves social media does not improve climate change awareness and awareness. The data in Table 1a shows that students scored an average of 2.. The survey findings show that most participants disagree with the notion that social media helps people grasp climate change better. The research findings show that social media failed to enhance climate change understanding among the surveyed undergraduate students throughout the study duration.

H$_0$2: How does social media interactions influence the attitudes of Babcock University undergraduate students towards climate change**.**

Table 2a. Intentions to take action on climate change with social media tools.

Items	N Freq. (%)	SD Freq. (%)	D Freq. (%)	A Freq. (%)	SA Freq. (%)	$\bar{x}$	SD
I use social media to support and promote climate change policies and initiatives.	85 (29.5)	58 (20.1)	58 (20.1)	58 (20.1)	29 (10.1)	2.61	1.36
I feel more connected to the climate change movement through social media.	63 (21.9)	60 (20.8)	51 (17.7)	61 (21.2)	53 (18.4)	2.93	1.43

I use social media to organize or join climate change	52 (18.1)	58 (20.1)	74 (25.7)	58 (20.1)	46 (16.0)	2.96	1.33
I use social media hashtags related to climate change in my social media posts.	63 (21.9)	53 (18.4)	33 (11.5)	70 (24.3)	69 (24.0)	3.10	1.50
Social media campaigns are effective in influencing public policy on climate change.	58 (20.1)	43 (14.9)	50 (17.4)	84 (29.2)	53 (18.4)	3.11	1.41
Average Mean						**2.94**	**1.41**

Source: Field Survey 2024.

Table 2b. ANOVA & Model Summary of Test of how social media interactions influence students' attitudes towards climate change.

Model		Sum of Squares Df		Mean Square	F	Sig.
	Regression	1.893	1	1.893	0.170	0.680[b]
	Residual	3175.187	286	11.102		
	Total	3177.080	287			

R= 0.24; R Square = 0.001; Adj R S = -0.003.
Source: Author's Compilation from SPSS 25.

Table 2c. Linear regression testing significant influence of how social media interactions influence students' attitudes towards climate change.

Predictor	B	SE(B)	β	t	p
Constant	14.333	0.938	—	15.288	< .001
Social Media	0.032	0.079	0.024	0.413	.680

Note: Dependent variable: Attitude toward Climate Change. Unstandardized coefficients (B), standard errors (SE), standardized coefficients (β), t-statistics, and two-tailed p-values are reported.
Source: Author's Compilation from SPSS 25.

Tables 2b and 2c show that social media interactions do not significantly influence Babcock University undergraduates' attitudes toward climate change. The regression analysis reports a beta coefficient (β) of 0.24, a t-value of 15.288, and a p-value of 0.680 (p > 0.05), leading to the acceptance of the null hypothesis. This indicates that students' attitudes remain largely unaffected by social media exposure. Table 2b reveals an R-value of 0.24 and an R² of 0.001, meaning only 0.1% of the variance in attitudes is explained by social media use—highlighting its weak influence. Table 2a supports this with a mean score ($\bar{x}$) of 2.94 and a standard deviation of 1.41, suggesting respondents generally disagreed that diverse perspectives on social media shape their climate views. Overall, the data confirm the limited role of social media in influencing students' attitudes toward climate change within the study's context and timeframe.

H03: Explore the relationship between social media engagement and Babcock University students' intentions to take action on climate change.

Table 3. Attitude toward climate change.

Items	N Freq. (%)	SD Freq. (%)	D Freq. (%)	A Freq. (%)	SA Freq. (%)	$\bar{x}$	SD
Climate change is the most critical issue facing humanity today	91 (31.6)	56 (18.6)	63 (21.9)	49 (17.0)	29 (10.1)	2.55	1.35

Items	N	SD	D	A	SA	$\bar{x}$	SD
I feel a sense of urgency to take personal action to mitigate climate change.	89 (30.9)	52 (18.1)	87 (30.2)	27 (9.4)	33 (11.5)	2.52	1.32
Climate change discussions are often politically motivated and biased.	78 (27.1)	41 (14.2)	63 (21.9)	69 (24.0)	36 (12.5)	2.91	2.26
addressing climate change should be a top priority for governments worldwide.	48 (16.7)	34 (11.8)	38 (13.2)	90 (31.3)	78 (27.1)	3.40	1.42
Climate change will not significantly affect my life	39 (13.5)	48 (16.7)	54 (18.8)	61 (21.2)	86 (29.9)	3.37	1.41
Average Mean						**2.95**	**1.55**

Source: Field Survey 2024.

Table 3b. ANOVA & Model Summary of Test the relationship between social media engagement and Babcock University students' intentions to take action on climate change.

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	0.775	1	0.775	0.087	0.769[b]
	Residual	2563.003	286	8.962		
	Total	2563.778	287			

R= 0.17[a]; R Square = 0.000; Adj. R Square = -0.003.
Source: Author's Compilation from SPSS 25

Table 3c. Linear regression testing significant influence of the relationship between social media engagement and students' intentions to take action on climate change.

Predictor	B	SE(B)	β	t	p
Constant	14.480	0.842	—	17.190	< .001
Social Media	0.021	0.071	0.017	0.294	.769

Note: Dependent variable: Intention to Take Action. Unstandardized coefficients (B), standard errors (SE), standardized coefficients (β), t-statistics, and two-tailed p-values are reported.

Table 3a shows that participants generally disagreed with statements linking social media engagement to intentions to act on climate change ($\bar{x}$ = 2.95, SD = 1.55). Inferential analysis in Tables 3b and 3c further confirms no significant influence of social media on students' climate action intentions (β = 0.17, t = 17.190, p = 0.769; p > 0.05). Thus, the null hypothesis—that social media does not affect students' intentions—was accepted. These results suggest that, during the study period, social media had minimal impact on students' willingness to engage in climate-related actions. Additionally, the regression model shows weak explanatory power (R = 0.17, R² = 0.000), indicating that social media accounted for 0.0% of the variance in students' intentions. This reinforces the conclusion that social media did not significantly influence climate-related behavioural intentions among Babcock University undergraduates.

H04: Investigate how exposure to a diversity of perspectives on social media affects Babcock University students' understanding and opinions on climate change.

Table 4a. Understanding and opinions on climate change.

Items	N Freq. (%)	SD Freq. (%)	D Freq. (%)	A Freq. (%)	SA Freq. (%)	$\bar{x}$	SD

Developing countries should be given more support to adapt to the impacts of climate change.	92 (31.9)	46 (16.0)	29 (10.1)	75 (26.0)	46 (16.0)	2.78	1.52
Economic considerations should take precedence over environmental concerns in policy decisions	61 (21.2)	61 (21.2)	51 (17.7)	83 (28.8)	32 (11.1)	2.88	1.34
Climate change is a hoax created to restrict economic freedoms.	71 (24.7)	47 (16.3)	102 (35.4)	42 (14.6)	26 (9.0)	2.67	1.25
Technology innovation alone can solve climate crisis.	42 (14.6)	61 (21.2)	67 (23.3)	86 (29.9)	32 (11.1)	3.02	1.24
The impact of climate change is overblown; the Earth's climate has always been changing.	48 (16.7)	34 (11.8)	45 (15.6)	83 (28.8)	78 (27.1)	3.38	1.42
Average Mean						**2.95**	**1.35**

Source: Field Survey 2024

Table 4b. ANOVA & Model Summary of Test of relationship between exposure to diverse perspectives on social media affects university undergraduates' understanding and opinions on climate change.

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	11.479	1	11.479	1.013	0.315[b]
	Residual	3240.017	286	11.329		
	Total	3251.497	287			

R= 0.59[a]; R Square = 0.004; Adj. R Square = 0.007
Source: Author's Compilation from SPSS 25.

Table 4c. showing the Influence of how exposure to a diversity of perspectives on social media affects students' understanding and opinions on climate change.

Predictor	B	SE(B)	β	t	p
Constant	**15.686**	**0.947**	—	**16.562**	**< .001**
Social Media	**0.080**	**0.079**	**0.059**	**1.007**	**.315**

Note: Dependent variable: Understanding and Opinion. Unstandardized coefficients (B), standard errors (SE), standardized coefficients (β), t-statistics, and two-tailed p-values are reported.
Source: Author's Compilation from SPSS 25.

The regression model in Table 4b shows that social media engagement does not significantly influence students' understanding and opinions on climate change ($\beta = 0.59$, $t = 16.562$, $p = 0.315$). Thus, the null hypothesis was accepted. Table 4a indicates a low correlation ($R = 0.59$) and a very weak explanatory power ($R^2 = 0.004$), suggesting that only 0.4% of the variance in students' understanding and opinions is explained by social media use. These results highlight the minimal impact of social media on shaping students' cognitive and evaluative views on climate change. Overall, the findings affirm that social media exposure does not significantly affect undergraduate students' understanding and opinions on climate change during the study period.

5. Discussions

The research examined university students' climate change perceptions through their social media interactions with climate change content. The research evaluated four essential indicators which assessed students' beliefs about fossil fuels and deforestation as climate change sources and their views on global

climate change impacts and immediate worldwide action requirements and personal responsibility. The study results indicate students do not consider social media as a primary source of climate change information because their average score reached 2.89 with a standard deviation of 1.32. The majority of Babcock University undergraduates obtain their climate information from sources other than social media because they do not consider climate change a major concern. The study results differ from Wang et al. (2018) and Lee (2018) who demonstrated that university students develop better climate change awareness through social media exposure.

The research investigated how social media usage affects students' understanding of climate change. The study revealed that measured student attitudes toward climate change found no significant impact from social media since their average score reached 2.95. The students did not consider climate change as their main human concern and showed no interest in taking action against it. Students treated climate change discussions as political strategies which they believed governments should handle environmental matters. Students in the study did not believe climate change would lead to major changes in their personal existence. The research findings differ from Cote and Darling (2021) who found that university students who use social media tend to show more environmentally responsible conduct.

The research examined how students who use social media platforms develop their plans to take action against climate change. The study examined five factors which influenced this objective including social media climate movement engagement and climate policy endorsement and campaign participation and hashtag utilization and social media effectiveness in policy transformation. Students showed strong backing for climate change initiatives yet they avoided using social media platforms to engage in climate-related discussions or activism.

The survey data revealed that students believed social media campaigns could shape public policy yet their willingness to take action remained unchanged at 2.94 with a standard deviation of 1.41. Stevenson et al. (2016) showed that peer discussions about climate change between adolescents led to increased environmental behavior and climate change concern. The research analyzed how students form their climate change knowledge and opinions through their exposure to diverse social media content. The survey data revealed that 42% of respondents supported using funds to support climate change adaptation programs in developing nations. The participants expressed conflicting views about which aspect took precedence between economic requirements and environmental safeguarding. The participants acknowledged that technology alone cannot solve the crisis yet they believed climate change does not seek to restrict personal liberties.

The survey data revealed that 55% of participants believed climate change exaggeration occurs because they view it as a natural process. The study by Leiserowitz et al. (2019) confirms that social media functions as an agenda-setting platform. The regression analysis ($\beta = 0.59$, $t = 16.562$, $p > 0.05$) and the mean score of 2.95 from Su et al. (2021) indicate that social media has no significant impact on student climate change understanding and beliefs.

The research demonstrated that university students who used social media did not show any measurable improvement in their climate knowledge or attitudes or intentions or opinions which contradicts previous studies that linked social media to environmental awareness and activism (Wang et al., 2018; Stevenson et al., 2016). The current study supports recent research which demonstrates that outcomes depend on message quality and corrective mechanisms for misinformation and platform features and social and political environment. The lack of coherent and trustworthy content in social media platforms leads to superficial exposure that does not result in meaningful learning or behavioral change.

6. Conclusion

The research conducted at Babcock University discovered that Science & Technology undergraduates who used social media did not show better climate knowledge or stronger environmental attitudes or increased action intentions or enhanced opinion development throughout the study duration. The study shows that social media exposure by itself fails to enhance student climate literacy and behavioral change because it lacks attention to content quality and source credibility and engagement depth and educational support. The research provides three main contributions to the field through its study of Nigerian private university students: (1) it presents empirical data from a Nigerian private university context where such research is scarce; (2) it evaluates four different outcome domains (knowledge, attitudes, intentions, opinions) using the same participant group; and (3) it offers operational suggestions for universities and communication specialists who want to use social media platforms for climate awareness initiatives

6.1. Recommendation

The research suggests that universities should develop media literacy programs and climate change courses, and support students through the provision of trustworthy information and student activism, to enhance their understanding of climate change. Students learn to evaluate social media content through media literacy education and the integration of climate change curriculum with social media content analysis. The effectiveness of these programs will increase through partnerships with social media platforms, including Facebook, TikTok, Instagram, and Twitter, as well as additional funding for student initiatives, which will draw more participants.

6.2. Suggestions for Future Research

The mixed evidence suggests that future studies should measure content quality, source credibility, engagement depth (active vs passive), and platform algorithms to better understand mechanisms linking social media and climate outcomes. Longitudinal designs or experiments could detect more subtle causal effects than cross-sectional surveys.

References

Anderson, A. A. (2017). Effects of social media use on climate change opinion, knowledge, and behavior. *Oxford Research Encyclopedia of Climate Science*. https://doi.org/10.1093/acrefore/9780190228620.013.369

Côté, I. M., & Darling, E. S. (2021). Scientists on Twitter: Preaching to the choir or singing from the rooftops? *Facets, 6*(1), 910–922. https://doi.org/10.1139/facets-2020-0074

Ekdale, B., Namkoong, K., Fung, T. K. F., & Perlmutter, D. D. (2015). Why blog? (Then and now): Exploring the motivations for blogging by popular American political bloggers. *New Media & Society, 12*(2), 217–234. https://doi.org/10.1177/1461444809341440

Gladwell, M. (2010, October 4). Small change: Why the revolution will not be tweeted. *The New Yorker*. https://www.newyorker.com/magazine/2010/10/04/small-change-malcolm-gladwell

Intergovernmental Panel on Climate Change (IPCC). (2021). *Climate change 2021: The physical science basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (V. Masson-Delmotte et al., Eds.). Cambridge University Press. https://doi.org/10.1017/9781009157896

Lee, K. (2018). Social media and climate change communication: The gamification of knowledge. *Social Media + Society, 4*(3), 1–11. https://doi.org/10.1177/2056305118785632

Leiserowitz, A., Maibach, E., Rosenthal, S., Kotcher, J., Bergquist, P., Gustafson, A., Ballew, M., Goldberg, M., & Wang, X. (2021). *Climate change in the American mind: December 2020*. Yale University and George Mason University. Yale Program on Climate Change Communication. https://climatecommunication.yale.edu/publications/climate-change-in-the-american-mind-december-2020/

Leiserowitz, A., Maibach, E., Roser-Renouf, C., Rosenthal, S., Cutler, M., Kotcher, J., Ballew, M., Goldberg, M., & Wang, X. (2019). *Climate change in the American mind: April 2019*. Yale

University and George Mason University. Yale Program on Climate Change Communication. https://climatecommunication.yale.edu

León, B., Bourk, M., & Cutter-Mackenzie-Knowles, A. (2022). Communicating climate change through visual and narrative strategies on social media. *Environmental Communication, 16*(7), 881–897. https://doi.org/10.1080/17524032.2022.2069715

Liao, Y., Zhang, Y., & Zhang, H. (2024). Social media engagement and pro-environmental intentions among youth: The moderating role of message credibility. *Journal of Environmental Psychology, 93*, 102223. https://doi.org/10.1016/j.jenvp.2024.102223

Mooseder, A., Mothes, C., & Peter, C. (2023). Narratives in climate communication on social media: A systematic review. *Environmental Communication, 17*(4), 467–482. https://doi.org/10.1080/17524032.2022.2146417

National Emergency Management Agency (NEMA). (2023). *Flood disaster reports in Nigeria: 2022–2023*. Government of Nigeria. https://nema.gov.ng

National Environmental Standards and Regulations Enforcement Agency (NESREA). (2021). *National climate change policy for Nigeria (2021–2030)*. Federal Ministry of Environment, Nigeria.

Ojebuyi, B. R., & Salawu, A. (2021). Social media use among Nigerian university students: Influences on participation in civic and political activities. *Journal of African Media Studies, 13*(2), 287–303. https://doi.org/10.1386/jams_00045_1

Osadchaya, T., Kvon, G., & Prokopyev, A. (2020). The role of university education in shaping ecological values and sustainable behaviors. *Journal of Environmental Education Research, 26*(9–10), 1412–1425. https://doi.org/10.1080/13504622.2020.1768220

Pew Research Center. (2022, November 15). *Social media use in 2022*. Pew Research Center. https://www.pewresearch.org/internet/2022/11/15/social-media-use-in-2022

ReliefWeb. (2023, October). *Nigeria: Floods – Situation report*. United Nations Office for the Coordination of Humanitarian Affairs. https://reliefweb.int

Schäfer, M. S. (2025). Climate change communication on social media: A decade of empirical research. *Current Opinion in Environmental Sustainability, 65*, 101367. https://doi.org/10.1016/j.cosust.2025.101367

Statista. (2023, June). *Social media usage in Nigeria – Statistics & facts*. Statista Research Department. https://www.statista.com

Stevenson, K. T., Peterson, M. N., & Bondell, H. D. (2016). The influence of personal beliefs, friends, and family in building climate change concern among adolescents. *Environmental Education Research, 25*(6), 832–845. https://doi.org/10.1080/13504622.2016.1177712

Su, Y., Cacciatore, M., & Yang, J. (2021). Why do people share climate change information on social media? The role of perceived knowledge, concern, and network. *Environmental Communication, 15*(7), 884–900. https://doi.org/10.1080/17524032.2021.1927969

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing. https://unesdoc.unesco.org/ark:/48223/pf0000247444

van der Linden, S., Leiserowitz, A., Rosenthal, S., & Maibach, E. (2017). Inoculating the public against misinformation about climate change. *Global Challenges, 1*(2), 1600008. https://doi.org/10.1002/gch2.201600008

Veltri, G. A., & Atanasova, D. (2017). Climate change on Twitter: Content, media ecology and information sharing behaviour. *Public Understanding of Science, 26*(6), 721–737. https://doi.org/10.1177/0963662515613702

Waisbord, S. (2018). Truth is what happens to news: On journalism, fake news, and post-truth. *Journalism Studies, 19*(13), 1866–1878. https://doi.org/10.1080/1461670X.2018.1492881

Wang, S., Corner, A., Chapman, D., & Markowitz, E. (2018). Public engagement with climate imagery in a changing digital landscape. *Nature Climate Change, 8*(6), 522–530. https://doi.org/10.1038/s41558-018-0200-7

Xie, W., Li, J., & Zhang, Y. (2024). Social media use and climate change engagement: A meta-analysis of empirical studies. *Environmental Communication, 18*(2), 214–233. https://doi.org/10.1080/17524032.2024.2301129