

Evaluating the Impact of Environmental Policy Dissemination Channels on Public Acceptance

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Abstract: This research investigates the effectiveness of different digital platforms and accounts in promoting public acceptance of environmental policies. Applying the Diffusion of Innovation Theory, we conducted an extensive content analysis to evaluate public engagement with environmental policy-related content across various online channels. Our hypothesis suggests that official platforms and accounts may lead to higher public acceptance than alternative sources. The study's findings emphasize the significance of NGO-managed social media platforms in fostering public engagement and motivating environmental action, as users perceive these channels to be more trustworthy, accessible, and relatable. Interestingly, while official accounts provide authoritative information, NGO platforms excel in creating interactive and personalized content that resonates with the public. This suggests that a well-balanced communication strategy combining authoritative and relatable elements could better engage audiences and promote sustainable behaviors. The results underscore the potential for digital channels, especially those managed by NGOs, to play a critical role in advancing environmental awareness and policy acceptance.

Keywords: Environmental policy dissemination, Public acceptance, Platform trustworthiness, NGO accounts, Communication strategies.

1. Introduction

As environmental challenges continue to escalate globally, governmental bodies and relevant organizations face the critical task of enhancing public receptivity and participation in environmental policy initiatives[1]. While extensive research has been conducted on environmental policy dissemination strategies and their influence on public behavior, a significant gap exists in understanding how specific dissemination platforms affect public acceptance[2]. This study aims to fill this crucial gap by investigating the relationship between environmental policy content dissemination across various digital platforms and its reception among diverse demographic groups. Special attention is given to platform characteristics, and account management approaches in influencing public behavior and engagement with environmental policies [3-4].

The primary aims of this study are to analyze the impact of diverse platforms and account types on the public reception of environmental policies, evaluate the correlation between platform characteristics and public environmental awareness and actions, and develop recommendations for optimizing environmental policy communication strategies to enhance public engagement and promote sustainable practices[5-7].

This research is anchored in the Theory of Diffusion of Innovations, which explores the process by which novel concepts and technological advancements spread throughout cultural contexts[8-10]. The framework suggests that the extent of successful dissemination hinges on elements such as the comparative benefits, consistency, intricacy, testability, and visibility of the innovation. By applying this framework, our research analyzes how these factors influence the dissemination of environmental policies across various platforms, including social media networks, official government websites, and NGO accounts.

2. Research Methodology

2.1. Research Design

This study employs a quantitative approach, using survey questionnaires to gather data from diverse respondents[11]. The survey was structured to include demographic information, environmental awareness, behavior, and platform preferences.

2.2. Survey Questionnaire

- **Demographic Information:**

Covers inquiries regarding sex, age, educational attainment, and residential location[12].

- **Environmental Awareness:**

Assesses respondents' perceptions of environmental protection and their level of concern regarding specific environmental issues[13].

- **Environmental Behavior:**

This includes questions regarding recent activities related to environmental protection, such as recycling, reducing waste, and participating in environmental initiatives[14].

- **Platform Usage and Preferences:**

Explores the platforms respondents use to access environmental policy information (e.g., social media, news websites) and their preferences for engaging with content on those platforms[15].

- **Platform and Account Characteristics:**

Examines respondents' perceptions of the authority, interactivity, and effectiveness of various platforms and account types (e.g., government accounts, NGO platforms, individual bloggers)[16-17].

2.3. Data Collection

The survey was distributed online, targeting individuals who regularly access environmental information. The data collection occurred over one month to ensure a representative sample.

3. Results

Platform Trustworthiness and Authority: 63.36% of respondents perceive official platforms as more authoritative, but NGO accounts were deemed highly effective (72.77%).

Public Engagement with Environmental Policies: Social media platforms, particularly those managed by NGOs, emerged as the primary sources for environmental information, with 42.57% of respondents reporting environmental actions based on such content.

3.1. Frequency Analysis

Frequency analysis is utilized to examine the distribution of categorical data, focusing on the occurrence rates and proportional values.

Table 1: Frequency Statistics(n=202).

name	option	frequency	percentage%
What is your gender?	Male	98	48.515
	Female	104	51.485
	Other	0	0
	Prefer not to answer	0	0
	summary	202	100

The table above indicates: findings from the frequency analysis on “What is your gender?” reveal: the frequency for Male is 98, representing 48.515%; for Female, it is 104, representing 51.485%; for Other, it is 0, representing 0%; and for Prefer not to answer, it is also 0, representing 0%. Among these gender options, Female (51.485%) has the highest percentage, while Other (0%) has the lowest. (as depicted in Table 1 and Figure 1).

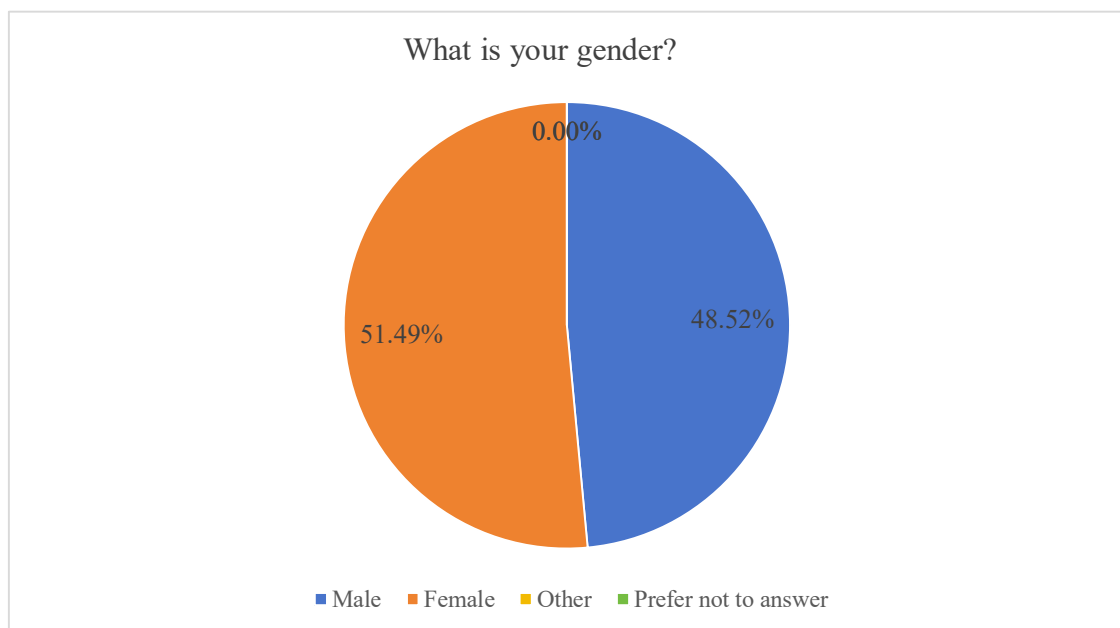


Figure 1: Gender Distribution.

Table 2: Frequency Statistics(n=202).

name	option	frequency	percentage%
What is your age?	Under 18	23	11.386
	18-25	44	21.782
	26-35	40	19.802
	36-45	36	17.822
	46-55	31	15.347
	56 and above	28	13.861
	summary	202	100

The table above indicates: findings from the frequency analysis on “What is your age?” reveal: the frequency for individuals Under 18 is 23, representing 11.386%; for the 18-25 age group, it is 44, representing 21.782%; for the 26-35 age group, it is 40, representing 19.802%; for the 36-45 age group, it is 36, representing 17.822%; for the 46-55 age group, it is 31, representing 15.347%; and for those 56 and above, it is 28, representing 13.861%. Among these age groups, the 18-25 age group (21.782%) has the highest percentage, while those Under 18 (11.386%) have the lowest. (as depicted in Table 2 and Figure 2).

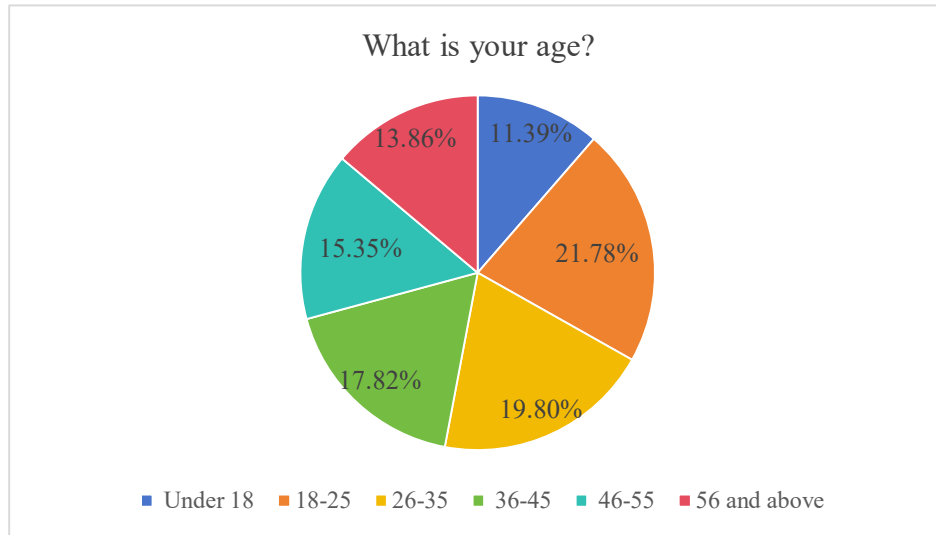


Figure 2: Age Distribution.

Table 3: Frequency Statistics(n=202).

name	option	frequency	percentage%
What is your education level?	High school or below	49	24.257
	College	50	24.752
	Bachelor's degree	77	38.119
	Master's degree or above	26	12.871
	summary	202	100

The table above indicates: findings from the frequency analysis on “What is your education level?” reveal: the frequency for High school or below is 49, representing 24.257%; for College, it is 50, representing 24.752%; for bachelor’s degree, it is 77, representing 38.119%; and for Master’s degree or above, it is 26, representing 12.871%. Among these educational levels, those with a Bachelor’s degree (38.119%) are the most prevalent, while those with a Master’s degree or above (12.871%) are the least. (as depicted in Table 3 and Figure 3).

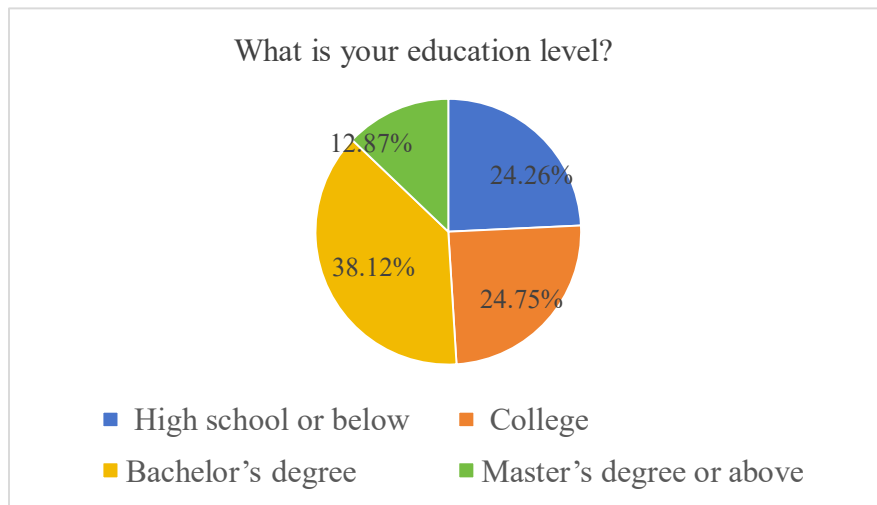


Figure 3: Education Level.

Table 4: Frequency Statistics(n=202).

name	option	frequency	percentage%
Where do you live?	City	62	30.693
	Suburb	95	47.03
	Rural area	45	22.277
	summary	202	100

The table above indicates: findings from the frequency analysis on “Where do you live?” reveal: the frequency for City residents is 62, representing 30.693%; for Suburb residents, it is 95, representing 47.03%; and for Rural area residents, it is 45, representing 22.277%. Among these, Suburb residents (47.03%) have the highest percentage, while Rural area residents (22.277%) have the lowest. (as illustrated in Table 4 and Figure 4).

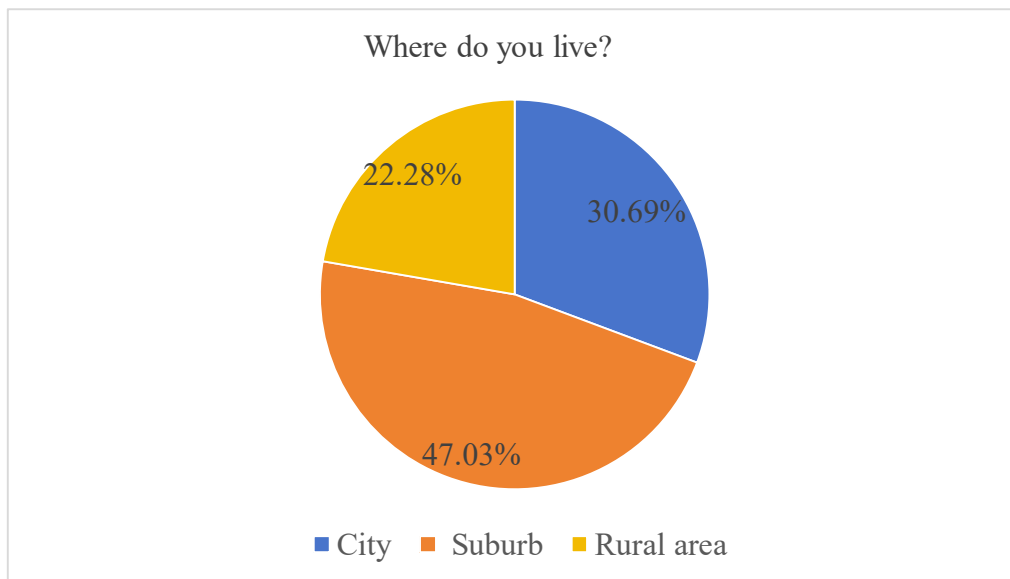


Figure 4: Residence Location.

Table 5: Frequency Statistics(n=202).

name	option	frequency	percentage%
In the past month, have you taken any environmental actions based on content from official accounts or environmental organizations on social media?	Yes	136	67.327
	No	66	32.673
	summary	202	100

The table above presents: findings from the frequency analysis on “In the past month, have you taken any environmental actions based on content from official accounts or environmental organizations on social media?” It shows: Yes frequency is 136, the percentage is 67.327%; No frequency is 66, the rate is 32.673%, where Yes (67.327%) is the highest and No(32.673%) is the lowest. (shown in Table 5 and Figure 5).

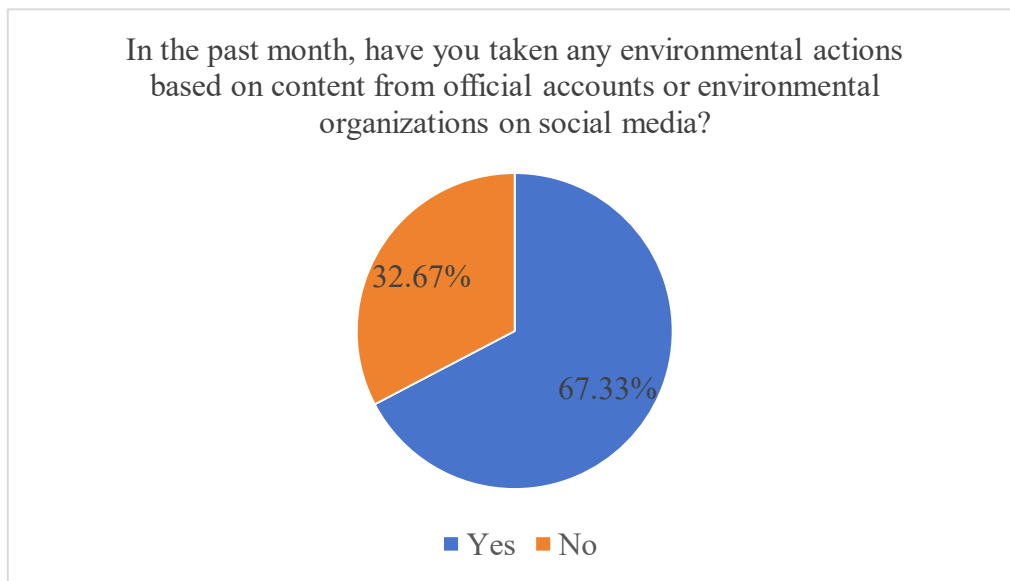


Figure 5: Environmental Actions

Table 6: Frequency statistics(n=202)

name	option	frequency	percentage%
If yes, through which platforms do you mainly obtain environmental information and take action? (Select all that apply)	Official news websites (e.g., People's Daily, Xinhua)	14	6.931
	Social media platforms (e.g., Weibo, WeChat, TikTok)	86	42.574
	NGO websites or social media accounts	94	46.535
	Environmental bloggers or independent media	2	0.99
	Other (please specify)	6	2.97
	summary	202	100

The table above presents: findings from the frequency analysis on “If yes, through which platforms do you mainly obtain environmental information and take action? (Select all that apply)” shows: Official news websites (e.g., People's Daily, Xinhua) frequency is 14 , the percentage is 6.931% ; Social media platforms (e.g., Weibo, WeChat, TikTok) frequency is 86 , the percentage is 42.574% ;

NGO websites or social media accounts frequency is 94 , the percentage is 46.535% ; Environmental bloggers or independent media frequency is 2 , the percentage is 0.99% ; Other (please specify) frequency is 6 , the percentage is 2.97% . where NGO websites or social media accounts(46.535%) is the highest and Environmental bloggers or independent media(0.99%) is the lowest. (shown in Table 6 and Figure 6).

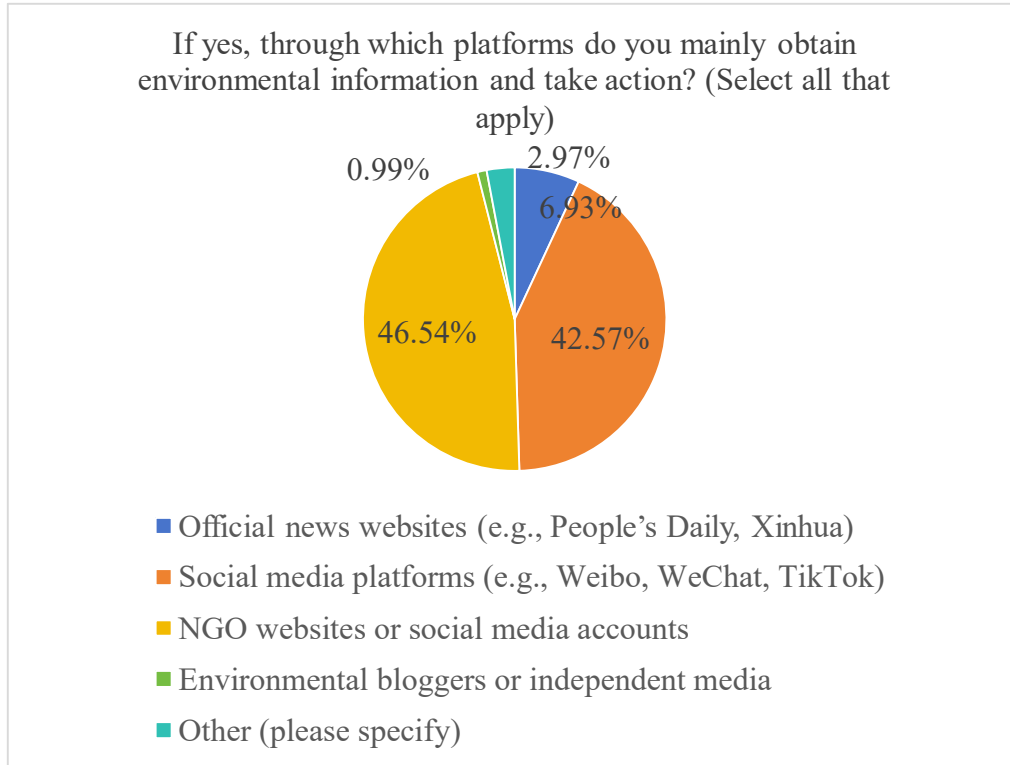


Figure 6: Platforms for Environmental Information.

Table 7: Frequency statistics(n=202).

name	option	frequency	percentage%
Do you think that environmental information released by official platforms (e.g., government websites or accounts) is more authoritative than that from other platforms?	Strongly agree	70	34.653
	Agree	58	28.713
	Unsure	36	17.822
	Disagree	23	11.386
	Strongly disagree	15	7.426
	summary	202	100

The table above presents: findings from the frequency analysis on “Do you think that environmental information released by official platforms (e.g., government websites or accounts) is more authoritative than that from other platforms?” indicate: the frequency of Strongly agree is 70, accounting for 34.653%; Agree is 58, accounting for 28.713%; Unsure is 36, accounting for 17.822%; Disagree is 23, accounting for 11.386%; Strongly disagree is 15, accounting for 7.426%. Among these, Strongly agree (34.653%) is the most prevalent, while Strongly disagree (7.426%) is the least. (as depicted in Table 7 and Figure 7).

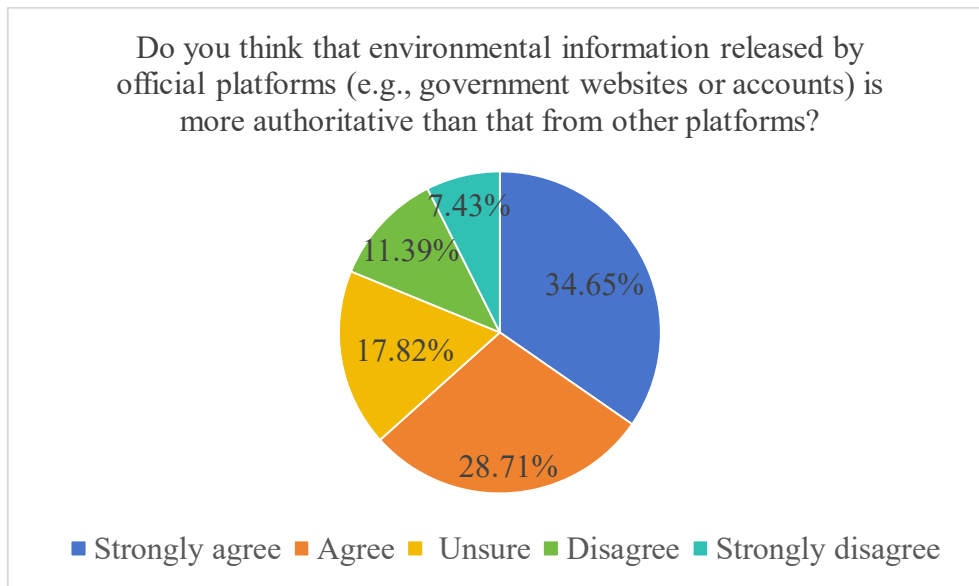


Figure 7: Authority of Environmental Information.

Table 8: Frequency statistics(n=202).

name	option	frequency	percentage%
Are you more inclined to follow and trust environmental policy information on official platforms rather than other platforms?	Red	0	0
	Green	202	100
	Blue	0	0
	Yellow	0	0
	summary	202	100

Referencing the data in the table above, the frequency analysis reveals the following: “Do you prefer to follow and trust environmental policy information on official platforms over other platforms?” The analysis indicates: Red has a frequency of 0, with a 0% share; Green has a frequency of 202, with a 100% share; both Blue and Yellow frequencies are 0, with a 0% share each. Here, Green (100%) is the most prevalent, while Red (0%) is the least. (as illustrated in Table 8 and Figure 8).

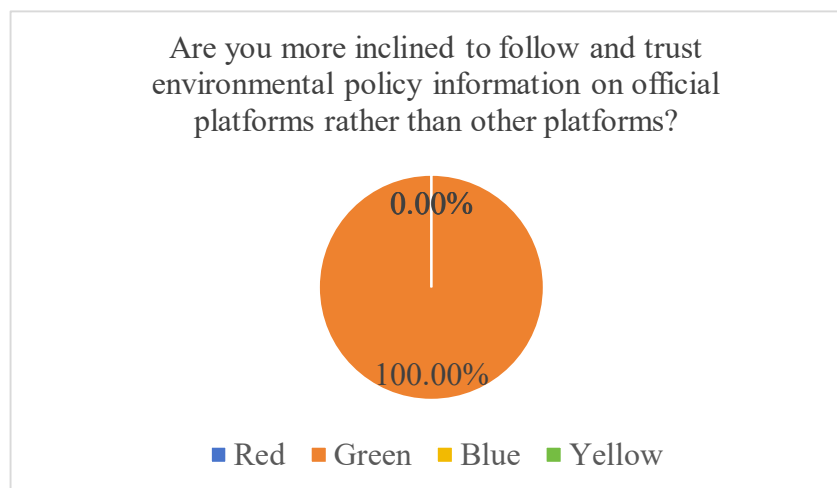


Figure 8: Trust in Platforms.

Table 9: Frequency statistics(n=202).

name	option	frequency	percentage%
Do you follow any official accounts (e.g., government agencies) or NGO social media accounts to obtain environmental information?	Yes	148	73.267
	No	54	26.733
	summary	202	100

The table above presents: findings from the frequency analysis on “Do you follow any official accounts (e.g., government agencies) or NGO social media accounts to obtain environmental information?” indicate: the frequency of affirmative responses is 148, representing 73.267%; the frequency of negative responses is 54, representing 26.733%. Here, affirmative responses (73.267%) peak, while negative responses (26.733%) are at the minimum. (as depicted in Table 9 and Figure 9).

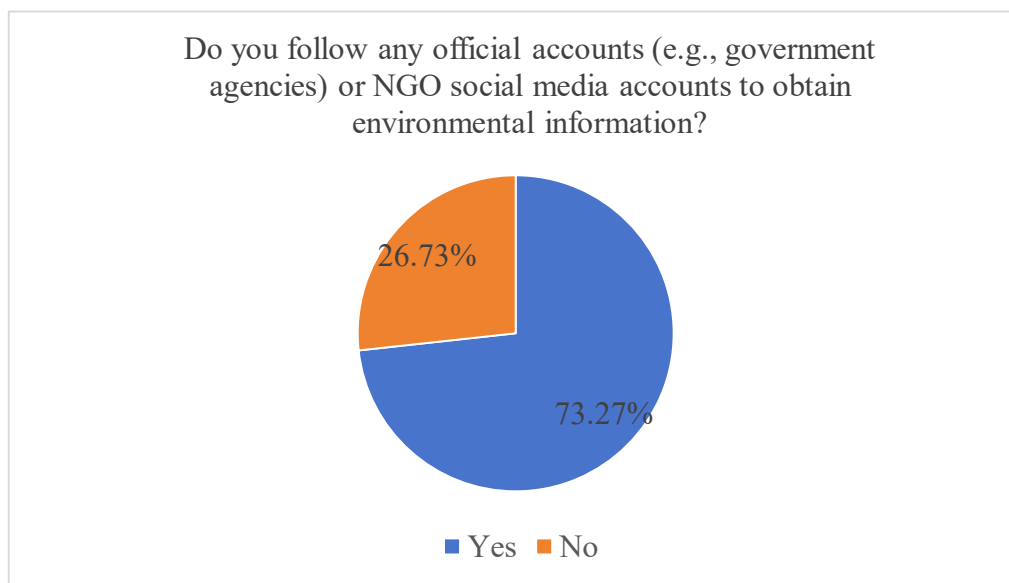


Figure 9: Followed Accounts.

Table 10: Frequency statistics(n=202).

name	option	frequency	percentage%
Through which types of accounts do you share or forward environmental information? (Select all that apply)	Official accounts	53	26.238
	NGO accounts	21	10.396
	Environmental bloggers	28	13.861
	Regular users	84	41.584
	I do not share or forward	16	7.921
	summary	202	100

The table above indicates: the result of frequency analysis by Through which types of accounts do you share or forward environmental information? (Select all that apply) shows: Official accounts frequency is 53, the percentage is 26.238%; NGO accounts frequency is 21, the percentage is 10.396%; Environmental bloggers frequency is 28, the percentage is 13.861% ; Regular users frequency is 84 , the percentage is 41.584% ; I do not share or forward frequency is 16 , the percentage is 7.921% . where Regular users(41.584%) is the highest and I do not share or forward(7.921%) is the lowest. (shown in Table 10 and Figure 10).

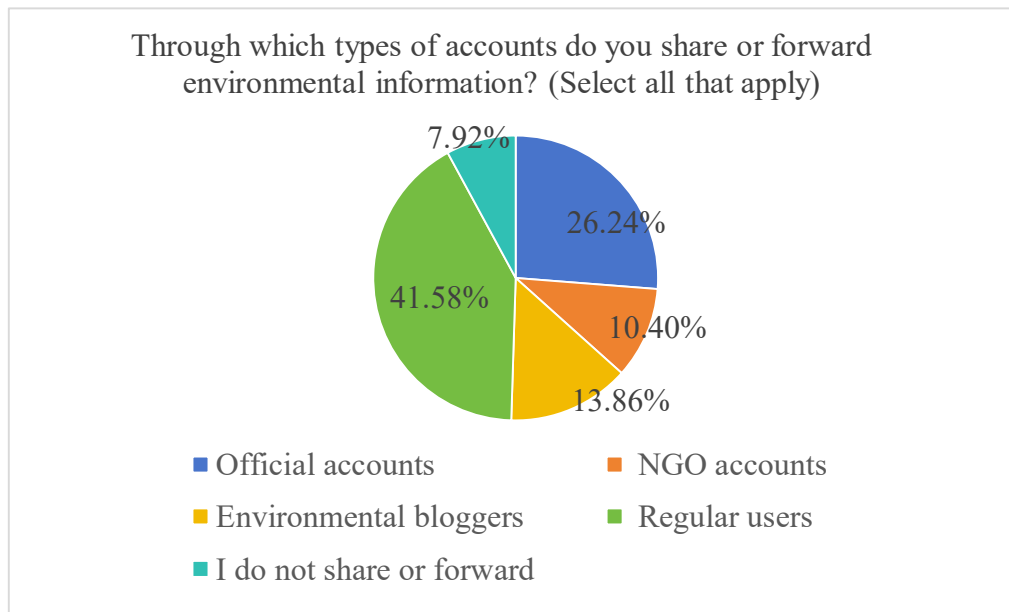


Figure 10: Sharing Environmental Information.

Table 11: Frequency statistics (n=202).

name	option	frequency	percentage%
On different types of social media platforms, which types of environmental information are you more likely to trust?	Information released by official accounts	39	19.307
	Information released by NGO accounts	17	8.416
	Information released by environmental bloggers or independent media	72	35.644
	Information shared by friends and family	63	31.188
	Doesn't matter	11	5.446
summary		202	100

Referencing the table provided above: the result of frequency analysis by On different types of social media platforms, which types of environmental information are you more likely to trust? shows: Information released by official accounts frequency is 39 , the percentage is 19.307% ; Information released by NGO accounts frequency is 17 , the percentage is 8.416% ; Information released by environmental bloggers or independent media frequency is 72, the percentage is 35.644% ; Information shared by friends and family frequency is 63, the percentage is 31.188% ; Doesn't matter frequency is 11 , the percentage is 5.446%. where Information released by environmental bloggers or independent media(35.644%) is the highest and Doesn't matter(5.446%) is the lowest. (shown in Table 11 and Figure 11).

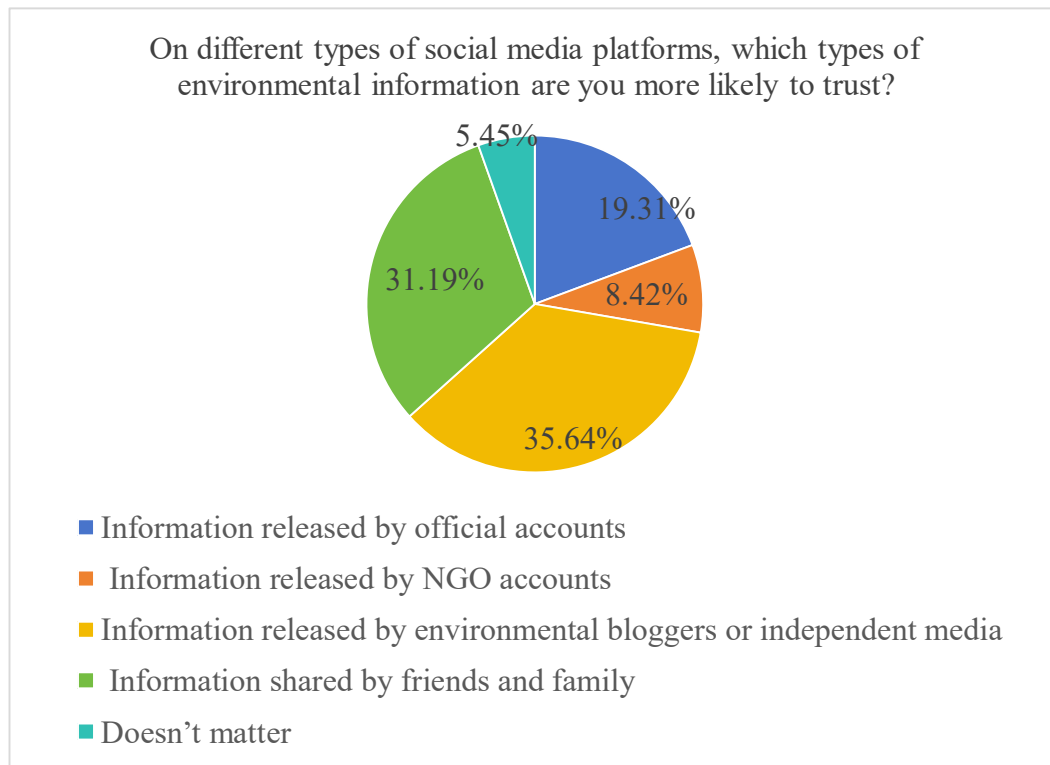


Figure 11: Trust in Social Media Platforms.

3.2. Multiple Responses Analysis

In the context of analyzing multiple-choice questions, two key metrics are employed to assess the distribution of choices: the response ratio and the prevalence ratio[12]. The response ratio is instrumental in gauging the comparative frequency with which each option is selected. It differs from the coverage rate in that the base for calculation varies (for instance, if there are 100 samples and an average of 3 options are chosen per sample, this results in 300 selections across all samples. For a particular option selected by 60 samples, the response ratio would be $60/300 = 20\%$; whereas the prevalence ratio would be $60/100 = 60\%$).

The first step in the analysis involves examining the response ratio, which indicates the relative frequency of each option chosen in the multiple-choice scenario. This analysis aims to highlight the options that are more frequently selected (the sum of all response ratios must equal 100%).

The second step is to evaluate the prevalence ratio, which looks at the overall frequency with which all options are chosen across the entire set of multiple-choice questions. This part of the analysis is centered on identifying options that are popularly selected (the sum of prevalence ratios is typically greater than 100%).

Table 12: response rate and prevalence rate table (n=202).

name	option	response		prevalence rate%
		n	response rate%	
Which types of platforms do you think are most effective in disseminating environmental policies? (Select all that apply)	Official news websites (e.g., People's Daily, Xinhua)	118	22.692	58.416
	Social media platforms (e.g., Weibo, WeChat, TikTok)	73	14.038	36.139

Table 12: (continued).

Which types of accounts do you find most credible when it comes to environmental information?	NGO websites or accounts	154	29.615	76.238
	Environmental bloggers or independent media	168	32.308	83.168
	Other (please specify)	7	1.346	3.465
	summary	520	100.00	257.426
	Official accounts (e.g., government agencies)	57	21.033	28.218
	NGO accounts	143	52.768	70.792
	Friends and family	71	26.199	35.149
	Doesn't matter	0	0.000	0.000
	summary	271	100.00	134.158
What do you think are the advantages of official platforms when disseminating environmental information? (Select all that apply)	Authoritative information	113	24.459	55.941
	Timely updates	195	42.208	96.535
	Rich content	93	20.130	46.040
	Strong interactivity	54	11.688	26.733
	Other (please specify)	7	1.515	3.465
	summary	462	100.00	228.713
Which platforms do you think most effectively convey environmental policies and encourage users to take environmental action?	Official news websites (e.g., People's Daily, Xinhua)	137	26.499	67.822
	Social media platforms (e.g., Weibo, WeChat, TikTok)	104	20.116	51.485
	NGO websites or social media accounts	147	28.433	72.772
	Environmental bloggers or independent media	122	23.598	60.396
	Other (please specify)	7	1.354	3.465
	summary	517	100.00	255.941

By examining the response rates and prevalence disparities among specific options, a detailed analysis reveals which platforms are particularly effective for promoting environmental policies. (Choose all that apply), the engagement levels and popularity rates for environmental bloggers or independent media, NGO websites or accounts, and official news sites (such as People's Daily, Xinhua) are notably higher among the three items. In Which types of accounts do you find most credible when it comes to environmental information?, the response rate and popularity rate of NGO accounts, friends and family, official accounts (e.g., government agencies), total 3 item were significantly higher. What are the perceived benefits of official channels for sharing environmental data? (Choose all that apply), the engagement and prevalence rates for Prompt updates, Credible information, and Comprehensive content are notably elevated among the three categories. Which platforms do you think most effectively convey environmental policies and encourage users to take environmental action? , the response rate and popularity rate of NGO websites or social media accounts, Official news websites (e.g., People's Daily, Xinhua), Environmental bloggers or independent media, total 3 items were significantly higher.

The results support the hypothesis that NGO-managed social media accounts are more effective in promoting public engagement than traditional news platforms. The success of these platforms can be attributed to the simplification of policy content and the provision of trialable actions, which make it easier for the public to engage with environmental policies. To build on these findings, adopting a multi-platform strategy that leverages both official and NGO channels is recommended. Additionally, incorporating interactive and engaging content formats will further enhance public involvement. Continuous monitoring and regular adjustments to dissemination strategies will ensure that communication remains practical and relevant in promoting sustainable behaviors.

4. Conclusion

This research underscores the necessity of a multi-platform approach to disseminating environmental policies effectively. NGO-managed social media accounts are particularly effective in driving public engagement, emphasizing the need for interactive, relatable content. However, this study acknowledges reliance on self-reported data, which may introduce bias. Additionally, the study's cross-sectional nature limits its ability to track long-term effects.

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