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Applying New Media to Accelerate the Social Response to Achieving Carbon Neutrality in China

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Abstract: In the modern era of accelerating global environmental degradation, countries have developed different strategies to save energy. Among them, carbon neutrality schemes have been a major concern. The aim of this paper is to explore how new media can be used to accelerate the social response to carbon neutrality in China. This study is based on new media research with the aim of socializing carbon neutrality. A questionnaire was used to collect data on perceptions and use of carbon neutrality and new media from 130 respondents aged 18 and above. A total of 123 valid data were collected. The study found that: 1) respondents' overall knowledge of the concept of carbon neutrality and the pathways implemented in China to achieve it was low, and there was no relationship between respondents' education level and their knowledge of the concept of carbon neutrality. 2) respondents mostly obtained current affairs news from microblogs and news APPs and were more convinced of the information obtained through these channels. 3) respondents, after combining various user-friendly functions, the willingness to download and use government-developed APPs has increased significantly. This paper suggests that 1) the government should work with streaming media platforms to expand society's understanding of carbon neutrality and 2) the government should develop various apps that encourage lifestyles of low-carbon households. In this way, society's response to carbon neutrality will be amplified through the new media.

Keywords: New Media, Carbon Neutrality, China

1. Introduction

One of the primary causes of five global species extinctions in geological history has indeed been climate change, and human industrialization has severely damaged ecosystems and increased the greenhouse effect of carbon dioxide in the atmosphere, harming, posing threats to, and challenging the living environment [1]. 124 nations have committed to becoming carbon neutral and achieving net zero carbon emissions by 2050 or 2060 to address the issue of rising temperatures and the concentration of greenhouse gases in the atmosphere. This commitment ends in February 2021 [2].

By using carbon offsetting to balance the total amount of carbon dioxide or greenhouse gas emissions or removal initiatives produced directly or indirectly by a country, company, product, activity, or individual over a specific period of time, carbon neutrality, also known as net-zero carbon emissions, can be achieved [3]. China presently emits the most carbon dioxide globally, making it crucial to the effort to slow down climate change [4]. China has achieved substantial

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progress toward decarbonization, although the majority of these advancements have taken the shape of changes to the country's energy mix. For instance, non-fossil energy usage now accounts for 15.9% of all primary energy consumption [4]. On the social reaction to carbon neutrality in China, there aren't any precise statistics, though. According to research, households and people are just as important as companies and governments in cutting carbon emissions [3].

A huge amount of social, economic and political activity is now taking place on the internet [5]. It is commonly acknowledged that social media already has a significant impact on many industries and will continue to expand rapidly in the coming years. This paper will examine how new media technologies can be leveraged to speed up an enhanced social reaction towards carbon neutrality. In contrast, the use of these potent channels by government agencies has received minimal research.

Nowadays, a lot of research on carbon neutrality is predicated on a change in the way the country uses energy. For instance, the authors of Challenges and Opportunities for Carbon Neutrality in China mention the phase-out of coal, the development of non-fossil energy, negative emission technologies, low carbon cities, and green markets, which depend on technology and policy to change the way that energy is used [4]. However, no research has been done to look at how carbon neutrality's influence can be increased through the more sophisticated social media platforms to hasten the achievement of carbon neutrality through social responsiveness from the viewpoint of individuals in society. In order to close this gap, this study used social research to integrate new media technologies and carbon neutrality.

2. Research Hypothesis

2.1. Hypothesis 1

The government should work with mainstream streaming media platforms such as Weibo to increase traffic support for carbon neutrality and related information.

2.2. Hypothesis 2

The government should strive to develop a user-friendly app with online bill payment and lifestyle information to promote low-carbon living.

3. Methods

The level of people's knowledge about carbon neutrality and the media outlets they use to get news were employed as discovery factors in this study's quantitative research approach to examine media possibilities for escalating carbon neutral social responses. By developing hypotheses and using statistical analysis, which tries to employ measurements to collect data, examine trends and relationships in those data, and validate the measurements, quantitative research has the unique potential to officially test ideas, according to Roger Watson [6].

Between July 20 and August 25, 2022, using a sample mechanism, the form was given to 150 respondents who were at least 18 years old. The form was randomly distributed over social media channels. As not all surveys were fully completed, 123 findings were included in the analysis. Participants had a quarter-hour to complete the anonymous form, and 130 respondents did so. 65 female respondents and 58 male respondents have responded. The majority of respondents were born after 1980 and have undergraduate degrees or above as their greatest level of schooling. Except for 22, who were not allowed to reveal their monthly income, all respondents' incomes ranged primarily between RMB 1001 and 10,000.

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Table 1: Age statistics of respondents.

Year	Frequency	Percent
Post-2000	41	33.3
1980-2000	59	48.0
1960-1980	19	15.4
Pre-1960	4	3.3

Table 2: Statistics on the highest educational level of respondents.

Institutions	Frequency	Percent
High school/technical school	5	4.1
Specialized University	16	13.0
Undergraduate degree	70	56.9
Master's degree and above	32	26.0

Table 3: Monthly income statistics of respondents. (RMB)

Income	Frequency	Percent
Under 1000	4	3.3
1001-10000	84	68.3
10001-20000	7	5.7
Over 20000	6	4.9
Declined to disclose	22	17.9

Tencent gathered the form data, which was then evaluated using SPSS statistical techniques, primarily the chi-square test. With simple knowledge entry, the ability to import knowledge in many formats, interactive options, as well as dynamic links between knowledge, graphs, and numerical analysis, it's knowledge analysis is essential to getting sufficient analysis findings [7].

3.1. Ethical Issue

The key ethical consideration throughout the investigation was how to protect each participant's anonymity. All participants gave their consent to take part in the study. The responders' privacy, including name, email, scientific discipline address, and other information, was strictly protected after the UN agency signed the consent form.

4. Result

4.1. Public Awareness of The Concept of Carbon Neutrality and China's Path Towards it

Table 4: Statistics on respondents' knowledge of carbon neutrality.

Level of Understanding	Frequency	Percent
Never heard of it	21	17.1
Know a little bit	42	34.1
Have some understanding	39	31.7
Better understanding	16	13.0
Very well known	5	4.1

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Based on the descriptive data from the questionnaire, the general level of understanding of the concept of carbon neutrality and the pathways implemented in China to achieve carbon neutrality lies between knowing a little and understanding a relatively good deal.

Table 5: Chi-square test of respondents' education and knowledge of carbon neutrality.

	Value	df	Asymptotic Significance
Pearson Chi-Square	10.841	16	0.819

Based on a cross-tabulation analysis of the respondents' education level and their understanding of the concept of carbon neutrality, the asymptotic significance p-value of 0.819 is greater than the significance level α (0.05), as indicated by the chi-square test in Table 5. Therefore, there was no relationship between the respondents' education level and their awareness of the concept of carbon neutrality.

4.2. Analysis of The Public's Interest in Current Affairs News

According to statistics, respondents mostly get their current affairs news from microblogs and news apps, such as CCTV (China Central Television) News and People's Daily and are more convinced by the information they receive through these channels. Figure 1 shows the number of times respondents prefer to choose a channel for accessing current affairs news. Respondents' confidence in the news obtained from the channels chosen to obtain current affairs news in Figure 1 is shown in Figure 2.

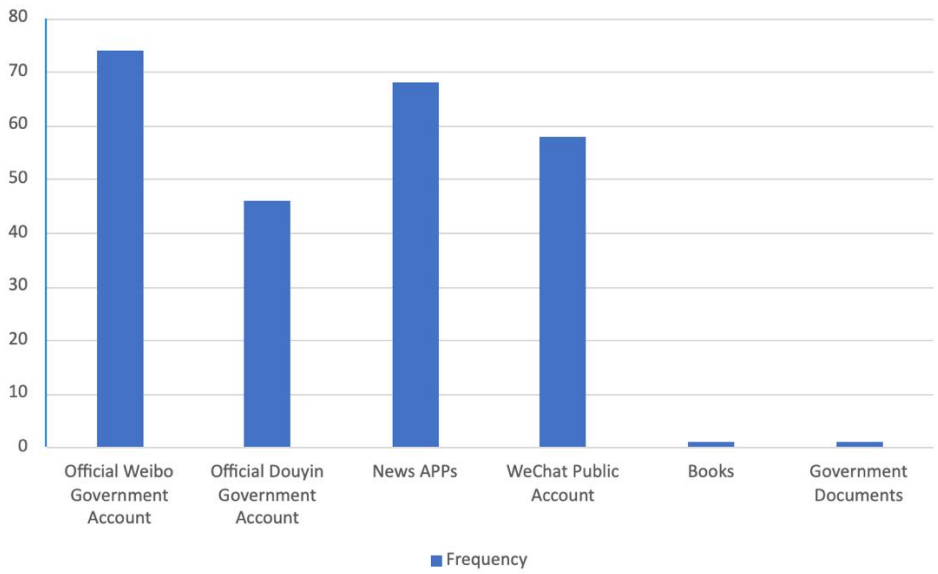

Figure 1. Statistics on respondents' access to current affairs news.

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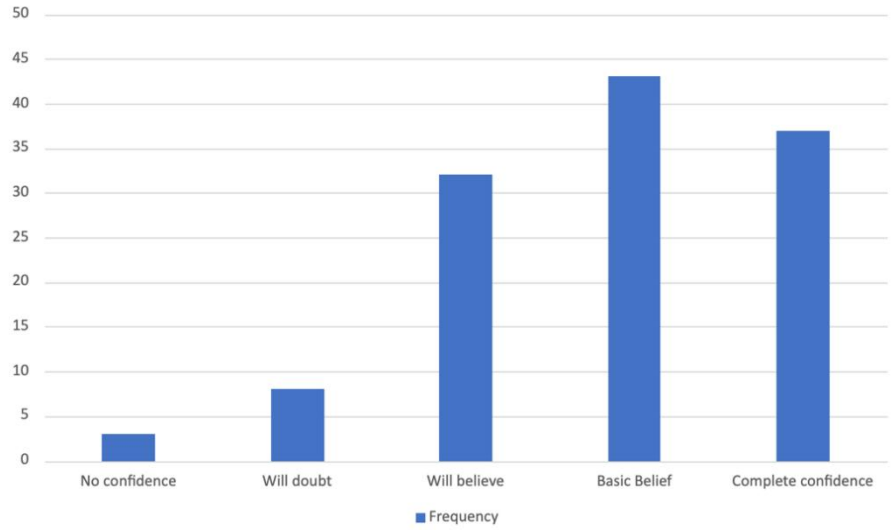

Figure 2. Respondents' confidence in the current affairs news obtained through the channels in Figure 1.

4.3. Analysis of The Public's Attitude Towards the Government's Development of APP

According to the statistical analysis of the report, respondents' willingness to download and use government-developed APPs ranged from unwilling (1) to very willing (5) mostly distributed between general willingness and relative willingness with a Likert scale, with a mean of 3.64. The willingness to download and use government-developed APPs increased significantly when government APPs were combined with various user-friendly features of respondents' choice, with a mean of 4.05. In addition, the majority of respondents chose the online bill payment and lifestyle information functions among the convenience functions.

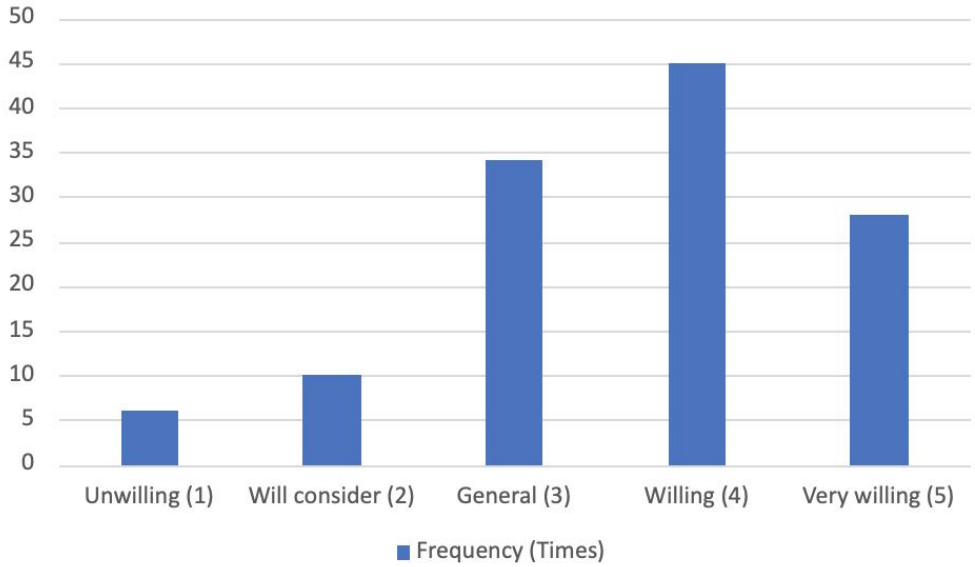

Figure 3. Statistics on respondents' willingness to download and use government-developed apps.

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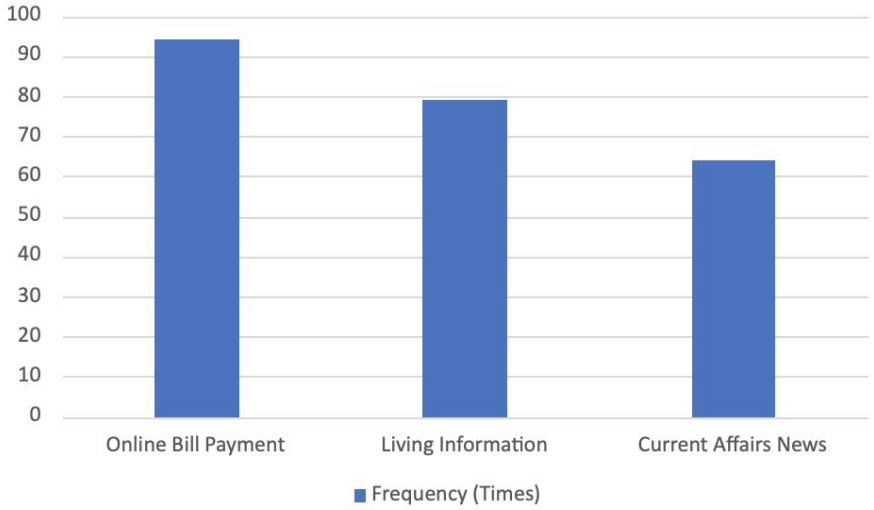

Figure 4. Statistics on respondents' choice of convenience features.

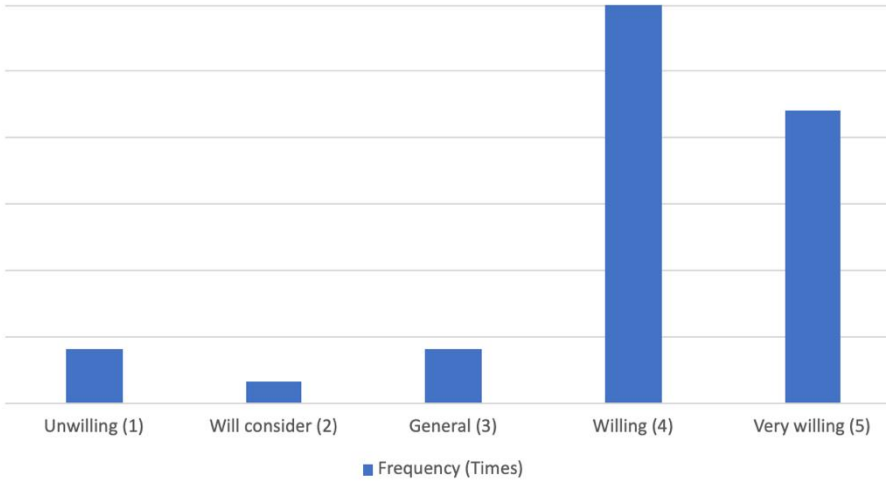

Figure 5. Respondents' willingness to download and use the government-developed app when it incorporates the citizen-friendly features in Figure 4.

5. Discussion

5.1. A Carbon Neutrality Approach to Streaming Media, Using Sina Weibo as an Example

To test the hypothesis 1, the analysis in 3.2 showed that people's choice of Sina Weibo as a channel for accessing current affairs news was the highest, so Sina Weibo is used as a case study for discussion. Sina Weibo, China's Twitter-like microblogging site, has become a major source of information on everything from breaking news to social events and products, and tapping into the actual interests and behaviours of users is of great value, creating an opportunity to better understand the mechanisms of information dissemination on the social networking site [8]. However, Weibo sites usually display a list of popular topic words for a time period (e.g., 24 hours, a week or even longer) on the front page, but these words do not make any sense and do not give users a full understanding of the topic, especially for those who do not have any background knowledge [9]. According to the analysis of the results in 3.1, people's understanding of carbon

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neutrality is generally low. In the light of the disadvantages of Sina Weibo's information presentation, government agencies and Sina Weibo should build a partnership to introduce the importance of carbon neutrality and its relevance to people's lives on a specific page. The government and Sina Weibo should work together to introduce the importance of carbon neutrality and its relevance to people's lives on a specific page, and to support the promotion process with more traffic so that it can be viewed more often and have more influence.

5.2. How Government Agencies Developed an App to Promote Carbon Neutral Social Response

To test the hypothesis 2, on the one hand, the analysis in 3.3 shows that people are more likely to use apps that combine online bill payment, lifestyle information and other convenience features. This suggests that an app developed by a government agency should be versatile, user-friendly and easy to use. Mobile apps have entertained users to the extent they expect, and more practical learning tools and lifestyle information should be developed in the future [10].

Secondly, in order to expand the social response to carbon neutrality, the app should have an incentive system for households to use carbon. For example, a living benefit when a household's monthly usage is on a downward trend.

6. Conclusion

There were 123 valid random samples for statistical calculation and analysis. It reveals how much people in China now know about carbon neutrality and how much they pay attention to current affairs news in the new media. It also provides an analysis of how China can accelerate the social response to carbon neutrality through the new media. The paper offers two possible strategies based on this analysis: 1. government agencies work with online streaming media platforms to develop strategies to expand public understanding of the concept of carbon neutrality, and 2. government agencies develop apps to enable people to incorporate low carbon into their daily activities. Contribution: inspire future researchers to inspire future researchers to use this research as a reference when achieving a carbon neutral social response through new media, and to develop strategies more effectively and quickly. This paper makes several recommendations for accelerating the social response to carbon neutrality in China and thus accelerating the national carbon neutrality programme. The limitation of this paper is that the entire sample of 123 respondents is very small in comparison to the large social system of China as a whole. However, this also provides a preliminary basis for future research to expand the sample size and to develop more detailed and effective programmes based on the actual situation in China.

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