The Mediating Role of Reporting Tendencies of Environmental News in the Relationship Between Information Sources and Citizen's Environmental Awareness via Southern Weekend

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Abstract

This article takes China's *Southern Weekend Green* newspaper as an example, selects 235 articles in *Southern Weekend Green* from 2018 to 2020. Conduct relevant research on environmental news reported in newspapers and magazines. Most of the previous studies focus on the classification of content, and there is no relevant research on the information source and the audience's environmental awareness. Therefore, the purpose of this study was to investigate the mediating role of reporting bias between information sources and the audience's environmental awareness. The research method adopts the quantitative research method, adopts the random sampling method to conduct a questionnaire survey on the respondents, and distributes a total of 392 questionnaires. Correlation analysis was carried out on the influence of different information sources on reporting tendency and dissemination effect, and SPSS was used for correlation test.

Keywords: information source, reporting tendency, environmental awareness, dissemination effect, sustainability

1. Introduction

1.1 Background of Environmental News

The concept of environmental awareness is explained as familiarity with an environmental subject with real understanding of its deeper cause and implications. The various ecological and environmental problems brought about by the rapid economic growth have made the society begin to pay more and more attention to the ecological environment. Environmental news originated in the United States. At the beginning of the 20th century, the rapid development of American industry led to the rapid development of the American economy, while the environment suffered extensive damage. As a result, the natural resource protection movement in the United States has gradually emerged, and environmental issues have become a serious topic that governments and people have begun to pay attention to in the early 20th century. In the early 1980 s, protecting the environment has become Chinese basic national policy. Since the reform and opening up, environmental news reports have shown a more active trend, and the quantity and quality of environmental news have been continuously increased and improved (Gitlin, T., 2003). "Southern Weekend Green" leads domestic environmental news with precise topic setting, and has become a benchmark in the newspaper industry (Gitlin, T., 1990). The environmental news production level of "South Green" is relatively in the leading position. The goal of "Southern Weekend Green" is "to promote harmony among Chinese people, society and nature". "Normalize" news reporting. Behind environmental reporting there needs to be some frame to present events and make sense (Jameson, F., 1976). Environmental news in our country has experienced a development from "light green" to "dark green". "Light green" refers to news that talks about the environment in terms of environmental issues, and "dark green" is an attempt to analyze the underlying causes of environmental problems (Zang Guoren, 1999). Environmental reporting should focus on the balance between different regions and topics, as well as the scientific and artistic nature of reporting (Zang Guoren, 1997). The mass media and the communication process play a role in balancing the conflict between the public and the environment (Zang Guoren, 1997). Gao Lipeng and Tang Xiuping (2002) summarized the characteristics of environmental news reports, listed the reporters and media who participated in environmental news reports, and believed that environmental news in my country did not form spontaneous awareness (Zang Guoren, 1998). Gong Yanfang and Huang Zhiyuan (2017) discussed the "partner" relationship

between environmental journalists and professional sources, and believed that this relationship is conducive to enhancing the professionalism of environmental journalism (Chen Yang, 2007). Lin Han (2011) believed that environmental journalists should undertake more social responsibilities and provide high-quality environmental news by improving their professional quality (Wang Jilong, 2015). Green edition reporters Chenggong and Zhu Hongjun (2013) expounded the reasons why they founded *South Green* in the first place, and explained the positioning and social value of *Southern Weekend* green journalism in detail (Wang Jilong, 2015). Gong Fangmin and Liu Yuan (2015) used the framing theory to analyze the environmental news of *Southern Weekend Green*, and summarized its successful experience and shortcomings (Wang Jilong, 2020). The importance of the environment has gradually risen to the decision-making vision of national leaders, and the construction of ecological civilization has become a major development strategy newly proposed. There is a need for new inventive strategies to communicate to the public on particular subjects such as climate change, biodiversity loss and sustainability.

1.2 Literature Review

In the 1980 s, framing theory entered the field of communication, and two academic concepts of "media frame" and "news frame" were born. The study of news selection, processing, news text and the construction of meaning is called news framing. Tuchman (1978) noted Frame Analysis did not promulgate a theory of mediated communication, let alone one that explained how journalists, news sources, and news audiences influence one other in the multilevel process in which frames are produced and framing effects occur Rather theorizing about news framing developed over time as journalism researchers began to see framing as an integrative concept (Liu Tao, 2009) as show in figure 1.
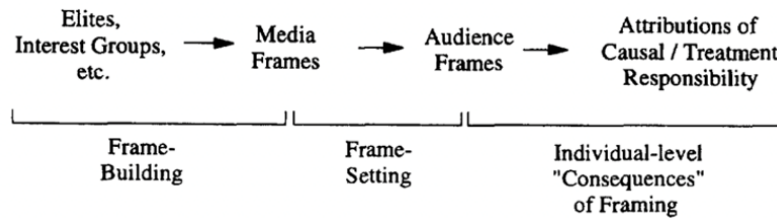

Figure 1. An overview of framing research

Huang Ri (2005) believes that the core problem of framing theory lies in the production of media, that is, how the media constructs meaning and affects the audience's perception of things (Liu Tao, 2014). The text construction or production frame analysis of media products in news production should be the focus of theoretical research. Some cognitivist research shifted from source driven issue frames toward generic frames, exemplified by episodic versus thematic frames and strategy versus issue frames (Yan Chunlong, 2014). A generic news frame and its counterpart, topic-specific news frames, make up the two subtypes of textual news frames (Yan Chunlong, 2008). They derive from ways journalists not news sources or audience members, process information making journalist frames integral in these frame types. Researchers have observed newsrooms to determine how journalists process information gathered from sources and interviewed journalists to deduce mechanisms by which sources' views are transformed into news as shown in figure 2 (Major, A. M., 2004).
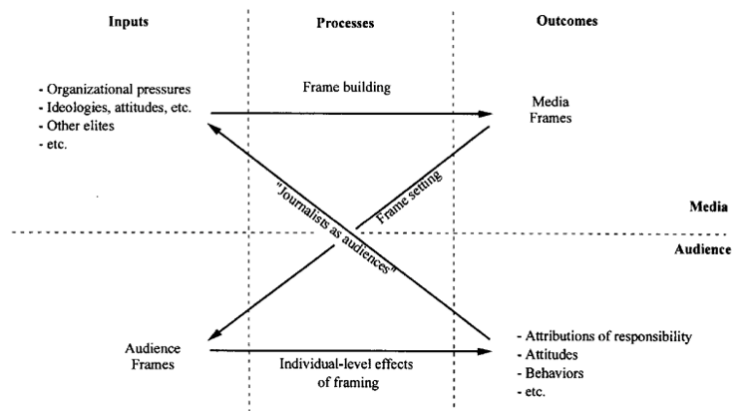

Figure 2. A process model of framing research

Caccia tore, Scheufele and Iyengar (2016) link framing effects to a strict notion of equivalence citing prospect theory whereby a communicator frames a topic that calls for a decision in terms of logically equivalent options phrased as gains or losses (Djerf-Pierre, M. ,2012). Li Shaoqiang (2018) pointed out that the mainstream media news frame has

gradually become fragmented and diversified in the online public discourse space (Deegan, C., 1996). The relevant research outcomes are concluded in table 1.

Table 1. Framing theory of environmental news

Author	Finding/Conclusion	Variables
Wang Jilong (2010)	Environmental news is media information created on the basis of systematic investigation and detailed data that can reflect environmental conditions. The purpose of its creation is to enable the public to avoid environmental risks.	
Hannigan (2009)	The media plays an extremely important role in constructing environmental risks, environmental awareness, environmental crises, and solutions to environmental problems.	Environmental Construction
Pei Shasha (2009)	The specific situation of our country lists five factors that affect the production of environmental news: the control of the state and the government; the internal control of the organization; the routine of the news work; the external factors; the reporter itself.	Factors Affecting Environmental News
Monika Djerf-Pierre(2012)	The degree of their attention to different environmental problems is positively correlated; the strong attention to a certain type of environmental problem does not exclude attention to other environmental problems in the news, on the contrary, the surge of interest in one type of environmental problem will also attract attention to other environmental problems;	environmental problems
Rolf Lidskog,Ulrika Olausson (2013)	How media reports bias caused by different reporting strategies.	reporting strategies
Wang Jilong (2015)	From the perspective of environmental journalism practice, this paper studies the relevant contents of foreign environmental journalism practice, and discusses the necessity and educational path of environmental journalism education.	environmental journalism
Ever Josue Figueroa(2017)	Environmental journalism spaces are shaped by the relationship between news ideology, organizational structure, and individual work practices, three components that together form the basis of environmental journalists' work procedures.	environmental journalists
Wang Mengqi (2017)	It was found that most of the relevant reports belonged to emergency reports, with significant seasonal changes; emphasis was placed on the newspaper's collection and writing; the layout was widely distributed; the majority of neutral reports were balanced.	Reporting Tendency
Zhang Xiaomei (2017)	The environmental news framing of Chinese and American media is different. The American media adopts the conflict framing to construct ten pairs of contradictions in the pollution incident, requiring relevant personnel to be held accountable;Chinese media focuses on attribution framing digging into the causes of pollution incidents, and providing suggestions for solving pollution problems.	News framing
Guo Xiaoan and Huo Feng (2017)	Conduct interdisciplinary research on the theoretical comparative analysis of news framing and social movement frameworks.	
Deng Tianbai (2019)	Under the background of integrated media, my country's environmental news reports have developed to a certain extent, which is mainly manifested in the transformation from the plain and revealing statements in the past to the dissemination of environmental risks.	environmental news reports

As shown in Table 1, literature review of framing theory of environmental news

1.4 Hypotheses of Research Design

Most of the previous studies focus on the classification of content, and there is no relevant research on the information source and the audience's environmental awareness. Therefore, the purpose of this study was to investigate the mediating role of reporting bias between information sources and the audience's environmental awareness. The study will strengthen the framework theory and provide a framework basis for the topic selection of environmental news. Different channels of information sources lead to different reporting tendencies, thereby affecting citizens' views on environmental issues. The results of this study will have practical implications for the issues of environmental news

coverage in *Southern Weekend Green*. Under the premise that environmental news affects citizens, how to better let the audience participate in the news and achieve a more effective communication effect.

Research questions

Q1: What types of information sources are used in the environmental news via *South Weekend Green*?

Q2: Do different types of "information sources" affect Environmental News Reporting Tendency via *Southern Weekend Green*?

Q3: What is the impact of reporting tendencies on citizens' environmental awareness via *Southern Weekend Green*?

Q4: What is the mediating role of reporting tendencies between information sources and citizens' environmental awareness via *Southern Weekend Green*?

Research objectives

O1: To identify the types of information sources used in the environmental journalism via *South Weekend Green*.

O2: To examine relationship between information sources and reporting tendencies via *South Weekend Green*.

O3: To examine the relationship between reporting tendencies on citizens'environmental awareness via *South Weekend Green*.

O4: Identify the mediating role of reporting tendencies in information sources and citizen awarenes via *South Weekend Green*.

Research Hypothesis

A model of the mediating effect of reporting bias on information sources and citizens' environmental awareness was established as figure 3.
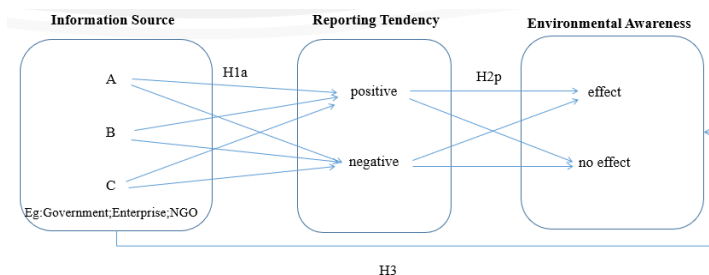

Figure 3. Mediating effect of reporting

H 1: Information sources affect the reporting tendency of environmental news via *South Weekend Green*.

H 2: Reports in environmental news tend to affect citizens' environmental awareness via *South Weekend Green*.

H 3: Information sources affect citizens' environmental awareness via *South Weekend Green*.

2. Method

2.1 Sample Selection

The sample for the study chose the first newspaper, *Southern Weekend Green*. Both the political and social environment in China, as well as the social responsibility and professional competence of traditional media have given paper media an important social status. The state's support for the paper media aims to strengthen its communication power and enhance its communication effect, especially for the party newspapers, which directly affects the construction and consolidation of the mainstream public opinion position in China. Therefore, this research selects the "green" page reports (1768-1921) of *Southern Weekend Green* (electronic version) for three years from 2018 to 2020 after the 19th National Congress of the Communist Party of China, containing 235 articles, excluding health and food reporting topics, a total of 120 (Estimated quantity) valid samples were obtained.

2.2 Sampling Procedures

After the participants were randomly selected, they were asked to answer a questionnaire. The preparation of the questionnaire for this study will also be developed by a team of professionals. The questions in the question were designed using a 7-point Likert scale (1=strongly disagree, 2=strongly disagree, 3=disagree, 4=somewhat agree, 5=agree, 6=strongly agree, 7=strongly agree). Design respondents will participate in 2 questionnaires at a time. The first questionnaire showed only the questions, and the respondents were asked to answer the questions. The second questionnaire, which added the corresponding environmental news articles, asked participants to answer the same questions after reading the articles.

2.3 Research Design

Definition of Keywords

Information Source

Information source is the carrier of information and the knowledge base that provides information (Tsekos, C. A., 2008); Information sources are individuals or organizations that store information that can be queried, such as government agencies, consulting agencies, industry organizations, friends, family, and the like (Trumbo, C., 1996); A variety of physical or digital media through which information sources can provide underlying information, data or symbols, which, if adopted, may affect the recipient's state of knowledge (Williams, A., 2015).

DV—Citizen Environmental Awareness

The individual's perception of the threat to the natural environment caused by human overuse of resources and pollution of the environment and its related countermeasures. Broadly speaking, it is a set of values, worldviews, attitudes, and behaviors that reflect an individual's concerns about the environment (Atwater, T., 1988).

MV—Reporting Tendency

Tendencies expressed in news reports. "In the process of disseminating news, journalists and news organizations with different class positions, political attitudes, academic viewpoints, basic concepts, economic interests, cultural literacy, and hobbies will show different opinions, such as right and wrong, praise and criticism, love and hate, etc. tendencies." (Wakefield, S. E., 2003)

The concept of "frame" was first proposed by human sociologist Bateson (Lester, L., 2009). Goffman(1986) proposes a framing as "experience developed by a group of linguistic symbolic information in a specific psychological situation, whereby people establish a basic framework for observing things, and are used to process and analyze the endless social events in the external world". Gamson (1981) believes that the frame is divided into two levels, the first level is the "frame limit", how people observe the world, and the scope of observation of objective things and objective objects; The second level is "framework", that is, the worldview in which people observe objective things. "What kind of framework is used to process information will affect our processing results of information, our value judgments, attitudes and behavioral responses to things. This impact is called the framing effect (Zhang Haifeng,2010). Entman (1993) pointed out that the dominant news frame of the mainstream media can create a unique information environment, which in turn evokes people's specific reactions to news events. The dominant news frame of the mainstream media will have a significant impact on the audience's understanding of reality, but the effect of this frame is not absolute, it can only be reflected through the interaction with the audience frame (Zhang, S., 2018). Taiwanese scholar Zang Guoren (1999) thought of framing as a mechanism for selecting, rearranging, and arranging facts and materials that the media uses to "represent facts." He divided the news framework into three layers: high, medium and micro. The high layer refers to the setting of the agenda and the selection of news content; the middle layer is the information material of the reason and influence of the news content; Modified literal expression as figure 4 (Hilton, I., 2013).
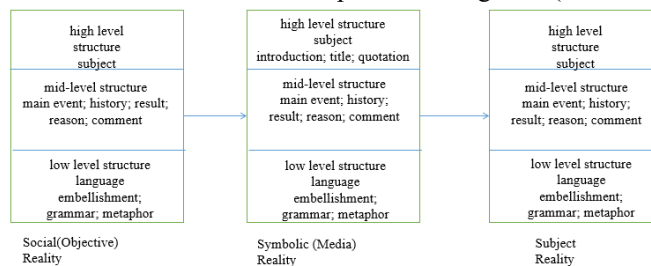

Figure 4. Represent facts of news framework

Based on this three-level framework, Chen Yang (2007) proposed the macro-level, meso-level and micro-level structure of the media framework as figure 4. Among them, the macro level involves news topics; the meso level involves the details of news events, including news sources and positions; the micro level involves news events, involves linguistic and rhetorical issues in news discourse (Deegan, C., 1996).
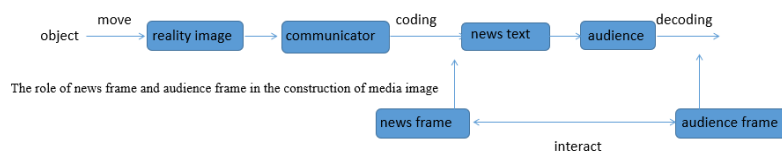

Figure 5. Structure of the media framework

The shaping of media image is influenced by news framing and audience framing. The news framing is the basis of image construction, and it plays a role in image construction by selecting themes and restricting the content production process. The audience framing is a subjective tool for image perception. The audience interprets the image according to the existing cognitive frame, and the interaction of the two frames realizes the transmission of meaning between the sender and receiver.

In this case, the frame theory will be the dominant theory. The valence framework in terms of information source selection will be an independent independent variable. Citizens' environmental awareness will be the dependent variable. Reporting propensity will be a moderating factor between these two variables.
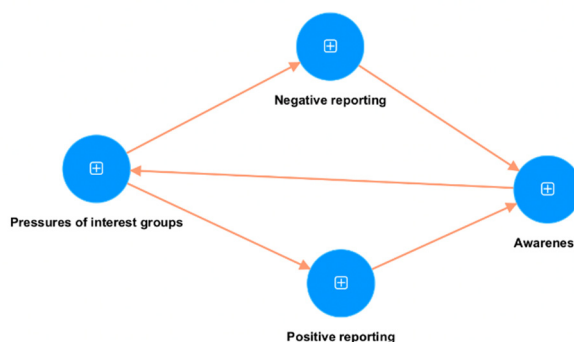

Figure 6. Research model

Inputs=information sources= pressure of interest groups

Issue-specific frames=negative reporting and positive reporting

Altitudinal effects=awareness

The following research objectives were proposed:

To exam the significant difference of information sources on citizen awareness via negative reporting;

To exam the significant difference of awareness on information source.

2.3.1 Experimental Manipulations or Interventions

A few experts were asked for the following questions as content reliability test:

1. By reading the content, different types of information sources are determined according to the frequency of the information sources.

2. By reading the content and referring to the keywords in the previous literature, determine whether the article has a positive or negative Reporting Tendency.

60 articles (50% of the total) were randomly selected from the sample for reliability calculation. The inter-coder reliability was calculated using the Holisti formula:

$$Kab=2Mab/(Na+Nb) \tag{1}$$

Where, *Mab* is the number of analysis units for which the coding results of the two coders are exactly the same; *Na* is the number of analysis units coded by Coder A; *Nb* is the number of analytical analysis units coded by Coder B.

Respondents come from Universities in Sichuan Province including different ages, educational backgrounds, and genders, which is random. The school's population composition is complex, which is in line with the audience composition in mass communication. Audience composition in mass communication is complex and random. If non-random sampling is used, it will lead to a large proportion of students and lose the objectivity of the research object. Therefore, the random abstraction is designed to fit as closely as possible with the demographics of mass communication.

Respondents participated in 2 questionnaires. Step 1: Ask the respondent to answer the question. Step 2: Add content samples (eg: A &positive) that answer the same questions. Added question: Is there an increase in environmental awareness? YES/NO. Q3：What is the impact of reporting tendencies on citizens' environmental awareness via South Weekend Green?

Systematic Random Sampling was conducted based on Taro Yamane formular, 2003.

$$N=2N/(1+Ne^2) \tag{2}$$

Where, n=sample, N=population factor. (Students and staff in a university in Sichuan Province), e= sampling error of 5% or 0.05 proportion.

2.3.2 Pilot Study

Pilot study refers to 'pre-testing' or 'trying out' on a specific examination. The main reason of conducting a pilot study is due to the speculation that the study may give early warning regarding where the actual study may collapse, where the study may have trouble to follow method and where the study's main instruments or techniques may fail. Besides that, conducting a pilot study can help to upgrade the actual effectiveness of the research's questionnaire and help to identify the logic and practice when conducting the actual research. For this study, about 140 participants will be requested to attend the pilot study. The procedure of pilot study will be similar to data collection method. The data collected from the pilot study will be analysed with Statistical Package for Social Science (SPSS) to determine the reliability of the instruments. If the alpha result for each section in the questionnaire has a reliability of 0.7 to 1.0, it is then indicated to be reliable to meet the objectives of the study. The score of Cronbach's Alpha for each part of the questionnaire which lied between 0.7 to 0.9 will be considered as reliable. Otherwise, certain section of the questionnaire will be revised and assessed again. Furthermore, if manipulation of variable fail, the experiment method will also be re-evaluated back with better procedures. analysed with Statistical Package for Social Science (SPSS) to determine the reliability of the instruments. If the alpha result for each section in the questionnaire has a reliability of 0.7 to 1.0, it is then indicated to be reliable to meet the objectives of the study. The score of Cronbach's Alpha for each part of the questionnaire which lied between 0.7 to 0.9 will be considered as reliable. Otherwise, certain section of the questionnaire will be revised and assessed again. Furthermore, if manipulation of variable fail, the experiment method will also be re-evaluated back with better procedures.
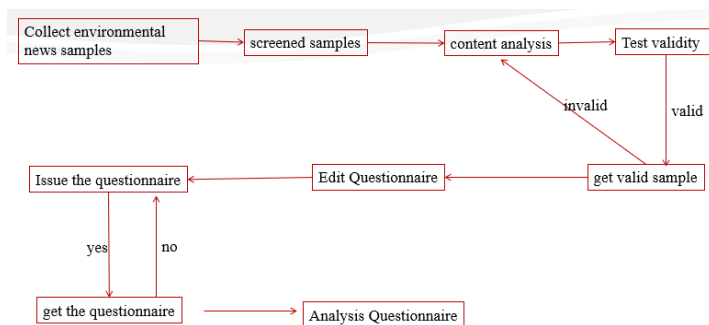
3. Results

3.1 Statistics and Data Analysis

Figure 7. Pearson correlation coefficient method

As shown in figure 7, data will be analyzed using the Pearson correlation coefficient method to examine the relationship between IV and DV. In this study, IV are gain frames and loss frames. These two frameworks will be associated with DV, preventive behavior. Correlation will therefore calculate the coefficients of the two variables to see if there is a relationship between the variables or not. r-values between -1.00 and +1.00 will be analyzed. The higher the range of r, the stronger the correlation as figure 6.

With the acceleration of urbanization process, "Garbage besieged city", waste of resources and other urban diseases have always been a major problem perplexing Beijing's urban management, since the beginning of this century, a waste sorting policy has been promulgated to launch a top-down environmental campaign for waste sorting. Because of the ambiguity of the initial classification standard and the lack of management experience, the implementation of waste classification has experienced a long-term repeated exploration. As a representative of the mainstream media, southern weekend carried out a series of reporting activities around these policies.

The study used the Huike news search platform to filter the articles on the topic of "Garbage Sorting" published by *Southern Weekend* between 2000 and September 2020(before the research deadline), and collated on the number of reports on the trend chart (see Figure 8). As can be seen from the picture, *Southern Weekend*'s coverage of "Waste sorting" was relatively low from 2000 to 2008, while there was an up-and-down cycle between 2009 and 2012, it peaked in 2010; since then, since 2019, the number of stories has increased rapidly again, with a second reporting cycle rising. Therefore, this paper divides the evolution process of the mainstream media reports on the issue of waste classification into the following three stages:
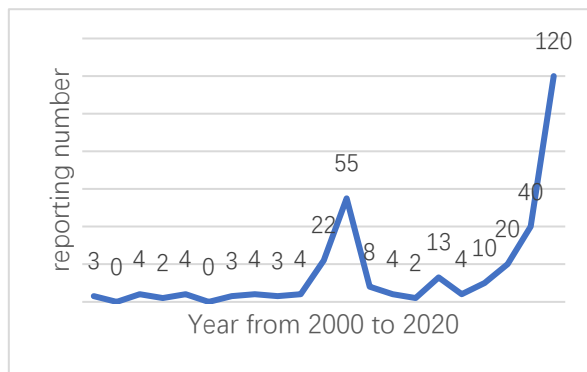
Figure 8. Reporting number of southern weekend's coverage of "Waste sorting"

(I) Pilot phase (2000-2008): Pilot cities for waste classification started in 2000, the government took a series of promotional actions and the mainstream media carried out appeals and publicity around this issue, it is hoped that the public will pay more attention to waste classification. However, as the government has not formed a more mature plan for waste classification, and the policy system is still in its infancy, the government's influence on media reports is relatively small, mainstream media rely more on daily news planning to carry out the relevant issues of the report, the number of reports less, the change is relatively smooth.

(II)Early stage of implementation (2009-2015): In 2009, the population grew rapidly without the implementation of waste sorting, land resources need to be set aside each year for the work of landfill, the contradiction between man and land has been further aggravated, the living environment has been deteriorating, and the urban sanitary conditions are facing severe challenges.

(III)Comprehensive promotion phase (2016-2020): After the previous reporting cycle, the issue of waste classification has once again become the focus of media reports, driven by policies. In 2017, the National Development and Reform Commission and other government departments promulgated the implementation plan for the domestic waste classification system, which explicitly gave priority to the implementation of compulsory classification of domestic waste in 46 major cities of our country. In June 2019, the scope of waste classification was extended to cities at the prefecture level and above nationwide.

From the trend of the number of reports in the above three stages, we can see that there is a positive correlation between the number of reports on waste classification policies and the publication density of the policies, this reflects *Southern Weekend's* efforts as a party newspaper to turn environmental policy into a public agenda through focused reporting. At the same time, we should also see that the overall number and scale of policy reporting is also increasing from the pilot stage to the current comprehensive promotion stage. This shows that in the practice of reporting on environmental policy by mainstream media, more attention is being paid to the role of setting policy agendas and more proactive efforts are being made to influence the implementation of environmental policies through reporting activities.

Based on this model, this paper analyzes the four mechanisms of environmental policy communication and three links of environmental advocacy in the mainstream media, the paper defines four objectives: the theme of the report, the type of the report, the source of the report and the emotional color of the report. On the subject matter of the report, this paper uses the themes of fact report, policy explanation, criticism and supervision, and policy suggestions to set policy agenda, interpret policy details, supervise policy implementation, and give feedback to folk opinions. In addition, this paper also adds the topic of requirement expression, which can be used to create public requirement advocated by the environment. The specific content of each category of topics is as table 2:

Table 2. The specific content of each category of topics

A. Factual topics	a. examples and examples of waste separation
	b. implementation results of waste classification
	c. Education and promotion of waste separation
	d. conduct of related meetings and activities
B. Topics of policy interpretation	a. presentation of classification criteria (presentation of classification techniques)
	b. interpretation of waste classification policy
C. Criticism of supervisory themes	a. point out existing problems
D. The topic of countermeasures and suggestions	a. domestic and international experience on waste classification
	b. vocal suggestions on waste sorting
E. Requirements expression class topics	A. propose the benefits of waste sorting implementation
	B. the harm caused by garbage pollution is put forward

As shown in Table 2, the specific content of each category of topics

As to the types of sources, because of the decisive role of sources in the provision of news sources, they often become the necessary objects of content analysis, on the other hand, it also reflects the target audience of the report. On the basis of understanding all the texts and themes, this paper summarizes the types of sources as follows: Official -LRB-government and announcement, officials; ordinary citizens; environmental protection organizations, groups, volunteers; experts; Enterprises (real estate, property, recycling companies, internet companies); waste disposal participants (cleaning staff, sorters, collectors, instructors); netizens opinions.

In terms of reporting genre, this paper is divided into five categories: News, communication, in-depth reporting, commentary and picture news. In the aspect of tone, according to the tendency of news attitude, the paper divides the tone into positive, neutral and negative tone. A positive tone is a positive report of a news event. These include summaries of the results of waste separation, positive comments from the media on waste separation, suggestions from experts and scholars, and positive coverage with words such as "New fashion" and "Promising". A report in which the neutral tone states only objective facts, without any expression of emotion. The negative tone involves emotions such as criticism of existing problems and concern about current bad behavior and outcomes. A study of the collected samples yielded the following results:

(1) Reporting theme: the distribution tends to be balanced, highlighting the role of agenda-setting in factual reporting in reporting on waste classification issues. Southern weekend has started from multiple angles, the paper reports the news of waste classification under different topics.
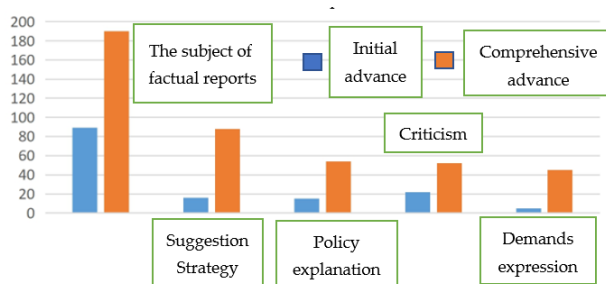

Figure 9. Distribution of the number of reports on different topics

From the distribution of the number of topics covered, during the two reporting periods, *Southern Weekend* covered the topics of factual reports, policy explanations, criticism and supervision, countermeasures and suggestions, and demand expression, it shows that the mainstream media reports the theme of diversity. However, the proportion of different topics is not balanced. As can be seen from Figure 9, the most common topics in the two cycles were fact-based topics, accounting for 61% and 44% of the total coverage, respectively, in both phases, *Southern Weekend* paid attention to actively setting the policy agenda by reporting on news events related to waste sorting policies.Furthermore, comparing figures 10 and 11, we find that the demand-expression themes with the smallest proportion in the last reporting cycle have increased in number in this phase of reporting, and the proportion is basically the same as the policy-explanation and criticism-suggestion themes, the 10 per cent figure reflects the growing importance of mainstream media to play an

environmental advocacy role by highlighting the benefits of waste sorting and the risks of waste pollution.
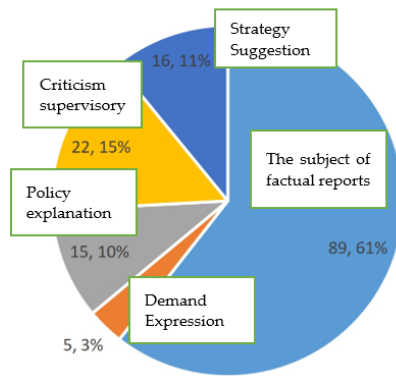

Figure 10. The proportion of different coverage topics in the initial promotion stage
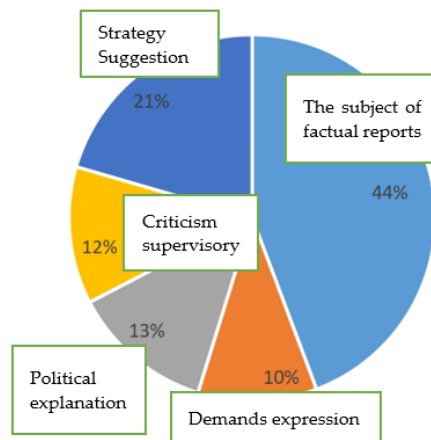

Figure 11. Proportion of different reporting topics in the overall promotion phase

From the inside of each subject category, the topic of factual reports mainly focuses on what measures the government and the districts have taken and what results they have achieved regarding waste classification. There are more factual reports on government meetings, closely related to official action, *Southern Weekend* began to provide more popular coverage of the classification criteria, while doing a better job of explaining policy than its previous coverage on such topics.

Sources: the government's voice dominates, and the elderly and children are valued. According to Tuchman, a sociologist of journalism, sources are the starting point for journalists to construct news. The media's choice of news sources implies the media's position and attitude. The analysis of news sources can reveal the definers of the nature and meaning of these events. As can be seen from figure 12, overall, the percentage of different sources does not change much. In a number of sources, from the official voice has always dominated the initiative, accounted for nearly 40%, including government announcements, policy notices and government officials to speak.
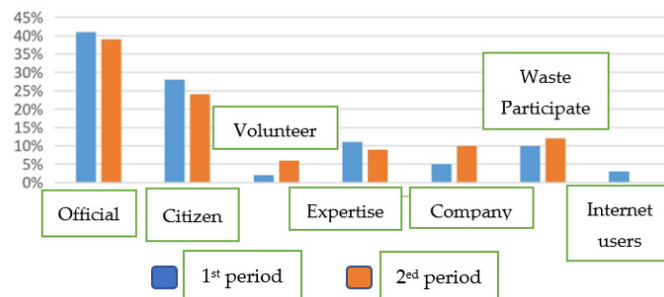

Figure 12. The proportion of different sources in the two reporting stages

The second largest source of information is the general public. As a habit change movement that needs the participation of the whole people, the main participants are mainly from the general public, how to reflect the bewilderment and

suggestions of the citizens in the classification directly determines whether the mainstream media reports can reflect the voice of the vast majority of people. Among ordinary citizens, the study found that when media reporters reported on the issue of waste classification, the subjects they chose to interview, in addition to unidentified "Citizens," were more biased towards the elderly and students and children, as can be seen from Figure 13, among all the general public sources, the largest is the elderly group, accounting for 37%. Garbage sorting is a part of trivial life, because the elderly long-term at home, more involved in this link, and therefore more contact.
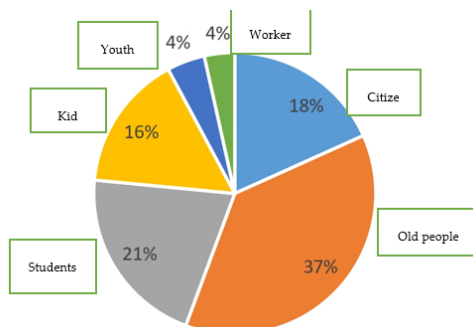
Figure 13. The proportion of information sources of ordinary citizens

In addition to the elderly, students and children also accounted for a larger proportion, a total of 37%. Students and children are at the stage of learning and developing their living habits, and correct guidance from an early age can help them master the way of waste sorting more quickly. Therefore, the media will pay attention to this group's participation in waste sorting when reporting.

Types of reports: news-based, in-depth policy interpretation the types of news reports reflect the overall attitude of the media to events, the extent to which they attach importance to events, and their ability to interpret events, as well as the ability of journalists to control events.
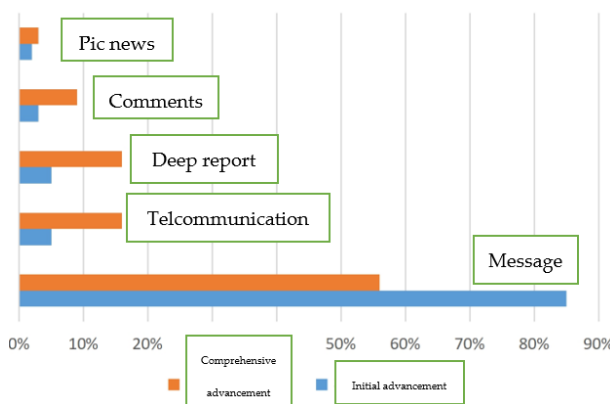

Figure 14. The proportion of different types of reports in the two reporting periods

As can be seen from Figure 14, *Southern Weekend's* coverage of waste classification has adopted a variety of genre categories, these include news items, newsletters, reviews, investigative in-depth reports, and photo news. Among them, the message is the most involved genre. In the previous phase, there were 165 news reports, accounting for 85% of the total sample. In the current phase, there are 200 news reports, accounting for 56%, which is more than half of the total. In the first stage, the style is too biased to the news, which makes the form of the report more unitary, and it is difficult to reflect the breadth and depth of the information while highlighting the timeliness of the news.

Basic tone of reporting: the positive reports are the main ones, while the negative reports lack the journalists' self-stance and attitude in the process of reporting, thus showing the tendency of reporting. As can be seen from figure 15, under the policy issue of waste classification, the tendency of related reports of *Southern Weekend* is generally positive, with 285 articles, accounting for more than half of the total, followed by neutral reports, there were 172, or 35 percent, and the fewest negative reports, 40, or less than 10 percent. This is consistent with the mainstream media's objective and fair press position, and the goal of positive propaganda and guidance.
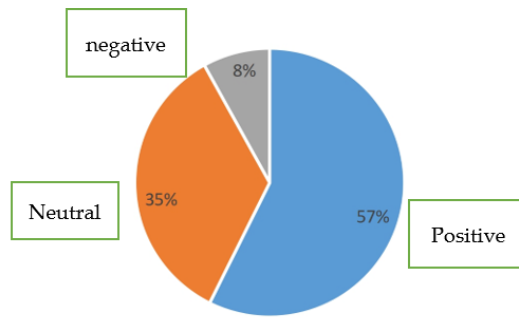
Figure 15. The proportion of the tone of the report

In the analysis sample, the neutral news mainly reported the facts of garbage classification objectively, and the reports did not show positive praise or negative criticism, which weakened the emotion. The positive tone of the news reports expressed a positive and positive attitude towards the work of waste classification.

The source of information is the source of news, the media is the field of public opinion, and the source of information is the speaker of the field of public opinion in figure 16 and 17. In this paper, the sources are divided into 7 categories, from S1 to S7: S1 represents China's official sources, that is, government departments, officials, relevant policies, laws and regulations; The S2 represents Chinese experts, scholars and research institutions, the S3 represents the general public or non-governmental organization, the S4 represents foreign government agencies or officials, the S5 represents international organizations, the S6 represents enterprises, the S7 represents anonymous sources, including netizens; S8 stands for Chinese media.
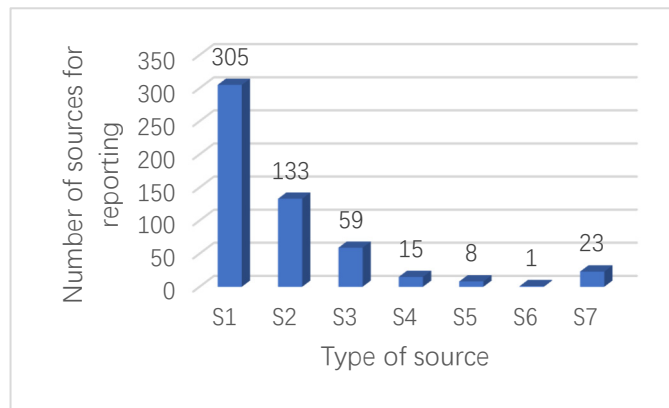

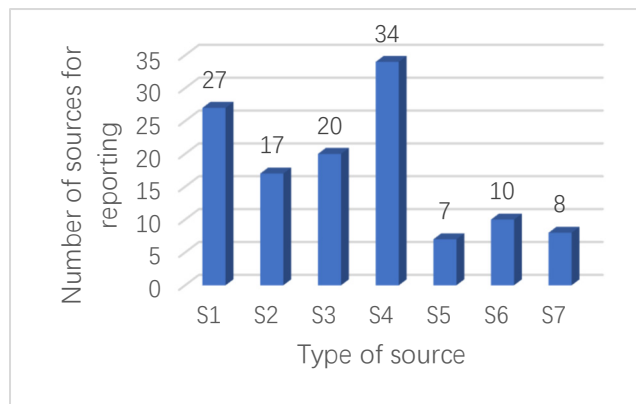Figure 16. Source statistics of Southern Weekend reports

Figure 17. Source distribution map of overseas media reports

The top three sources cited were official Chinese sources, Chinese experts, Chinese people or non-governmental organization, with no significant difference. As a market-oriented commercial media, *Southern Weekend* reports from the point of view of People's concern, and its interpretation of major events and policies tends to publish the opinions of experts and the masses, but references to official Chinese sources are mostly negative. For example, at the beginning of

the release of PM 2.5 data, *Southern Weekend* quoted official data, but immediately pointed out that the layout of the monitoring sites was unreasonable, the data is not true, unscientific and other issues to question the government.

The news framework, on the one hand, determines to a large extent the choice of sources for reporting, that is, who is provided with a platform to speak, and on the other hand, determines how sources are used, that is, which direct quotes from sources are chosen for reporting, and the context in which the direct speech is placed. Specifically, in addition to using China's official sources, *southern weekend* also uses a small number of foreign sources. Foreign media not only use China's official sources, but also a large number of foreign governments, scholars and institutions as sources of information, China's official sources in foreign media reports are often the object of criticism.

4. Conclusion

By studing the relationship between information sources, reporting tendencies, and citizens' environmental awareness, for environmental news reports in *Southern Weekend Green* with incorporating frame theory, the followings conclusions are founded:

1. In *South Weekend Green,* information sources affect the reporting tendency of environmental news;

2. Reports in environmental news tend to affect citizens' environmental awareness, which used multiple media outlets, including newspapers, social media and short videos, to report on the waste sorting policy, the themes of southern weekend tend to be balanced, highlighting the agenda-setting role of fact-based reporting;

3. Information sources affect citizens' environmental awareness, news sources are diverse, with the government's voice as the dominant while focusing on the elderly and children and news genres are the main focus, there was more in-depth interpretation of policies. In terms of new media content, the mainstream media in social media content, the theme of concentration, form diversity, content originality is low, and the expression of interest-oriented features, while in short video content.

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