

The Difference in the Impact of News Frames and Media Signatures on Explicit and Implicit Stereotypes: An Experimental Research

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Abstract: This study examined the impact of media signature and news frames on regional stereotypes. We conducted a 2 (media signature: political media and commercial media) * 2 (news frame: responsibility attribution frame and human-interest news frame) online experiment (N=236). Participants were randomly assigned to one of the four conditions and were asked to read a news article. We then measured the impact of news frames and news signatures on the audience's explicit stereotypes and internal differences in the impact of implicit stereotypes. The results show that news frame and news signature have no interactive effect on the audience's explicit stereotype and implicit stereotype; news frame, news credibility perception, reality perception, and news contact exposure can significantly affect the formation of the audience's explicit stereotype. Implicit stereotypes were only affected by credibility perceptions and education level. This study demonstrates that news resources cannot directly affect audience stereotypes. News framing can significantly alter the audience's explicit stereotypes, while the audience's implicit stereotypes cannot be directly changed by media signature and news framing due to their stability. This study expands the theoretical connotation of stereotypes and provides recommendations for news work: journalists should reduce negative, biased, and accountability narratives to reduce the audience's regional stereotypes of specific groups. The formation mechanism of stereotypes produced by news media enriches the theoretical connotation of stereotypes.

Keywords: News framing, Media signatures, Regional stereotypes.

1. Introduction

"Regional Stereotype" is a widespread phenomenon worldwide, similar to the concept of "Regional Discrimination" in the cultural context of China. This has been a long-standing problem in the long history of humanity throughout humanity's history. According to Wang's study of 69 participants who have resided in 23 provinces, municipalities, and special unique administrative regions (including Hong Kong, Macao, and Taiwan) in China for a long time, 80% of them admitted to experiencing regional discrimination in their daily lives[1]. In China's daily life, there is also a

stereotype of "forthright northerners and shrewd southerners". Social media will also see some slogans aimed at stigmatizing a certain region, forming a discrimination carnival on the Internet[2].

What impact does the media have on the formation of stereotypes among audiences? In the research history of media effectiveness theory, the cultivation theory assumes that the influence of media on the audience is neither instantaneous nor ineffective but rather has a subtle impact over a long period of "cultivation"[3]. Media is considered the most easily accessible and widely utilized primary source of information, and when cognitive subjects are unable to personally access relevant regional information to access relevant regional information personally, mass media plays an important role in the formation of regional stereotypes [4].

Due to historical, geographical, and other factors, Western scholars have rarely studied stereotypes related to regions but instead focused on stereotypes related to race[5], gender[6], special groups and specific professions[7]. In China, due to its vast territory and numerous ethnic groups, the phenomenon of regional stereotypes is very common. As the representative group, Henan people are often bullied by users from other regions on the Internet. According to the stereotype threat theory, negative stereotypes and derogatory content in the media can harm members of the negatively described group[8]. It is necessary to the stereotype effect of the media in order to maintain the image of specific groups.

Chinese scholars' research on regional stereotypes is mostly critical and speculative, with almost no empirical studies to explain the internal mechanisms of regional stereotypes. This study aims to investigate the differences in the impact of news framing and new signatures new signatures on audience's explicit and implicit stereotypes through experimental methods and to test the influence of media on the formation of audience stereotypes. Will studying news signature and news framing create different stereotypes? On the one hand, it can enrich the theoretical connotation of stereotypes. On the other hand, it also has guiding significance for real news work, understanding how news framing and news signature can avoid one-sided descriptions of people in a certain region and reduce stereotypes.

2. Literature Review

2.1. Concept of Regional Stereotype

Regional stereotypes are subordinate concepts of stereotypes. Stereotypes were first proposed by Lippmann to describe people's generalized concepts and biases towards specific groups[9]. The concept of regional stereotype came from the experiment carried out by American sociologists Gilbert and Hixon in 1991[10]. The research results at that time showed that when white Americans saw Asian women's faces, they needed to group words according to the stem "Pol_____". Finally, Americans were more willing to fill in "Polite" rather than "Police", indicating that Americans were "polite" to Asian stereotypes at that time. Chinese scholar Guo summarized the concept of "regional discrimination" as a behavioral orientation of "differential treatment" based on geographical differences[11]. Refers to people's common beliefs and biases towards a specific region or area. In the classification of stereotypes, Gardner et al. classified stereotypes into explicit stereotypes and implicit stereotypes[12]. Explicit stereotypes refer to people's common beliefs and biases towards a certain group or individual, usually based on external characteristics and surface phenomena. This evaluation may be one-sided and inaccurate, based solely on individual experiences and societal perspectives; Implicit stereotypes refer to traces of past experiences that regulate the attributes of members of a certain social category and are difficult to discern through introspection[13].

Why is there a "regional stereotype"? Firstly, It is because that this is due to an "oversimplified" psychological perception of geography, where people perceive unrelated groups as more similar than their own, and tend to trigger negative stereotypes[14]; Secondly, in the process of population

migration and ethnic integration, the tendency towards narrow nationalism can also lead to regional discrimination. There may be hostile forms of communication between groups with different cultural and value perspectives, and conflicts between regions caused by differences in cultural customs, religious traditions, and other cultural factors that contribute to the formation of regional stereotypes, it is the reason why Chinese people emphasize geographical classification is that China has a vast land and many ethnic groups, so it is easy to feel the existence of regional subcultures, especially when the accent, customs and mainstream groups are too large, there will be a sense of shame[15]; Thirdly, the imbalance of economic development may lead to regional discrimination. Zhang boldly pointed out that economic factors are the fundamental factors that trigger regional discrimination, and regions with high economic development are more likely to have regional stereotypes about regions with low economic development[16]; Moreover, power plays a significant role in regional stereotypes, which implies discourse power, financial power, and so on[17].

2.2. News Signature and Stereotype

News signature refers to a way of indicating the author's identity in news reports. It usually appears at the beginning or end of news reports to inform readers who the report's author is so that readers can understand the source of information and the attribution of responsibility[18]. Whether the media is a neutral recorder of the world or an audience-driven content maker has long been a topic of discussion. In China, the political agenda is highly tied to the media agenda, the information itself has a strong authority, and users have a high degree of credibility for news released by the government's official media. At the same time, in order to safeguard the country's interests and security, the government's mainstream media will be more inclined to report positively on the country's situation and show a positive image of the people of a region, to achieve the effect of propaganda[19]; in contrast, commercial media, in order to maintain their influence on the Internet, are unlikely to become recorders of the objective world. They pursue timeliness and cater to the audience's hobbies to choose from or even create news[20]. Over time, the simulated society created by commercial media may become a consensus among people, and when people see related media, they will form stereotypes, which will have a vilification effect on a group[21]. According to the priming effect, people are stimulated by certain knowledge before, which makes the brain active to the related content, and then it will be easier to remember the same content[22]. From this, it can be seen that the authority, position, reputation, and readers' sense of belonging behind a media signature will affect whether readers accept his views, thereby affecting the formation of their stereotypes. So, the research question is proposed:

RQ1: When people read news signed by political mainstream media or news signed by commercial media, will their explicit stereotypes be different? Will their implicit stereotypes be different?

Hostile media perception is the hostile media theory that individuals with radical positions on a certain issue will think that the media is biased against them when they see relatively objective media reports[23]. Source credibility perception refers to whether the news is trustworthy and what the media should do to win the trust of the audience[24]. When the audience sees a news signature, they will unconsciously make biased and biased judgments, and then have source credibility perception and hostile media perception. We cannot ignore the initiative of the audience. It can be assumed that when the audience believes that the media is not trustworthy, fair and objective, they will not trust the report, and the report will not affect the formation of stereotypes. Therefore, research question 2 is proposed.

RQ2: Will the audience's explicit stereotypes be different after controlling for source credibility and hostile media perception? Will the implicit stereotypes of the audience be different?

2.3. News Framing and Stereotype

Does the narrative style of news affect people's stereotypes? Sanhui Li once criticized the media and said: The media is an important way to spread the stigma of Henan. Regardless of whether the media reports objectively or narrates objectively, negative reports about Henan can easily attract the attention of users, forming or deepening the public's stereotypes of Henan people. He believes that the audience generally has negative stereotypes about Henan people. No matter how the media reports, the identity of Henan people will cause considerable controversy, so the media is of no help in this process; but Ramasubramanian found through research that the media plays an important role in promoting and suppressing stereotypes caused by race-related news reports[25]. In other words, the media's reporting framework can change the audience's cognition. The inconsistent attitudes of the two scholars triggered our thinking. Can the news frame really affect the audience's stereotypes? Is there a difference in the impact of explicit stereotypes and implicit stereotypes?

RQ3: When people read news with different news frames, will the explicit stereotypes they produce be different? Will the implicit stereotypes they produce be different?

Previous studies have shown that individual stereotypes are more likely to come from realistic factors[26]. In order to avoid the interference of realistic factors in the research, we need to control this realistic factor, reality perception and news contact, to avoid the influence of personal contact on the effect of news frames on stereotypes. Therefore, the research question is proposed,

RQ4: Under the control of the influence of reality perception and news contact, will news with different news frames produce different explicit stereotypes and implicit stereotypes?

3. Method

3.1. Research Design

This study will be divided into two steps: in Study 1, content analysis will be used to list the Weibo (an influential social media in China) of *People's Daily*, Which is the most influential official mainstream media in China, and the Weibo of FenghuangWang which is an important media of Hong Kong Chinese, Media Group in the Chinese mainland as research objects. All original news related to Henan published between January 1, 2023 and August 20, 2024 were intercepted. *People's Daily* had 239 tweets and FenghuangWang had 189 tweets. The purpose of the study was to determine which two journalistic frames to use in subsequent research.

In Study 2, the independent variables are news frame and news signature, the dependent variables are implicit stereotype and explicit stereotype, and the control variables are credibility perception, hostile media effect, news contact, and reality perception. A total of 236 subjects were invited online to compare their implicit and explicit stereotypes when they were randomly presented with one of four news articles.

3.2. Study1

3.2.1. Coding Book Development

In order to determine the news frame to be used in the subsequent research, scholars Semetko and Valkenburg were employed in this study to formulate a coding table for the classification criteria and judgment conditions of the five general frames[27] (see Table 1). In the process of coding the sample news, five frames (conflict frame, responsibility attribution frame, economic consequence frame, human interest frame, moral frame) can be recorded according to their significance and recorded as 1: significant, 0: not significant according to their characteristics.

Table 1: Coding book development.

| Sort | Encoding | Definition | Example |
|----------------------------------|--------------------------------------|---|--|
| Conflict frame | 0(not significant) 1(significant) | Show the game, competition and contradiction between newsmakers in the way of conflict and disagreement. | Authorities reported multiple underage brawlers at a barbecue stall The head of the Children's Charity Society in Henan was reported to "accompany to sleep in exchange for donations", and the mother chose "invisibility" |
| Responsibility attribution frame | 0(not significant) 1(significant) | When the news describes an event, the responsibility of various parties is clearly divided and analyzed. | National Development and Reform Commission: # 350 million to support Henan, Shaanxi and Sichuan disaster relief # # Context Hua Zhang # [Collection understanding! # Hometown Henan's Chinese mark #] |
| Economic consequences frame | 0(not significant) 1(significant) | Present relevant information about financial losses or gains in the news. | |
| Human interest frame | 0(not significant) 1(significant) | News provides a personal or emotional perspective on the presentation of events, issues, or issues. This frame aims to reach the goal of disseminating information and attracting attention by personalizing, dramatizing or emoting the news to attract and retain the interest of the audience. | |
| Moral frame | 0(not significant) 1(significant) | Taking the mainstream values as the benchmark, presenting the moral concept of news events and promoting the correct values to the public may also be a condemnation of a certain violation of the mainstream values | Thanks for your hard work! # The army rushed to the aid of Nanyang, Henan Province |

3.2.2. Inter-coder Reliability Testing

In this coding stage, because the total sample size is not large, it was decided to let two coders do the full sample coding. The Cronbach's coefficient of inter-coder reliability for two coders is 0.9, which is within the acceptable range for subsequent coding tasks to begin.

3.2.3. Result

A chi-test was conducted to ensure whether there was relationship between news frame and media signature. Finally, we found that there was no significant relationship between the two accounts except in the conflict frame ($\chi^2=1.793$, $p=0.96$), and in the responsibility attribution frame ($\chi^2=69.29$,

$p < 0.001$), economic consequences frame ($\chi^2=28.132$, $p < 0.001$), and human-interest frame ($\chi^2=28.132$, $P < 0.001$). $p < 0.01$) and moral frame were significantly related ($\chi^2=7.715$, $p < 0.05$) (see Table 2). In terms of reporting preference, *People's Daily* prefers to show the time-honored culture of Henan or the harmony of small families through the frame of human interest. They also like to show their personal qualities through moral frames and promote core socialist values. In contrast, *FenghuangWang* prefers to use the responsibility attribution frame to report anti-corruption news and social events in Henan, as well as the economic consequences frame to show property gains and losses in Henan (see Table 3). Responsibility attribution and human-interest frames have the highest frequency of producing significant relationships between news frames. Therefore, the responsibility attribution frame and human-interest frame is selected as the news frame variables of Study 2.

Table 2: News signature and news frame use relation table.

| | Conflict frame | Responsibility attribution frame | Economic consequences frame | Human interest frame | Moral frame |
|----------------|----------------------------|----------------------------------|--------------------------------|-------------------------------|------------------------------|
| News signature | $\chi^2=1.793$ $p=0.96$ | $\chi^2=69.29$, $p<0.001$ | $\chi^2=28.132$, $p<0.001$ | $\chi^2=28.132$, $p<0.01$ | $\chi^2=7.715$, $p<0.05$ |

Table 3: Two accounts news frame use preference data statistical table.

| | Number of posts | Conflict frame | Responsibility attribution frame | Economic consequences frame | Human interest frame | Moral frame |
|-----------------------|-----------------|----------------|----------------------------------|-----------------------------|----------------------|-------------|
| <i>People's Daily</i> | 236 | 86(36%) | 15(6.3%) | 10(4.2%) | 97(41.1%) | 44(18.8%) |
| <i>FenghuangWang</i> | 187 | 56(29.9%) | 74(39.6%) | 39(19.3%) | 20(10.7%) | 17(9%) |
| total | 423 | 142(33.6%) | 89(21%) | 49(11.6%) | 117(27.7%) | 61(14.4%) |

3.3. Study 2

3.3.1. Experiment Design

Using the experimental research method, the two-factor within-group experimental design of 2 (news frame: responsibility attribution frame, human interest frame) *2 (media signature: *People's Daily*, *FenghuangWang*) was adopted, and a total of four experimental groups were generated. Explore the influence of news frame, news signature, hostile media perception, credibility perception, news contact, and reality perception on the audience's explicit and implicit stereotypes.

3.3.2. Participant

Participants were recruited online in Credamo, a data collection platform, and a total of 316 questionnaires were collected. In order to measure non-Henan people's stereotype of Henan people, subjects were asked to fill in whether they were Henan citizens in the first question. If they filled in "Yes", the questionnaire would be regarded as invalid. There were 49 invalid questionnaires of this type. After collecting questionnaires, the researcher eliminated 12 questionnaires in Henan, the IP territory, and 19 questionnaires with abnormal data were eliminated in the data processing stage. Finally, 236 valid questionnaires were collected. The average birth year of the subjects was 1994.11 (SD=12). 64% of the subjects were male and 36% were female.

3.3.3. Free Association Stage

Before the formal experiment, in order to explore the audience's overall impression of Henan people, we invited 60 subjects to evaluate Henan people by adjectives. Select adjectives after the study and use them for further research. According to the Stereotype Content Model[28], the impression of an individual is composed of two dimensions, namely warmth and competence. Warmth is reflected in friendliness and sincerity, while competence is reflected in intelligence and effectiveness. Based on these two dimensions, two groups of adjectives were generated to form the semantic difference scale of this study.

Warmth: kind (cold), kind (insidious), honest (cunning), simple (vain), generous (stingy), like (hate), sincere (hypocritical)

Ability: hard-working (lazy), high level of education (education level), poor and backward (rich and advanced), witty (dull), one skill (no good), thoughtful (careless and sloppy), pragmatic (unrealistic)

3.3.4. Stimulus Material

Subjects read official mainstream media + responsibility attribution frame (n= 58), official mainstream media + human interest frame (n= 58), commercial media + responsibility attribution frame (n= 61), and mainstream media + human interest frame (n=59), respectively. The total effective sample size was 236. The following four news stories were generated. Among them, the human-interest frame news reported the long history of Chinese culture in Henan, while the responsibility attribution frame news reported the loss of manhole covers in Henan, which caused casualties. The news content of the same frame is exactly the same, the difference is that the news signature: the news bureau of the official mainstream media is named "*People's Daily*", and the end of the article indicates that "*People's Daily* is China's authoritative official mainstream media"; The press bureau of the commercial media is named "*FenghuangWang*", and the end of the article indicates that "*FenghuangWang* is owned by Hong Kong Chinese Media Group".

3.3.5. Measurement

3.3.5.1. Explicit Stereotypes

Scholars used to propose a method to measure the quantification of social group stereotypes, which required individuals to grade the characteristics of the target group in a two-level rating scale to see whether there were significant differences, that is, whether there were explicit stereotypes. It was originally created by American psychologists OSgood, Suci and Tennenbum[29]. Its operationalization is the process of transforming abstract concepts into observable concrete indicators or the detailed description of the procedures, steps, methods and means used to measure those concepts with higher levels of abstraction. This scale has good reliability and can be included in the study. Through the semantic difference scale of 12 groups of adjective formation collected in the pre-survey, the subjects were asked about their direct impression of Henan people after watching the news, which was combined with the five-point Likert scale for measurement. The reliability of the generated semantic difference scale was high (Cronbach's $\alpha=0.959$), and the total explicit stereotype measured ($M=3.84$, $SD=0.83$) was acceptable.

3.3.5.2. Implicit Stereotypes

In general, the implicit association test is a reliable way to measure stereotypes[30]. Using the Single Category Implicit Association Test (SC-IAT), which is a useful tool for measuring implicit attitudes

in a single object, The internal consistency coefficient is between 0.55 and 0.85[31]. According to the free association stage, several concept words and adjectives are generated to measure the audience's most instinctive thoughts. According to the association stage of the pre-survey, the group members generated 4 concept words (several locations of Henan province) related to Henan (Yu, Zhengzhou, Luoyang, Zhumadian) and 6 attribute words (friendly/indifferent; Kind/sinister; Honest and honest/cunning; Wealth/poverty; Hard-working/lazy; In the shortest possible time, the subjects were asked to match the concept word with the attribute word, choose the positive attribute word +1 score, choose the negative attribute word -1 score, and the final total score was the subject's overall implicit stereotype ($M=12.41$, $SD=14.51$, $SE=0.9$).

3.3.5.3. Source Credibility Perception

Source credibility perception was measured using Ohanian's scale[32], which consists of three dimensions of media credibility, expertise, and attractiveness and a five-point Likert scale (from 1 completely disagree to 5 completely agree) to measure participants' attitudes toward news sources. ($M=4.13$, $SD=0.65$, Cronbach's $\alpha=0.805$).

3.3.5.4. Hostile Media Perception

According to the scale developed by Gunther and Liebhart[33], the hostile media perception of the subjects was measured from three dimensions of information accuracy, content balance and information source credibility, and combined with the five-level Likert scale (from 1 completely distrust/completely disagree to 5 completely trust/fully agree). The hostile media cognition index ($M=4.07$, $SD=0.48$, Cronbach's $\alpha=0.815$) was obtained by averaging the above measurements.

3.3.5.5. Reality Perception

In terms of measurement, by asking subjects "Do you think the phenomenon in the news is very common in reality" and combining it with a five-point Likert scale ranging from 1 completely do not believe/completely disagree to 5 completely believe/fully agree, the coefficient of the audience's reality perception was obtained ($M=3.98$, $SD=0.06$).

3.3.5.6. News Contact

By asking subjects "You often come into contact with such news" and combining it with a five-point Likert scale ranging from 1 do entirely not believe/completely disagree to 5 completely believe/fully agree, the news exposure coefficient of the audience was obtained ($M=3.87$, $SD=0.06$).

3.3.6. Manipulation Check

As this study used a between-group design that compares individuals on four groups, the political mainstream media and commercial media signature and human-interest and responsibility attribution frame of the stimuli need to be assessed. two two-way ANOVAs were conducted to test explicit and implicit stereotypes of Henan people after touching the stimulus. The result illustrated that participants who read the stimulus with political media and commercial media signature and human-interest frame and responsibility frame were assessed to test whether they differed significantly from their counterparts.

4. Result

4.1. Randomization Check

We first conducted a series of chi-square tests and one-way ANOVA to find whether the variable of demography was successfully assigned. We found there is no significant difference in demographics (gender, age, education level) and explicit stereotype. Therefore, the variable of demography could be taken into analysis.

4.2. Main Results

To explore the impact of news frame and news signature on the audience's explicit stereotype, we used two-way ANCOVA (see Table 4) and found that there was no interactive effect between news frame and news signature on the audience's explicit stereotype, $F(3, 228) = 0.003$, $p > 0.05$. The difference in news signatures has no significant effect on explicit stereotypes, $F(1, 228) = 1.50$, $p > 0.05$. The difference in news frames has a significant effect on explicit stereotypes, $F(1, 228) = 8.56$, $p < 0.05$. In reports in the human interest frame, more positive stereotypes will be formed, $M = 4.00$, $CI = [3.85, 4.15]$; in reports in the responsibility attribution frame, slightly more positive stereotypes will be formed, $M = 3.69$, $CI = [3.54, 3.83]$ (see Table 5).

Table 4: The influence of news frames and news signatures on audiences' explicit stereotypes.

| | F | sig |
|--------------------------------|-------|--------|
| News Signature | .555 | .457 |
| News Frame | 4.788 | .030* |
| News Signature*News Frame | .001 | .979 |
| Hostile Media perception | 2.040 | .155 |
| Sources Credibility Perception | 9.346 | .003* |
| Reality Perception | 8.500 | .002* |
| News Contact | 5.781 | 0.017* |
| Gender | .494 | .483 |
| Education Level | .043 | .836 |
| Age | .298 | .586 |

Dependent variable: Explicit stereotypes adjusted $R^2 = .364$

Table 5: Stereotypes generated by different news frames.

| | Mean | Min | Max |
|----------------------------------|------|------|------|
| Human Interest Frame | 4.00 | 3.85 | 4.15 |
| Responsibility Attribution Frame | 3.69 | 3.54 | 3.83 |

In order to explore the impact of news frame and news signature on the audience's implicit stereotype (see Table 6), two-factor covariance analysis was used and found that there was no interactive effect between news frame and news signature on the audience's implicit stereotype, $F(3, 228) = 0.79$, $p > 0.05$. There is no significant effect of news signature differences on implicit stereotypes, $F(1, 228) = 0.38$, $p > 0.05$. The difference in news frames also has no significant effect on implicit stereotypes, $F(1, 228) = 3.22$, $p > 0.05$.

Table 6: The impact of news frames and news signatures on audiences' implicit stereotypes.

| | F | sig |
|--------------------------------|-------|-------|
| News Signature | .555 | .451 |
| News Frame | 4.788 | .101 |
| News Signature*News Frame | .001 | .331 |
| Hostile Media perception | 2.040 | .305 |
| Sources Credibility Perception | 9.346 | .071 |
| Reality Perception | 8.500 | .518 |
| News Contact | 5.781 | .628 |
| Gender | .494 | .300 |
| Education Level | .043 | .032* |
| Age | .298 | .822 |

Dependent variable: Implicit stereotypes adjusted $R^2=.041$

The independent variables (news frame, news signature), control variables (perception of news credibility, perception of hostile media, reality perception, news exposure), demographic variables (gender, age, education) and the dependent variable explicit stereotypes were compared. Multiple regression (see Table 7) found that news frame, news credibility perception, reality perception, and news exposure can significantly predict the audience's explicit stereotype. The above four variables were used in a multiple regression model with the dependent variable explicit stereotype. It was found that the model significantly predicted subjects' explicit stereotypes, $F(4, 231) = 35.67$, $p < 0.01$, Adjusted $R^2 = 38.2\%$.

Table 7: Regression Model of Explicit Stereotypes.

| | β | sig |
|--------------------------------|---------|-------|
| News Frame | .107 | .043 |
| Sources Credibility Perception | .313 | <.001 |
| Reality Perception | .208 | .002 |
| News Contact | .192 | .003 |

Dependent variable: Explicit Stereotypes

The independent variables (News Frame, News Signature), control variables (news credibility perception, hostile media perception, reality perception, news exposure), demographic variables (gender, age, education) were compared with the dependent variable implicit stereotype. Multiple regression (see Table 8) found that academic qualifications ($\beta=-0.15$, $p<0.05$) and news credibility perception ($\beta=0.16$, $p<0.05$) can predict subjects' implicit stereotypes. The above two variables A multiple regression model was made with the dependent variable external stereotype, and it was found that the model significantly predicted the subject's explicit stereotype, $F(2, 233) = 0.04$, $p < 0.05$, Adjusted $R^2 = 4.2\%$.

Table 8: Regression Model of Implicit Stereotypes.

| | β | sig |
|--------------------------------|---------|------|
| Hostile Media Perception | -.151 | .018 |
| Sources Credibility Perception | .164 | .011 |

Dependent variable: Implicit Stereotypes

Based on the above data analysis, we can answer our research questions 1 and research question 2: News signatures do not affect the audience's explicit stereotypes, but news frames can affect the audience's explicit stereotypes. As for implicit stereotypes, news signatures and news frames have no statistical significance for them, but hostile media perceptions and credibility perceptions can predict the generation of implicit stereotypes.

5. Conclusion

The study, based on an online experiment with 236 participants, found that news signatures and news frames had no interactive effects on the audience's explicit and implicit stereotypes. There is no statistically significant difference between the news signature for political mainstream media and commercial media on the explicit stereotype of the audience. The news frame is for the responsibility attribution frame and the human interest frame. There is a statistically significant difference for the explicit stereotype of the audience. There was no significant difference in implicit stereotypes of audiences between news signatures and news frames. The explicit stereotypes ($M_{\text{People's Daily}} = 3.93$, $M_{\text{FenghuangWang}} = 4.05$) and implicit stereotypes ($M_{\text{People's Daily}} = 14.28$, $M_{\text{FenghuangWang}} = 14.8$) produced by subjects who read human interest framed news were both higher than those who read the news. Responsibility attribution frames news subjects' explicit stereotypes ($M_{\text{People's Daily}} = 3.63$, $M_{\text{FenghuangWang}} = 3.75$) and implicit stereotypes ($M_{\text{People's Daily}} = 11.83$, $M_{\text{FenghuangWang}} = 8.94$). In addition, there are some findings worth discussing.

First of all, the study found that news frames can significantly change the audience's explicit stereotypes. This verifies Ramasubramanian's research finding that when a journalist speaks positively, the audience's impression of the people in this area will be significantly improved; conversely, when a journalist highlights a certain incident involving Henan people in order to cater to the audience's taste, the audience's impression of the area will be greatly reduced. Therefore, media and journalist should be highly self-disciplined and do a good job of checking when conducting media reports. After all, stereotypes and stigmatization of a region are the long-term results of media reports [34].

Second, news signatures do not affect the explicit and implicit stereotypes of the audience. Therefore, it can be inferred that the audience will match their inherent stereotypes through the content rather than the source. However, when performing a regression analysis on explicit stereotypes and implicit stereotypes, it was found that credibility perception and hostile media perception can predict the generation of stereotypes. We can infer a mechanism from this: the impact of news signatures on audience stereotypes is generated through source credibility and hostile media perceptions. When an audience perceives the media as authoritative and fair, news content is more likely to change its stereotype. However, this conclusion runs counter to post-truth theory. According to the post-truth theory, audiences tend to believe news that is consistent with their own perceptions, and audiences will selectively accept news content, which has nothing to do with the credibility of the media source[35]. In future research, research can be conducted around credibility, stereotypes and post-truth.

In terms of limitations, implicit stereotypes have almost no explanatory power in the data analysis. We can explain that implicit stereotypes are people's deep perceptions and are not easily affected. However, our analysis of implicit stereotypes this time The measurement also has flaws: the collection method is through the online Credamo counting system. We set online rules for the questions: participants must complete the attribute classification of Henan people within 2 seconds. However, previous measurements of implicit stereotypes were compiled through the Inquisit 4.0 system. Although the final research results showed that the explicit and implicit stereotypes of real subjects were consistent, the collection of implicit stereotype data was imperfect.

Authors Contribution

All the authors contributed equally, and their names were listed in alphabetical order.

References

- [1] Wang, Q. (2018). Research on regional stereotypes and related data analysis. *Communication Research* (22), 176-179. doi:CNKI:SUN:CBL.Y.0.2018-22-147.
- [2] Li, S. H. (2023). Differences move towards high and low: the social construction logic of regional discrimination - an examination of the phenomenon of "Henan people being discriminated against". *Journal of Zhejiang Shuren University* (05), 56-63. doi:CNKI:SUN:ZJSR.0.2023-05-007.
- [3] Gerbner, G. (1998). Cultivation analysis: An overview. *Mass communication and society*, 1(3-4), 175-194.
- [4] Dixon, T. L. (2019). Media stereotypes: Content, effects, and theory. In *Media effects*. Taylor & Francis.
- [5] Stelter, M., Essien, I., Sander, C., & Degner, J. (2022). Racial bias in police traffic stops: White residents' county-level prejudice and stereotypes are related to disproportionate stopping of Black drivers. *Psychological science*, 33(4), 483-496.
- [6] Charlesworth, T. E., & Banaji, M. R. (2022). Patterns of implicit and explicit stereotypes III: Long-term change in gender stereotypes. *Social Psychological and Personality Science*, 13(1), 14-26.
- [7] Bottazzi, L., & Lusardi, A. (2021). Stereotypes in financial literacy: Evidence from PISA. *Journal of Corporate Finance*, 71, 101831.
- [8] Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of personality and social psychology*, 69(5), 797.
- [9] Turner, J. C., & Reynolds, K. J. (2011). Self-categorization theory. *Handbook of theories in social psychology*, 2(1), 399-417.
- [10] Gilbert, D. T., & Hixon, J. G. (1991). The trouble of thinking: Activation and application of stereotypic beliefs. *Journal of Personality and social Psychology*, 60(4), 509.
- [11] Guo, H. B. (2010). Analysis on the social construction of regional discrimination image. *Gansu Social Sciences*, (2), 74-77.
- [12] Gardner, R. C., Kirby, D. M., Gorospe, F. H., & Villamin, A. C. (1972). Ethnic stereotypes: An alternative assessment technique, the stereotype differential. *The Journal of Social Psychology*, 87(2), 259-267.
- [13] Nosek, B. A., Hawkins, C. B., & Frazier, R. S. (2011). Implicit social cognition: From measures to mechanisms. *Trends in cognitive sciences*, 15(4), 152-159.
- [14] Hinton, P. R. (2019). *Stereotypes and the Construction of the Social World*. Routledge.
- [15] Young, L. C. (1988). Regional stereotypes in China. *Chinese Studies in History*, 21(4), 32-57.
- [16] Zhang, G. P. (2013). Regional discrimination in media reports. *Southeast Journal of Communication* (04), 9-10. doi:10.13556/j.cnki.dncb.cn35-1274/j.2013.04.019.
- [17] Blackledge, A. (2005). *Discourse and power in a multilingual world*.
- [18] Kovach, B., & Rosenstiel, T. (2008). *The Shape of Journalistic Excellence. The Big Picture: Why Democracies Need Journalistic Excellence*, 39.
- [19] King, G., Pan, J., & Roberts, M. E. (2017). How the Chinese government fabricates social media posts for strategic distraction, not engaged argument. *American political science review*, 111(3), 484-501.
- [20] Subramanian, S. (2017). Inside the Macedonian fake-news complex. *Wired magazine*, 15.
- [21] Sun, Q. Q. (2017). Reversing stereotypes in news under the Internet environment: Taking the "old man's toy car fraud" incident as an example. *Today's Mass Media* (07), 29-30. doi:CNKI:SUN:BKZY.0.2017-07-010.
- [22] Higgins, E. T., Bargh, J. A., & Lombardi, W. J. (1985). Nature of priming effects on categorization. *Journal of experimental psychology: Learning, Memory, and Cognition*, 11(1), 59.
- [23] Gunther, A. C., & Storey, J. D. (2003). The influence of presumed influence. *Journal of Communication*, 53(2), 199-215.
- [24] Lee, S. K., Lindsey, N. J., & Kim, K. S. (2017). The effects of news consumption via social media and news information overload on perceptions of journalistic norms and practices. *Computers in human behavior*, 75, 254-263.
- [25] Ramasubramanian, S. (2007). Media-based strategies to reduce racial stereotypes activated by news stories. *Journalism & Mass Communication Quarterly*, 84(2), 249-264.
- [26] Singletary, S. L., Ruggs, E. N., Hebl, M. R., & Davies, P. G. (2009). Stereotype threat: Causes, effects, and remedies. *Applying Research to Practice (ARP) Resources*.
- [27] Semetko, H. A., & Valkenburg, P. M. (2000). Framing European politics: A content analysis of press and television news. *Journal of communication*, 50(2), 93-109.

- [28] Cuddy, A. J., Fiske, S. T., Kwan, V. S., Glick, P., Demoulin, S., Leyens, J. P., ... & Ziegler, R. (2009). Stereotype content model across cultures: Towards universal similarities and some differences. *British journal of social psychology*, 48(1), 1-33.
- [29] Osgood, C. E. (1957). *The measurement of meaning*. University of Illinois.
- [30] Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: attitudes, self-esteem, and stereotypes. *Psychological review*, 102(1), 4.
- [31] Karpinski, A., & Steinman, R. B. (2006). The single category implicit association test as a measure of implicit social cognition. *Journal of personality and social psychology*, 91(1), 16.
- [32] Ohanian, R. (1990). Construction and validation of a scale to measure celebrity endorsers' perceived expertise, trustworthiness, and attractiveness. *Journal of advertising*, 19(3), 39-52.
- [33] Gunther, A. C., & Liebhart, J. L. (2006). Broad reach or biased source? Decomposing the hostile media effect. *Journal of Communication*, 56(3), 449-466.
- [34] Xu, M.Z. (2016). A study on stereotypes in news reports: A case study of a female driver being beaten in Chengdu. *Western Journal Journalism and Communication* (06), 54-55. doi:10.16721/j.cnki.issn2095-6916.2016.06.0
- [35] Kyza, E. A., & Varda, C. (2019). NAVIGATING THE POST-TRUTH ERA: TRUST, MISINFORMATION, AND CREDIBILITY ASSESSMENT ON ONLINE SOCIAL MEDIA. *AoIR Selected Papers of Internet Research*.