

The Government's Dividend: Complex Perceptions of Social Media Misinformation in China

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ABSTRACT

The social media environment in China has become the dominant source of information and news over the past decade. This news environment has naturally suffered from challenges related to mis- and dis-information, encumbered by an increasingly complex landscape of factors and players including social media services, fact-checkers, censorship policies, and *astroturfing*. Interviews with 44 Chinese WeChat users were conducted to understand how individuals perceive misinformation and how it impacts their news consumption practices. Overall, this work exposes the diverse attitudes and coping strategies that Chinese users employ in complex social media environments. Due to the complex nature of censorship in China and participants' lack of understanding of censorship, they expressed varied opinions about its influence on the credibility of online information sources. Further, although most participants claimed that their opinions would not be easily swayed by astroturfers, many admitted that they could not effectively distinguish astroturfers from ordinary Internet users. Participants' inability to make sense of comments found online lead many participants to hold pro-censorship attitudes: the Government's Dividend.

Author Keywords

Social media, fake news, misinformation, trust, astroturfing

CCS Concepts

•**Human-centered computing** → **Human computer interaction (HCI)**; *Empirical studies in HCI*;

INTRODUCTION

In recent years, social media platforms like Facebook, Twitter, and WeChat have become, for many people, a major source for news consumption and information about the outside world [8, 30]. Although these platforms make news and different opinions on public issues more accessible, individuals may face uncertainty about the veracity of the information disseminated on them [7, 21]. Moreover, the media landscape

involves a wide array of actors including traditional news outlets, professional or casual news-reporting individuals, user-generated content, and third-party fact-checkers. As a result, norms for disseminating information through social media and the networks through which information reaches audiences are more diverse and intricate. This changing environment makes it challenging for users to evaluate the trustworthiness of information on social media [14].

In China, the media landscape is even more complicated because government interventions in the ecosystem are becoming increasingly prevalent. Most people only use local social media platforms, such as WeChat, Weibo, and Toutiao, to socialize with others and consume news online. Previous research has demonstrated that censorship and “astroturfing”, i.e., organized and sponsored efforts by the government or companies to add comments of certain flavor as if they are from ordinary people, are prevalent on these platforms [12, 15, 17, 23]. The existence and perception of these activities might influence how people consume and evaluate content and how they express themselves on social media [5, 17, 35]. These activities also make counteracting narratives absent on social media, which provides opportunities for misinformation about dominant topics to spread on social media in China and influence people's views and political opinions [39].

It is important to understand how people consume news, evaluate the trustworthiness of online information, and perceive misinformation in such a complicated media environment. There is also a gap in understanding how people's awareness of censorship and astroturfing, and how the information provided by institutional or third-party fact-checkers may influence online news consumption behaviors. To address this gap, we are interested in the following research questions:

RQ1: How do people perceive misinformation on social media in China?

RQ2: How do people perceive the information provided by fact-checking institutions, and how does fact-checking influence their evaluation of the information on social media?

RQ3: How do people perceive censorship on social media, and how does it influence their evaluation of the information?

RQ4: How do people perceive astroturfing on social media, and how does it influence their evaluation of the information?

To address these questions, we conducted semi-structured interviews with 44 Chinese citizens located in mainland China or residing temporarily in the USA or Canada. The study probed

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the participants' social media news consumption behaviors, perceptions of misinformation on social media, and awareness and perceptions of official or third-party fact-checkers, astroturfing, and censorship on social media.

The interviews identified that most interviewees did not perceive that misinformation about political issues was common, but on the other hand were concerned with misinformation relevant to their daily life or well-being.

Fact-checking also does not play a big role in the interviewees' view of the ecosystem. Few interviewees were aware of the fact-checking features of the leading social media services. Of those that were, many had concerns about the quality and relevance of the information that was checked, and lacked the motivation to use these features. Although most participants were aware of censorship, they held varied opinions about how censorship worked or its effects on media credibility.

Interviewees were aware of the astroturfing practices of the '50c party', internet commentators hired by Chinese authorities to influence public opinions [17], however, they mostly reported that they could not distinguish astroturfers from ordinary Internet users. Some interviewees often attributed low-quality comments to users on social media who could be easily swayed and harm the stability of the society, a perception which, in turn, increased the interviewees' pro-moderation views. Such pro-moderation views align with the priority of the Chinese censorship apparatus found in previous research—preventing collective actions to maintain stability [15, 16].

The findings of this research into perceptions of social media misinformation shed light on the challenges that exist with misinformation in the digital news ecosystem with government interventions, and highlight specifically the information challenges faced by both Chinese citizens and immigrants.

BACKGROUND AND RELATED WORK

To anchor our contribution, we first provide a short description of the information environment in China. We then briefly summarize insights from prior research on information practices, perceptions, trust, and misinformation on Chinese social media. Finally, we review the current efforts and products that offer fact-checking information in this environment.

Social Media Environment in China

China has the largest social media market in the world, with approximately 673.5 million social media users as of 2018 [32]. The population and density of China, the highly diverse social-economical background of social media users, and the sophisticated government regulations, among other factors, all contribute to the complexity of Chinese social media environments [18, 36, 37].

In China, 'core social media' platforms such as WeChat and Weibo provide online spaces for general message exchanging and broadcasting. WeChat is the dominant social media platform, with over 1 billion accounts worldwide (most of which are in China) [24]. It acts as a major information hub for users through a wide range of services including 'public accounts' that enact a publisher/subscriber model, some of which spread misinformation for revenue or other purposes [39].

These services enable a complex network of information dissemination on Chinese social media [18]. The advent of online social media provides individuals and private organizations the ability to distribute news and other information alongside official media channels through citizen media [6]. To compete for attention, the Chinese citizen media also generates and distributes information for much more diverse purposes than the official media, e.g., self-expression, economic interest, social and political goals. The information shared on Chinese citizen media is often accompanied by the authors' comments and opinions, and thus can be subjective and sensational [37].

Internet censorship further complicates the circulation of information to its consumers. To maintain the status quo for the current regime, the Chinese government has enforced social media sites to censor their content according to its guidelines, and employed human censors to monitor the Internet [15]. The official criteria for classifying content as sensitive are unclear and ever-changing [16, 19]. Social media platforms often impose stricter, proprietary removal policies to stay within the ever-changing government boundaries [16]. Most often, once content is deemed sensitive, it would be removed by the platform and any attempt to access it would be blocked. Depending on the platform, a message may or may not appear and explain the reason for the content removal (Figure 1a).

"Water warriors" or astroturfers, i.e., commenters and posters who are organized and sponsored by the government or a company to add comments of certain flavor in the public sphere, are prevalent on social media in China [17, 23]. King et al. [17] showed that some governmental astroturfing was for strategic distraction, but not engaged argument. For example, cheer-leading comments like "We all have to work harder, to rely on ourselves, and to take the initiative to move forward" (我们自己要更加努力, 不等不靠, 主动上前) could be seen posted on articles on different topics. However, research has also shown that some posters who seem like astroturfers may act independently; they post content online because they naturally share the same sentiments as astroturfers [11, 12].

In response to these challenges, Chinese social media users have highly varied attitudes and strategies for obtaining, evaluating, and comprehending information [18]. This research focuses on understanding how different actors, censorship, and astroturfing influences users' perceptions of information trustworthiness. With a qualitative interview study, we are able to develop a preliminary understanding of the factors that influence attitudes and beliefs in China, provide rich contextual information, and gain a more in-depth and nuanced perspective on the challenges of evaluating credibility in the Chinese information ecosystem.

Trust and Misinformation on Social Media in China

Several studies have explored trust and misinformation in Chinese social media environment. In 2012 and 2013, Wang and Mark [37] conducted two surveys to measure the trust Chinese social network users had with official and citizen media channels, and how the users handled misinformation. Two respondent groups displayed contrasting trust preferences: a 'New Generation' group (N=47) trusted citizen media more than official media, while a 'Traditional' group (N=54) trusted



Figure 1. (a) A screenshot of how censored content appears when accessed on WeChat. (b) Screenshots of WeChat Fact-Checking Features: (b-1) the Misinformation Detection tab shows a list of debunked articles and a search bar, (b-2) the summary of a debunked article, (b-3) misinformation related to the user in the ‘Related to Myself’ tab, and (b-4) information about fact-checking institutions.

official channels more. Most respondents employed strategies similar to those reported by Flinham et al. [7], making judgments based on source credibility and content quality. Their results also aligned to some extent with a recent interview-based study conducted in Hong Kong by Kow et al. [20] which found that most participants did not act on political misinformation even though were aware of it, although differences exist because media landscapes, regulations, and government interventions on social media in mainland China are different from those in Hong Kong. The present research continues this line of inquiry and focuses on the evolving Chinese social media landscape since 2012 when WeChat was launched and began to dominate Chinese social media.

Research on censorship and trust in media has suggested that a censored media environment leads to more critical news consumers [25]. This does not necessarily apply to the entire Chinese social media user population, among which, as Wang and Mark found [37], there are varied beliefs about what warrants trustworthiness. The present research aims to further understand how this discrepancy within the population relates to media censorship, astroturfing, and fact-checking.

Fact-Checking Services and Websites in China

To combat misinformation on social media, many institutions and platforms in China, either directly operated and managed by the government or run by independent organizations, have developed fact-checking services. For example, Piyao.org.cn is a platform created by Chinese Internet Information Office and Xinhua.net, and publishes searchable, official (government endorsed) fact-checking information. The fact-checking features on WeChat are presented to WeChat users in the form of a WeChat mini program (“sub-applications” within WeChat ecosystem [10]) called the Fact-Checking Assistant. The Fact-Checking Assistant contains three tabs (Figure 1b). The Misinformation Detection tab (Figure 1b-1) allows users

to access debunked fake news, with the corresponding debunked article being stored in the Fact-checking Assistant’s database. The Related to Myself tab (Figure 1b-3) tracks users’ browsing history on WeChat and alerts them if they have read any articles that were deemed as requiring fact-checks. The “Fact-Checking Institutions” tab (Figure 1b-4) lists the fact-checking organizations or individuals, including WeChat’s own fact-checker, government and academic institutions, and some privately-run third-party fact-checkers. As these services are some of the first steps platforms have taken towards combating misinformation, this paper aims to explore how Chinese people utilize, perceive, and make sense of information provided by these fact-checking services.

METHOD

We conducted semi-structured interviews with 44 WeChat users to understand their perceptions of misinformation and the influence of fact-checking and government interventions such as censorship and astroturfing on their perceptions.

Procedure

We recruited participants living in China, or those born in China but currently living outside of China for less than 5 years. Two Chinese-speaking authors disseminated recruitment advertisements on WeChat, and we asked respondents to forward the information to anyone who might be interested. Thus, a combination of snowball and convenience sampling was used for recruitment. Respondents were first asked to complete an online questionnaire asking demographic questions, i.e., age, gender, location, education, and occupation, and requesting details on how they used social media for news and how often they used them. The interviewees were recruited from respondents of the questionnaire. Recruitment efforts aimed to recruit participants from a broad age range, while balancing gender and location. However, sampling leaned slightly more middle class and higher education than average

Chinese citizens. The study protocol was approved by the institutional review board (IRB) at the University of Toronto.

We conducted 2 rounds of semi-structured interviews, with 28 interviewees (P1-P28) in the first round in August 2018, and 24 interviewees (P21-P44) in the second round in February and March of 2019. As eight interviewees (P21-P28) were interviewed in both rounds, 44 unique people were interviewed (Table 1). The occupations of interviewees included graduate students, accountants, self-employed workers, editors, journalists, teachers, etc. The interviews were conducted remotely using audio calls in Mandarin, and transcribed by the iflyrec.cn transcription service after removing identifiable information.

Each interview lasted about 60 minutes, and interviewees were provided with 50 CNY (\$7.40 USD) for their participation. The interviews for both rounds included questions about what online information interviewees thought mattered to them, what social media tools they used to get and share news information online, what they thought misinformation was, how they dealt with misinformation, and follow-up questions about how they used different social media tools for news.

To probe their usage and attitudes towards fact-checking, participants were guided through WeChat fact-checking features on their own mobile devices (Figure 1), and were asked to reflect on what they saw in it and how they evaluated the fact-checking information and information about fact-checkers.

More specific questions also asked about their awareness of astroturfing and censorship, how and what they knew about them, their attitudes toward them, and their perception of the influence of astroturfing and censorship on their use of social media platforms for news information.

Besides the aforementioned questions, the second round interviewees were primed to think about misinformation, because it was difficult for interviewees to recall details of misinformation during the first round. We contacted the participants 4 weeks prior to the interviews, asking them to share content that they thought might contain misinformation with us. For those interviewees who did pass along content (N=8), the content was used during their interviews as a probe. To give those who did not share any content better probes about misinformation, we asked all the interviewees to complete a pre-interview questionnaire about representative misinformation in China from 2018 that was curated from a research report by the Shanghai Social Science Research Institute [1] (eight pieces) and from Piyao.org (four pieces). These news stories covered a range of diverse topics including social issues, health, environment, domestic politics, science, food, entertainment, international affairs, etc. During the pre-interview survey, interviewees first read the curated pieces of misinformation and were then asked to rate the credibility of each piece they read, on a 0-10 point scale (0 = not credible, 10 = very credible). During the interview, we asked more specific questions about how they evaluated and made sense of the news in the pre-study, how often they saw such misinformation, how much interest they had in such information, how they would follow up on such information, and how impactful they perceived the spread of such information to be on social media.

Analysis

The transcriptions of the interviews were analyzed using an open and iterative coding method [33]. The two authors who conducted the interviews coded all the transcriptions individually then developed a codebook together. They then recoded the interview data based on the refined codebook. All the codes were then translated into English and were discussed by all the co-authors to find emerging themes using sub-categorization and constant comparison [33]. Quotes were associated with themes and were translated.

FINDINGS

The thematic analysis of the interview data identified a variety of perceptions of misinformation, fact-checking features on social media, astroturfing, and censorship in China. Generally speaking, participants got their news information from social media, encountering content shared by others on close-tie social media like WeChat and Twitter-like social media such as Weibo. Some interviewees (8) used mobile apps for special interest groups (e.g., Q&A, jokes sharing, sports-related), for news, e.g., Zhihu and Hupu. Most interviewees (32) passively used WeChat, Weibo, or Toutiao for news, e.g., *“I seldom search for news online. If important social events happen, people will share on WeChat or Weibo.”* (P29).

Perceptions of Misinformation

Over half of the interviewees (30) claimed that they used common sense to evaluate online news, similar to the findings of researchers evaluating political misinformation in Hong Kong [20]. They also developed their own strategies to protect themselves from misinformation, e.g., being very cautious of information about health or social issues.

Categories of Misinformation Encountered

Out of 44 participants, seven were interested in political news and reported seeing political misinformation. The rest did not believe they encountered political misinformation. In contrast, categories of misinformation that they reported encountering on social media included personal health (44), public health/medicine related (40), food security (37), public incidents/crisis (35), local life (34), entertainment (40), and celebrity (39). Among these categories, participants concerned about most of them except for celebrity, e.g., *“I think misinformation about health, food security, public incidents or crisis is critical to everyone and I will follow up such news.”* (P15).

The participants' low level of interest in political news was accompanied by a limited capability of evaluating the trustworthiness of political news. When evaluating the probe of the fake news of the election of the mayor of Taipei, 18 out of 24 second-round interviewees failed to identify it as fake. Participants reported being less cautious about political news on social media, as noted by P42, *“I just think people normally don't share political fake news in China, because it is 'dangerous' to do so. Media outlets are cautious with reporting political news and people have less motivations to share.”*

Most interviewees (37) felt that most misinformation they encountered was about health because everyone cares about health but does not understand all aspects of it, e.g.,

Table 1. Summary of participants interviewed. Information source: WC-WeChat, WB-Weibo, T-Toutiao, N-Netease News, S-Soho News, FB-Facebook, others are specified

| ID | Sex | Age | Location | Occupation | Information Source | ID | Sex | Age | Location | Occupation | Information Source |
|-----|-----|-----|-----------|--------------|--------------------|-----|-----|-----|--------------|---------------|--------------------|
| P1 | M | 56 | Ningbo | Student | WC | P23 | F | 29 | Yinchuan | Accountant | WC, T, N |
| P2 | F | 23 | USA | Office clerk | WC, Quartz | P24 | F | 31 | Nanjing | Office clerk | WC, S |
| P3 | M | 27 | Beijing | Programmer | UC Web, Hupu | P25 | M | 29 | Taiyuan | Office clerk | WB, WC, Zhihu |
| P4 | M | 24 | Hangzhou | Office clerk | WC | P26 | M | 21 | Yinchuan | Student | WC, QQ |
| P5 | F | 23 | Shanghai | Student | WB, WC, Zhihu | P27 | F | 27 | Beijing | Journalist | WC, T |
| P6 | F | 24 | Canada | Student | WB, YouTube | P28 | F | 37 | Beijing | Teacher | WC, Flipboard |
| P7 | F | 26 | Suzhou | Teacher | WC | P29 | F | 32 | Xiamen | Student | WC, WB |
| P8 | M | 22 | Canada | Student | WC, WB | P30 | F | 31 | Taiyuan | Office clerk | WC, WB |
| P9 | F | 32 | Guangzhou | Office clerk | T | P31 | F | 40 | Beijing | Office clerk | WC, WB, T |
| P10 | M | 22 | Guangzhou | Student | WC, QQ | P32 | F | 23 | USA | Student | WC, FB |
| P11 | M | 52 | Guangzhou | Journalist | WC | P33 | M | 30 | Shenyang | Designer | WC, WB |
| P12 | M | 59 | Shenzhen | Retired | WC | P34 | M | 29 | Hangzhou | Programmer | WC, WB |
| P13 | M | 24 | Guangzhou | Programmer | WC, Zhihu | P35 | M | 24 | Shanghai | Office clerk | WC, Hupu |
| P14 | F | 33 | Changsha | Office clerk | WB, T | P36 | M | 25 | Chongqing | Editor | WC, WB |
| P15 | M | 28 | Changsha | Worker | WC, T, N | P37 | M | 29 | Shijiazhuang | Teacher | WC, T |
| P16 | F | 24 | USA | Designer | WC, Zhihu | P38 | M | 23 | Nanchang | Student | WC, WB, Zhihu |
| P17 | M | 22 | Canada | Student | Flipboard | P39 | M | 24 | Shanghai | Student | WC |
| P18 | F | 21 | Shenzhen | Student | Tencent News | P40 | F | 54 | Yinchuan | Accountant | WC, T |
| P19 | F | 24 | Guangzhou | Nurse | WC, WB | P41 | F | 50 | Wuhan | Self-employed | WC, T, QQ |
| P20 | F | 29 | Yinchuan | Office clerk | WC, QQ, WB | P42 | M | 56 | Yinchuan | Professor | WC, WB, T |
| P21 | M | 21 | Chongqing | Student | WC, WB, N | P43 | M | 20 | Beijing | Student | WC, FB, Zhihu |
| P22 | M | 20 | Yinchuan | Student | WC, QQ, WB | P44 | F | 45 | Beijing | Office clerk | WB, T |

“I realized that most information about health shared on WeChat is not reliable. Many of them are actually made for promoting products. So now I don’t spread such information anymore unless I am sure it is real” (P40).

Evaluating the Trustworthiness of Official and Citizen Media

An overwhelming number of interviewees (30) reported that they trust official media more than citizen media. Over half of the interviewees (29) followed official media outlets on WeChat, such as Xinhua.net and People’s Daily Online, which are run by organizations managed by the government.

Those who trusted official media more believed that official media, as they ‘represent’ the opinion of the government, are more regulated and less influenced by companies, care more about their reputation, and thus more trustworthy, e.g., *“Official media need to maintain good reputation. If they spread something fake, no one will trust them any more.” (P43).*

Those who had the perception that people might be punished by law for disseminating fake news also believed that official media outlets cared more about liability for sharing misinformation than companies, e.g., *“If an official media outlet releases fake news, the author will be convicted. So normally they try to release accurate information” (P24).*

The commercial incentives of some citizen media on WeChat for producing content were also quoted as a reason for distrusting citizen media. These citizen media produce content more regularly than reasonable to keep their subscribers engaged, and even spreading misinformation about competitors to strategically attract subscribers. Such citizen media were viewed as lacking in value and thus less trustworthy, e.g., *“I feel that some content [on citizen media] is not very useful. For example, some outlets want to post something to their subscribers every day, and they just fill the space of their articles in a rush without careful investigation. They just copy and modify others’ writing, so there is little value” (P30).*

Interviewees also evaluated media outlets according to the consistency between headline and content. Twenty one interviewees mentioned that official media had more consistency between the headline and content, while citizen media sacrifices title accuracy for attention, e.g., *“Some articles on citizen media have very attractive titles. ..., but after I read it, I realize that the content has nothing to do with the titles.” (P31).*

The fourteen interviewees who did not trust official media believed that official media are biased and present more pro-government opinions. Some of them tended to trust media outlets that were less censored, e.g., *“I think that official media are standing in a position to maintain stability, so I will be cautious about information on it” (P32).*

Perceived Reasons for Creating and Sharing Misinformation

Over half of the interviewees noted that misinformation was often fabricated and presented to attract their attention by some citizen media, e.g., *“I think the creation of misinformation often happens on citizen media. They want more people to follow them. ..., So they have to fabricate something to attract people.” (P37).* *“For me, citizen media are often used for fun. They often make everything more interesting by modifying the truths.” (P26).* Companies were also believed to create misinformation in their advertisements to promote products, e.g., *“Some misinformation is more like ads. Some companies create misinformation to say the competing products of other companies are bad to make people buy their products.” (P41).*

On the other hand, P24 mentioned that not much misinformation was created or spread on purpose. Rather, she noted,

“I think most misinformation is not created and spread on purpose. For example, sometimes I just did not realize it was fake when I shared it to my friends.” (P24).

Indeed, participants had low expectations of their friends to verify information before sharing, e.g. P37 noted, *“I feel that*

many people don't verify information carefully. Sometimes people feel that it is not important to verify. When they think something is interesting, they share with friends no matter whether it is fake or real."

Perceived Impact of Misinformation

Throughout the interviews, thirty five interviewees mentioned that some misinformation, even if misleading, might not have adverse affects or consequences, e.g., *"Most misinformation would not bring bad outcomes. I read them for fun. So it is not very important whether they are real or not"* (P26).

Two types of misinformation, however, were perceived to have negative effects: health and political news. Due to its strong relevance to life quality, health misinformation can spread widely and have more impact. People care about health so they are willing to trust some misinformation because they fear that ignoring the information could cause them to become ill. These sets of beliefs have broader effects on society, e.g., *"This year, swine fever is well-known, but that is actually fake news. Although many people realized that it is fake, they still prefer to be safe and avoid buying pork"* (P26). Most young interviewees (younger than 30) believed that misinformation, especially health-related one, have high impact on senior people, e.g. *"My grandparents often send me a lot of misinformation about health. As they are getting older, they pay more attention to health, and are easy to trust misinformation about health"* (P34). P44 added, *"Many people especially senior people trust those articles. It may influence their life."*

Over half of the interviewees noted that political misinformation should be avoided, because they believed that it might influence the stability of the country and trust in the society, e.g., *"It is very important to make sure political news is authentic so that we can have a stable country"* (P40) and *"Some misinformation goes to extremes, for example, like conspiracy about the government or some food, but some people still trust it. And then it is like there's nothing we can eat, and no one we can trust in the society"* (P31). It is surprising that although political misinformation is perceived rare in China, people still perceive that it has profound impact on the society.

Fact-Checking

Though fact-checking features have been implemented on WeChat for almost 2 years, interviewees generally reported low awareness of the fact-checking feature, low levels of trust towards institutional fact-checkers, and indifferent attitudes towards fact-checking features.

Awareness of Fact-checking Features of WeChat

Awareness about WeChat's fact-checking service was quite low among interviewees. More than half of interviewees (34) reported not having heard of this WeChat feature. Ten of the interviewees who had heard of it did not check it often or never used it. This low rate of awareness may be due to the fact-checking feature normally being hidden on WeChat and only becoming prominent when the user has read misinformation, e.g., *"I have received a message from fact-checking assistant on WeChat telling me that I had read an article disseminating misinformation, and provided a link to a debunking article. But I seldom go to check the feature on my own"* (P21).

Trust in WeChat's Fact-Checking

During the interviews, we asked the participants to look at the list of fact-checkers of the WeChat fact-checking feature on their mobile device (Fig. 1b-4), and asked them to think aloud when evaluating the trustworthiness of different fact-checkers. There are three types of fact-checkers on WeChat, including the official fact-checker run by WeChat, fact-checking by authoritative institutions (e.g., the police, government, or universities), and fact-checking by third-parties (e.g., non-government organizations, other communities, or even individuals). We found that interviewees had different levels of trust in different types of fact-checkers.

Most interviewees (36) reported that they tend to trust fact-checkers from authoritative institutions such as the government or universities, e.g., *"An academic institution is the expert on matters related to science, so I'll trust it"* (P5), *"They [the government] may be able to get more resources to check whether information is fake, and probably want to verify misinformation more carefully so that they can release more accurate fact-checking results to maintain their reputations."* (P42).

Twenty interviewees stressed they would trust the official fact-checker run by WeChat. A common sentiment is represented by P9, *"WeChat is the most popular mobile app in China. Therefore, it would not disseminate fake news"*.

Sixteen interviewees had distrust towards third-party fact-checkers, noting the lack of authoritativeness as the primary reason, e.g., *"some third-party fact-checkers seem very sketchy, not as trustworthy as authoritative institutions like the government"* (P9). Interviewees were also skeptical of the motivations of third-party fact-checkers. *"It seems that many third-party fact-checkers are driven by money, so I tend to not trust them"* (P23). Only six interviewees reported they would trust third-party fact-checkers. P28 mentioned that she would trust certain third-party fact-checkers who proved to be professional, especially for health-related information, e.g., *"Doctor Dingxiang is a renowned website for professional medical information, so I trust their fact-checking articles on health"*.

Some interviewees doubted whether fact-checking articles themselves are free of misinformation, e.g., *"I am not sure whether fact-checking is reliable. Normally those fact-checking media collect information to verify whether the news is real or fake. But sometimes, the information they collect may also contain misinformation"* (P40).

Attitudes Towards the Future Use of Fact-Checking Features

Despite having trust in the official WeChat fact-checking service, interviewees in general exhibited a passive, indifferent attitude towards using it. Nine interviewees reported that they would actively use this fact-checking feature in the future, ten reported that they would not, and twenty-five were unsure.

The interviewees in favor of using WeChat fact-checking appreciated the benefits of fact-checking, e.g., P11 noted that he learnt a lot from the fact-checking service, e.g., *"I have read somewhere that skipping dinner could be good for your health. I was skeptical about it but now it is reassuring to know that information is actually fake"*.

For interviewees who did not want to use the fact-checking feature in the future, one had qualms about the usability of the feature itself, *“the platform requires me to do active searching. Too much of a hassle”* (P2). She then commented she would prefer a manual verification process, *“If I’m really not sure about a news, I’ll use a search engine. I’m used to doing it on my own”*. Another participant claimed he read news only for pleasure, not for checking the veracity of it, *“I read news only to kill time. I wouldn’t care about all the tiny details”* (P25).

Within the group of indifferent interviewees, some interviewees viewed the news that was being verified on WeChat as detached from their personal life. Most of time, the news in the list and their personal interests seemed misaligned so the veracity of the information appeared less important, e.g., P10 commented after reading a fact-checking article debunking the misinformation that kids went missing while playing on bouncy castles, *“it is good to know as a fact that kids in our city are safe from kidnappers, but I don’t even have kids. I find it hard for me to relate to this fact”*.

Some interviewees were simply very confident in their abilities to identify fake news and found limited usefulness in fact-checking services. They noted that they could make a judgement on the veracity of news based on their expertise or pure common sense, so the information provided by WeChat fact-checking was not informative for them, e.g., *“Some news is obviously fake. For example, here it says government will collect taxes on families who don’t want kids, nobody with common sense would believe that.”* (P3).

Interestingly, although interviewees had confidence in themselves, they did not have it for other people, especially other generations. A significant portion of interviewees would strongly recommend fact-checking features to older adults like their parents and grandparents, whom they deemed too gullible to detect fake news, e.g., *“My grandparents always share fake news. Older adults are so easily deceived by the information online”* (P4). On the other hand, P11, who is over 50 years old, stated that he believed younger adults were more in need of fact-checking features, e.g., *“I think that it is more helpful for young adults, because they have little experience in life and are easier to be misled by misinformation online”*.

Astroturfing

As “water army” (水军) or “50c party” (五毛党)¹, an alleged (and widely-believed) astroturfing effort organized by the Chinese government or a company to serve its goals, is a common concept on social media in China, we asked participants about their own definition and perception of it.

Most interviewees were skeptical about the existence of governmental astroturfers and claimed they would not be swayed by astroturfers. However, their attitudes towards astroturfing were highly varied, and most of them claimed that it was hard for them to identify astroturfers.

¹“water army” refers to astroturfers by the government or a company, while “50c party” mostly refers to governmental astroturfers.

Awareness of Astroturfers

Amongst our participants, sixteen believed that the ‘50c party’ exists, while seventeen were quite skeptical about the existence of such group, and ten expressed strong disbelief that such a group would exist. Most interviewees who believed astroturfers existed noted that astroturfing comments were created because someone or a company paid for those comments, and believed the government might also do so, e.g., *“I think most “water army” comments are created because someone got paid for that. Some famous people or companies need to lead people to think about something in a particular way. Then they hire people to write comments to support them”* (P41).

Many skeptics reported it was the first time they had ever heard of the concept of astroturfing, however, they were quick to grasp the concept and associated astroturfing with their experiences online. Their judgement about the existence of astroturfing by the government was held back by the lack of solid evidence. P12 made a critical observation,

“I have seen people making comments fawning over the government online. Maybe they are “50c party”. I guess the distinction lies in whether they are paid or not, which I really have no means to verify. It could very well be that he was a crazy supporter of the government” (P4).

Even without the availability of credible sources or solid evidence, some non-believers claimed that the cost of a system of astroturfing outweighed the benefits of it so much that the government would never do it. P11 noted, *“it would be too risky for the government to do it (astroturfing). People would be furious if they learn about it”*. P10 made an argument about upholding the public image of the government, e.g., *“It is way beneath the Chinese government to resort to such shady act”*.

Other non-believers attributed pro-government or pro-China comments to the patriotic sentiment increasingly seen on Weibo, WeChat, and Toutiao, e.g., *“I saw a huge number of comments supporting the government in news about the China-US trade war. I think they are very patriotic and they do it voluntarily. Posting pro-government comments doesn’t necessarily mean that they are astroturfers”* (P27).

Within the group of participants who believed the existence of “50c party”, it was acknowledged that some comments were overly favorable of the government or its leaders. As a result, some had suspicions as to whether those comments were voluntary acts. For example, *“Unanimously praising the leader? That is just not normal”* (P5). *“Instead of promoting meaningful discussion, all these people have done is praising the government”* (P16).

When asked if they could identify astroturfers, believers reported they could. However, the identification strategies they reported were simply a repetition of the reasons they gave for believing in the existence of astroturfers, e.g., *“this person is basically a demagogue trying to stoke up anti-western sentiment. Hard to believe he is not paid to do so”* (P15).

Detecting astroturfing, however, was perceived to have become more difficult in recent years by some believers, e.g., *“Years ago, these comments lacked details and are almost identical.”*

However, nowadays, many astroturfing comments are pretty hard to be detected. They try to make the comments more diverse and probably contain more details.” (P41)

Attitudes toward Astroturfing

We broadly identified three types of attitudes: supportive (14), unsupportive (6), and indifferent (24). The supportive group claimed that astroturfing was necessary to maintain social stability. P7 said, “*I believe astroturfing could maintain the stability of our nation and ease up conflict among members of society.*” P6 built upon this statement and added that astroturfing served as a tool that the government can leverage to defend the image of the nation, i.e., “*The government has the responsibility of steering public opinion in right direction. Some purposely forged rumors or slander against our country would incite panic and be detrimental to our country.*”

The unsupportive group dismissed astroturfing as dishonest and argued the government should be truthful with its citizens, “*No matter if it is good or bad news, the government should inform the public of it. Using astroturfers to do cover-ups is too shady*” (P18). They were also concerned with negative effects astroturfing might have, e.g., “*If this kind of [astroturfing] comments appear, I think that the elders at home will be swayed. Such public opinion has a profound impact*” (P31).

The most prevalent attitude among the interviewees is indifference. They claimed to have no strong opinions about astroturfing as they believed it had minimal influences on their social media experiences, i.e., “*I barely pay attention to astroturfers when I am viewing the comments*” (P4) and “*‘Water army’ has little impact on my life, so my attitude is to let it be*” (P10).

Perceived Potential Effects of Astroturfers

Whether or not astroturfers exist, most interviewees (36) claimed that they would not be easily swayed by astroturfing comments, e.g., “*I can think very critically. A few comments won’t change my already formulated opinion of the news article I’m reading*” (P10), and “*Some astroturfing comments are too deliberate and gross. I’ll never be swayed by them*” (P7). Interviewees stressed that they could think independently and critically, and their opinions would not be altered easily.

However, several interviewees did express concerns with astroturfing. For example, P22 noted that astroturfing made her “*unable to get a correct sense of what others’ true opinions are on social media*”, and hence made her unsure about the literacy levels of the majority of social media users in China. In other cases, such low-quality comments had increased their pro-moderation, or even pro-censorship, views, e.g.,

“I feel that in recent years there are more and more less-educated people using Weibo who post low-quality comments. I don’t know if they are astroturfers or not. I think they cannot make reasonable judgment about information online, and hence some information should be moderated to avoid risks for our society.”(P31)

This was not the only concern about societal risk: “*I think astroturfing cannot have any effect on me. However, maybe astroturfing can affect teenagers’ opinions easily. They have less social experience, so their opinions can be influenced by*

those comments and maybe their actions can be affected. They may do harm to the society. I think it is very important to control those bad comments to some extent.” (P41)

For these interviewees, astroturfing makes them feel that there are more low-quality comments than there really are on social media, makes them doubt the literacy of the Internet users online, and gives them an impression that many people online could be easily swayed to join actions to influence the stability.

Censorship

The majority of interviewees claimed to be aware of censorship and harbored mixed feelings towards censorship and the effect of censorship on credibility of social media information.

Awareness of Censorship

When asked about their awareness of censorship, all interviewees claimed that they were aware of it. When further asked what kind of the news or information would be censored in China, 34 interviewees responded that politically sensitive news would be censored, and 10 added that morally inappropriate content would be censored as well. “*News that speaks unfavorably of the government and the PGD² content would be censored*” (P16). Eight interviewees believed that the purpose of censorship was also to filter out fake news, e.g., “*many news outlets, especially the private ones, tend to publish catchy news with unverified content. Censorship is there to filter out the fake ones*” (P18).

Attitudes toward Censorship

Thirty interviewees reported mixed feelings about censorship in China. On one hand, they claimed that censorship had positive sides, such as filtering unhealthy content for kids and stabilizing the society. Most interviewees believed that it was acceptable for the government to control some news to maintain the stability of the country, e.g.,

“Sometimes the truth is not very important. For a country like China, stability is the most important thing, because if it is chaotic, it will be difficult to control its profound impact on all the people. In China, the population is so large, with a lot of people with low education and literacy. The truth can be reported, but for many people, they cannot judge which is the truth.” (P31)

On the other hand, several participants acknowledged that the government seems to have taken censorship too far. “*With little effort, some Chinese people could be incited to violence. In some way the censorship is necessary. However, I had to admit the government’s grip is a little too tight*” (P13) and “*I think I don’t really want to see this [censorship], but I don’t think we can control it because it involves more sensitive topics. I personally hope that the speech is more free*” (P32).

“If they [the government] are really confident, they may integrate both positive and negative views. ... But I feel that there is indeed a problem now, especially in China where few people can judge independently. Most people are following others’ viewpoints blindly. They need someone to be the gatekeeper for information.” (P31)

²a shorthand for pornography, gambling, and drug abuse, commonly seen as morally inappropriate content on social media in China.

Based on our analysis, 12 participants were supportive of censorship over all, and 15 were against it. The rest of the interviewees (17) did not express a strong opinion. Some reported that they either never thought about this problem or they believed their opinion would not change the current system, “*I honestly don’t care. My attitude doesn’t matter. It is not likely I can change the system*”(P10).

Effects on News Credibility

Perceptions of the effect of censorship on the news credibility can be split into three groups: more credible (18), less credible (4) and unaltered credibility (22).

Participants whom we categorized into the “more credible” group claimed that news that passed censorship would be more credible as it was looked at by some censors, usually officials tasked with examining material prior to its release. They believed that if there was some falsified information or inappropriate content in news, it would be edited out by the censors, e.g., “*I tend to trust the news released by a platform with stricter censorship because the censorship was carried out by an authoritative organization.*” (P10) and “*I think what the government allows us to see is mostly true, although some true information is blocked*” (P23).

Participants in the “less credible” group noted that redaction and selective reporting would undermine the credibility of the news and deprive readers of the rights of knowing the truth, e.g., “*I feel that government would only allow ‘safe news’ be released on social media. Because of that, people become ignorant of what is actually happening in our country*” (P9) and “*Sometimes I feel like censorship is just to filter out negative news for some party of interest, like those with ties to the government*” (P6).

Some participants in the “unaltered credibility” group believed that censorship does not guarantee the veracity of the information, because censorship operates based on the social impact of information but not the veracity of it. These interviewees believed that news with large and negative social impacts tends to be censored, no matter whether it is true or not, e.g., “*Censorship reflects how impactful some news is, regardless of its veracity. Therefore, a social media platform with tighter censorship would not appear more trustworthy to me*” (P16).

Circumventing Censorship

Only 14 interviewees would use VPNs to circumvent censorship. Several interviewees especially those who have children or care about social events/incidents, were aware of several examples of censorship (e.g., the tragedy of a man harmed several pupils with a knife in Beijing). They remarked that they would like to know follow-up information but had no means to do it. Even using a VPN to access blocked websites would not give them information of good quality, because they claimed that most news from foreign websites was just a copy of the banned article they already read, and little follow-up information was available, even outside of the Great Fire Wall.

Nine interviewees noted that foreign media were also biased based on their experience with exposure to foreign media through the use of VPNs, e.g., “*Sometimes you don’t know*

whether the information of foreign media is true or not. Sometimes, some foreign media will smear China, and then some people will support China. There are very few neutral views.”

For our interviewees, even with the willingness and technological ability to circumvent censorship, seeking objective and in-depth report for censored events or topics remains difficult.

DISCUSSION AND IMPLICATIONS

Our interviews exposed the complicated, multi-faceted and often conflicting ideas that our participants had about the information landscape in China. We discuss several implications and potential takeaways from our findings around perceptions of fact checking, astroturfing and trust in this environment.

A number of these factors suggest what we called in the title “the government’s dividend”³: how low-quality information, often directed by the government, strengthens support and perceived need for government intervention and censorship. These factors also suggest that government interventions on social media, i.e., astroturfing and censorship, could have significant long-term effects that shift people’s values and trust over time.

The Inconvenient Risk of Astroturfing

Recent work has reported evidence that the Chinese government is using astroturfing strategically to distract the public [17], and of ‘50c party’ members who voluntarily speak for the Chinese government in online spaces [12]. The existence (or non-existence) of astroturfers confuses most people in China, and our participants were not different: over half of the interviewees were not confident about the existence of astroturfers organized by the government. Even if they believed astroturfing existed, participants were split regarding their support of the practice, as well as their ability to reliably detect or distinguish it from other low-quality content.

Our results show that astroturfing makes some participants doubt the literacy of the Internet users and fear that they could be easily swayed to join actions that cause social instability. Hence, astroturfing indirectly increases some people’s pro-moderation, or even pro-censorship, views. Some other participants rationalized and considered organized astroturfing by the government as “normal”, and even held supportive attitudes towards it. In general, these conflicting and challenging positions show the powerful workings of attention flooding, or producing excessive information that sows doubt and confuses, that in turn may call for even more control and “order” by the government. Astroturfing reinforces some people’s belief that stability is important for the society [9], which aligns with the goal of censorship – silencing collective expression [15].

Trust through a Black Box

Interviewees drew connections between trust in media outlets and censorship, expressing varied, and even contrasting, opinions. This confusion might be due to their non-uniform perceptions and conceptualizations of censorship and its opaque operations [16]. The difference in the perception of how censorship works thus influences how users evaluate the credibility of information that is made accessible to them. Those who

³after the liar’s dividend, see [4].

thought that heavily censored media was less credible would only trust a media outlet if it truthfully presented both positive and negative sides of the society and public affairs. They were worried that platforms with stricter censorship could be too biased and provide a fabricated image of the society and public affairs, which decreased their trust.

Others placed trust on an outlet based on the trustworthiness of each piece of information it presented. Some believed that misinformation and inappropriate content could also be censored alongside politically sensitive information. Some perceived that the information that got censored and its veracity were not directly related, so the strength of censorship would not change their trust towards certain platforms.

Interviewees' mixed feelings toward censorship echoed findings from Kou et al. [19], in that users' attitudes towards censorship in China were more complicated than simply "for" and "against". The findings also aligned with recent empirical literature on the impact of censorship [5]. Some participants viewed censorship as "normal" and did not want to investigate censored information as they did not care that much, which echoes the findings of Wang et al. [37], Wang et al. [35], and Chen et al. [5]. Our findings complement this line of research by providing a nuanced understanding of how users' perceptions on censorship influence their evaluation of information.

The Dilemma of Fact-Checking

The overall passive attitude of interviewees towards fact-checking services suggests that these services have not enjoyed—and are unlikely to exert—strong influence on information consumption practices. Fact checking is far from a panacea, and multiple previous efforts had pointed out some of the challenges and limitations in changing existing beliefs [2, 26, 34, 38]. However, there is some evidence that supports the effectiveness of fact-checking, e.g., using crowd-sourced judgement of news source quality [27], and our interviewees expressed willingness to accept fact-checking at least in some contexts, for example, health-related information.

Our results showed that our participants do not embrace fact-checking services because they have confidence in their judgement. This finding could be due to the urban, middle class, and highly educated demographic that we interviewed, as some members of this group could think that only people who were their parents' age or older are 'gullible' and could benefit from fact-checking. While previous research supports the idea that the highly educated groups possess stronger abilities to identify political misinformation [22], and that it is associated with cognitive abilities [28], it is nonetheless interesting to understand whether their self-perceptions match actual abilities to judge information pertaining to more domain-specific knowledge, such as food safety and financial policies.

Other participants were more concerned with fact-checking relevant to their daily lives, which was not well covered by existing services. This attitude aligns with the observations of Flinham et al. [7], wherein users only want to make the effort to discern misinformation if the news is relevant or interesting to them. This need presents an obvious challenge, where the resources needed to provide relevant fact-checking in that

scale are significant, and we are still far from having reliable automated fact-checking [13] and fake news detection [31] services.

Fact-checking services have so far failed to make a large impact also because they do not gain enough trust from the potential users. As Brandtzaeg et al. [3] found, journalists, out of professionalism, do not want to blindly trust these services, and social network users are skeptical towards their abilities and lack of transparency. Our interviewees also displayed low trust towards third-party fact-checking services but high trust towards government- or academic-institution-backed ones, considering them to be more authoritative. This can be explained by users in Chinese contexts generally having high trust towards the government and public institutions [29]. These expectations set high standards and leave options scarce, especially in this age of declining media trust [29].

Limitations

This research has several limitations. Although we attempted to recruit a diverse set of interviewees, the sample population leaned towards the middle-class, highly-educated, and urban group. Our findings may not be immediately generalizable to other demographics in China. Further, because of the existence of opinion guidance in China [37], some people who were hired by the government may have provided biased answers to our interview questions. Further, interviewees may not have disclosed some sensitive information or true feelings towards sensitive topics, and our sample could have been hindered by people who were a-priori unwilling to discuss related matters. Using alternative methodologies to triangulate the findings should be considered in future work.

CONCLUSION

Through interview-based studies with Chinese citizens, this work explores how Chinese citizens perceive misinformation in social media environments where government interventions such as censorship, governmental and commercial astroturfing co-exist with official and third-party fact-checking services. The results demonstrate that social media users in China are aware of and encounter misinformation in their daily life, though they pay more attention to misinformation that is relevant to their daily life. We also reveal interviewee's diverse understanding of censorship and their various attitudes towards it. Participants showed more trust in official fact-checking services over third-party ones. Most participants were aware of astroturfing, however, they had different perceptions of the impact of astroturfing. The difficulty of distinguishing astroturfers from ordinary social media users creates challenges for those users who want to hear true voices in the public sphere. These users' impression from seeing many low-quality comments on social media can potentially lead to increases in pro-moderation or pro-censorship views. This study is a first step in looking at misinformation problem in such complex social media environment different from Europe or North America.

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