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Are You Always Ignoring Attitude-Challenging Messages? Eye-Tracking Selective Exposure on Chinese' Lowly Involved News Consumption

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Abstract

This study employs a pre-post-test design to investigate the selective exposure behaviors while consuming news with low involvement. The experiment incorporates eye-tracking and self-report measures to explore participants' preferences for attitude-consistent and attitude-inconsistent information. The results of the study indicate that attitude consistency does not serve as the primary determinant of selective exposure; instead, participants demonstrate a stronger inclination towards engaging with a smaller number of posts from a particular perspective. Following their exposure to the news feed, participants display a heightened tendency to read articles with neutral attitudes. In addition, individuals who initially held a particular attitude tend to shift towards a neutral standpoint, particularly when exposed to a mostly-consistent opinion climate. Notably, participants' attitudes do not tend to become radicalized under any opinion climate. The study acknowledges its limitations and proceeds to discuss the implications of these findings.

Keywords: selective exposure; eye-tracking measurement; social media; attitude change; opinion climate

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Introduction

Social media provides users with a vast amount of information and has increasingly become the primary personal venue to news (Boczkowski et al., 2018; Sülflow et al., 2019). Because human information processing capacity is limited, individual have to allocate limited attentional resources on some information and ignore others. This is defined as selective exposure (Knobloch-Westerwick, 2015; Zillmann & Bryant, 1985). Under selective exposure, the information that media users actively choose to consume is believed to have a greater impact on their own attitudes and behaviors (Sude et al., 2019; Zillmann & Bryant, 1985). While selective exposure is common, it is not known if users in different cultural settings, such as Chinese, exhibit the same information selection patterns when faced with different topics.

Drawing upon the Selective Exposure Self- and Affect-Management (SESAM) model, this study investigates the selective exposure behaviors of participants within the domain of non-political social topics, in which individuals exhibit relatively lower levels of involvement. Previous research has primarily focused on participants from countries such as the United States (Garrett, 2009; Westerwick et al., 2023) and Germany (Ohme & Mothes, 2020), where political participation is more prevalent. Consequently, the examined topics predominantly revolved

around political campaigns, refugee policies, and other political issues (Schmuck et al., 2020). However, the phenomenon of selective exposure remains understudied within the Chinese cultural context.

On one hand, China does not experience the same degree of partisan competition, and the general public tends to display limited sensitivity or even aversion to political discussions. Conversely, Chinese individuals exhibit a pronounced interest in social topics. Moreover, Chinese culture upholds the concept of the "golden mean", wherein individuals who demonstrate the ability to consider multiple perspectives are often regarded as fair and trustworthy. The concept of the "golden mean" originates from Confucius and features prominently in Confucianism (Dai & Li, 2019). Its principle is to advocate for moderation and impartiality while opposing both excess and deficiency. Today, the concept of the "golden mean" is often understood as promoting the importance of maintaining a neutral stance and avoiding polarization of views. This principle can be traced back to traditional Chinese cultural practices and contemporary moral codes of conduct (Dai & Li, 2019; Su, 2022; Zhu, 2012). In a way, the pursuit of "golden mean" is the pursuit of self-improvement. Consequently, Chinese participants may differ from their counterparts in other countries concerning selective exposure patterns.

Secondly, previous studies have yielded inconsistent and conflicting findings regarding selective exposure (Coronel et al., 2023; Schmuck et al., 2020; Sülflow et al., 2019). We postulate that the level of participants' engagement with a particular topic significantly influences these outcomes. For instance, high-involvement topics related to race or partisan ideologies tend to activate defensive responses among participants, leading them to selectively seek information that aligns with their preexisting views (Garrett, 2009; Iyengar et al., 2009; Schmuck et al., 2020). Conversely, low-involvement topics, such as technology or health, often motivate participants to pursue knowledge and self-improvement, resulting in the selective exposure to information inconsistent with their own attitudes. These fundamental differences underscore the need to investigate selective exposure within various contexts.

Lastly, the opinion climate, characterized by the information individuals encounter, may exert an additional influence on selective exposure. Unlike previous studies, wherein opinion climates presented a balanced distribution of supportive and opposing information, the diverse opinion climates in reality differ significantly (Coronel et al., 2023; Schmuck et al., 2020; Sülflow et al., 2019). Some climates may offer an abundance of information that supports individuals' existing attitudes, while others may provide a surplus of information contradicting their views. Consequently, it becomes crucial to explore the impact of opinion climates on individuals' selective exposure.

Against this backdrop, this study aims to examine how Chinese individuals selectively engage with information under diverse opinion climates when confronted with low-involvement social issues, and the subsequent attitudinal effects arising from these exposure patterns. In terms of methodological advancements, researchers have recently shifted their focus from self-reported measures to behavioral measures, such as eye-tracking techniques, which enable the collection of real-time, objective data from users (Jang, 2014a; Knobloch-Westerwick, 2015; Schmuck et al., 2020). However, previous studies have encountered challenges regarding low ecological validity. For instance, Sülflow et al. (2019) employed eye-tracking technology; however, participants were unable to directly interact with the information they desired to explore. This design, lacking information interaction, compromises ecological validity and may consequently impact the accuracy and reliability of the data obtained.

To address this issue, this study introduces a methodological advancement by combining eye-tracking techniques with self-reporting methods (Bucher & Schumacher, 2006; Chen et al., 2019; Clay et al., 2013; Coronel & Sweitzer, 2018; Simko et al., 2019; Zillich & Kessler, 2019). This integration of approaches allows for a more comprehensive understanding of participants' selective exposure behaviors, ensuring a more accurate and reliable representation of their information engagement.

Topic Involvement and Selective Exposure

According to SESAM, media users select messages to manage and regulate their self-concept, as well as their affective and cognitive states and behaviors (Knobloch-Westerwick, 2015). One of the motivations behind message selection is self-consistency, where individuals tend to choose messages that align with their self-view. This has been supported by empirical studies on political topics (Westerwick et al., 2023). Another motivation is self-enhancement, where individuals prefer positive portrayals of their in-groups and negative portrayals of out-groups (Appiah et al., 2013; Hart et al., 2020; Knobloch-Westerwick & Hastall, 2010). Research on racial and partisan ideologies, as well as gender equality issues, has shown that individuals tend to spend more time consuming

attitude-consistent information rather than attitude-inconsistent information (Schmuck et al., 2020; Rubin et al., 2014; Westerwick et al., 2023). A third motivation is self-improvement, which refers to the desire to develop, grow, and realize one's potential (Markus & Wurf, 1987). This is reflected in messages about selective exposure to health-promoting behaviors (Knobloch-Westerwick & Meng, 2011), as well as messages that present an idealized and achievable image of body shape (Knobloch-Westerwick, 2015).

For this study, we assume that Chinese participants, when faced with low-involvement social topics, do not limit themselves to selective exposure to information that is consistent or inconsistent with their attitudes, but rather to more balanced and comprehensive information. There are two specific reasons for this: on the one hand, low-involvement topics do not affect participants' core values, such as racial-ideological politics, and do not activate participants' self-enhancement motivation; on the other hand, the philosophical "Doctrine of the Mean" mentality underlying Chinese thinking may encourage participants' self-improvement motivation and lead to a more comprehensive understanding of the message. If information with a neutral viewpoint is available, participants would prefer information with a neutral position, and if information with a neutral position cannot be directly selected, participants tend to actively balance the information obtained.

In other words, when we examine people's thinking orientation, it is highly possible that people who follows the doctrine of the mean emphasizes the pursuit of balance, moderation, and harmony and this concept may have implications for information consumption and news selection. Individuals may strive to maintain a balanced intake of information, even when they have specific attitudes or beliefs. Rather than exclusively seeking information that confirms their attitudes, individuals may also be motivated to explore attitude-inconsistent information to enhance the overall balance and diversity of their information intake especially when low-involvement issues are at stake.

Opinion Climate and Selective Exposure

The online information environment is diverse, providing individuals with varying opinion climates. Previous studies have often presented participants with an equal distribution of supportive and opposing information, disregarding the fact that internet users encounter different opinion climates in reality (Coronel et al., 2023; Schmuck et al., 2020; Sülflow et al., 2019). These climates may consist of information that predominantly aligns with participants' attitudes, opposes their attitudes, or encompasses a mixture of both perspectives. Therefore, it becomes imperative to investigate how participants selectively engage with information under different opinion climates.

The extent to which participants perceive psychological stress induced by the opinion climate is contingent upon their level of involvement in the topic at hand (Johnson et. al., 2020; Schmuck et al., 2020). Participants who possess a deeper involvement in a particular topic tend to be more sensitive to the psychological stress arising from the informational opinion climate. For example, for those who have strong political attitudes or political identities, they can experience greater cognitive dissonance if they themselves select information that is inconsistent with their attitudes. Conversely, participants with minimal or no involvement in a topic are less likely to perceive psychological stress resulting from the opinion climate. Given that Chinese participants embrace the concept of the golden mean, it is hypothesized that they are less likely to be influenced by the opinion climate surrounding low-involvement topics. Self-improvement motivation would motivate participants to obtain more balanced information. The present study aims to test this hypothesis.

In the realm of social media, information is typically presented in a folded manner, allowing users to sequentially scan and filter information of interest. When users encounter intriguing content, they can click on it to access further details, typically by clicking the "Full Text" button. Ohme and Mothes (2020) differentiated between two stages of selective exposure based on this behavior. First-level selective exposure refers to the attention devoted to a post while browsing a general news feed, while second-level selective exposure involves clicking on a post and engaging with the linked content. During first-level selective exposure, participants peruse information to obtain the fundamental viewpoint of a post. They may quickly skim several posts to understand their basic perspectives, without delving deeper into the presented content. However, individuals may also subconsciously pay more attention to specific types of posts. Hence, empirical evidence is necessary to confirm which hypothesis is more consistent with an individual's actual reading process, leading to the development of RQ1.

RQ1: During first-level selective exposure, how does opinion climate and congruence of posts with participants' attitudes affect browsing probability and exposure time?

Second level exposure is closely related to attitudes. Following participants' initial browsing of the posts, they are able to grasp the fundamental viewpoints presented in each post. At this stage, the clicked posts and the time spent on these posts may reflect participants' information preferences. In line with the self-improvement hypothesis, we hypothesize that participants engaging in second-level selective exposure by actively clicking on specific information to "balance" their information intake. If the number of posts supporting and opposing participants' attitudes is equal, we anticipate an equal probability of participants clicking on both types of information. However, if the number of posts supporting one side of the attitude is limited, we expect participants to proactively click on the posts representing the minority perspective to attain a more comprehensive understanding. Consequently, participants would disregard the opinion climates and focus exclusively on minority posts to acquire a broader range of information. Building on these observations, we propose the following research hypothesis:

H1: In the second level of selective exposure, participants: (a) in mostly-consistent opinion climates, exhibit a higher likelihood of clicking on and spending more time reading posts with inconsistent attitudes; (b) in mostly-inconsistent opinion climates, display a higher likelihood of clicking on and spending more time reading posts with attitudes consistent with their own.

Neutral Information and Selective Exposure

In a typical online setting, information can take on attitude-consistent, attitude-inconsistent, or neutral positions. However, most studies have only presented participants with information framed in opposing viewpoints, imposing a choice between the two (Coronel et al., 2023; Schmuck et al., 2020; Sülflow et al., 2019). On the one hand, some studies' information settings possess low ecological validity and fail to replicate genuine online environments. On the other, there are few studies that take into account of participants' cultural tendencies. As Chinese individuals promote the golden mean, and try to avoid extremes. They may prefer information with neutral perspectives that could better serve their information needs (Su, 2022; Zhu, 2012). Therefore, we hypothesized that participants would prefer neutral information when given attitude-consistent, attitude-inconsistent, and neutral information simultaneously.

H2: When presented with attitude-consistent articles, attitude-inconsistent articles, and neutral articles, participants will be more likely to click on the neutral articles and spend more time reading them.

Selective Exposure and Its Attitudinal Effects

As explained earlier, participants' level of involvement in the topic affects their motivation to access information, and different motivations can determine different patterns of selective exposure for participants, which can also produce different subsequent attitude effects. i.e., reinforcement of attitudes (Knobloch-Westerwick, 2015). For high-involvement topics, some researchers rely on the explanation given by the reinforcing spiral model proposed by Slater (2015), which emphasizes the role of group identity maintenance in media uses and effects. if participant's self-enhancement is activated, participants' pre-existing attitudes channeling selective exposure toward attitude-consistent messages, which in turn strengthens these attitudes (Knobloch-Westerwick, 2012, 2015).

However, when it comes to low-involvement topics, participants may activate either self-consistency motivation or self-improvement motivation. Cognitive dissonance theory suggests that when individuals encounter information that contradicts their existing attitudes, it elicits psychological discomfort (Festinger, 1957; Seargeant & Tagg, 2019). If participants are unwilling to tolerate this cognitive dissonance, they may avoid exposure to attitude-inconsistent information, resulting in no significant change in their attitudes. However, Chinese participants, influenced by the concept of the golden mean, may inclined to showcase their fairness by seeking balanced information. Consequently, participants are more likely to activate self-improvement motivation, leading them to be open to attitude-inconsistent information and actively seek a more balanced perspective. Thus, it is anticipated that participants would be expected to adopt a more moderate stance when exposed to newsfeeds that predominantly align with their negative views, as radicalization of thought is not commonly accepted in Chinese culture. This leads to H3:

H3: Participants will become more moderate in their attitudes after exposure to newsfeeds that exhibit an overall bias towards their negative views.

However, if participants are presented with a newsfeed containing mostly or exclusively supportive posts, will their attitudes become more radicalized? To answer this, we propose RQ2.

RQ2: After exposure to a newsfeed with mostly-consistent or fully-consistent attitude climates, do participants' attitudes become more radicalized, or remain the same?

In addition, the study is curious if attitude changes, if any, remain stable over time. In other words, if the attitude of the participants has changed after exposure to certain kind of newsfeeds, would that change continue to sustain? Accordingly, we proposed RQ3.

RQ3: After one week of exposure to a newsfeed with different attitude climates, do participants' attitudes become more moderate, more radicalized, or remain the same?

Methods

Design, Procedure, and Participants

Design

This experiment employed a 3 (Opinion climates: mostly-consistent/half-consistent/mostly-inconsistent) × 2 (Post types: attitude-consistent/attitude-inconsistent) two-factor within-subject experimental design. In terms of the independent variable of opinion climates, the first level represented mostly-consistent opinion climates, wherein the newsfeed consisted of 8 posts that supported participants' attitudes and 2 posts that opposed participants' attitudes. The second level denoted half-consistent opinion climates, featuring 5 posts supporting and 5 posts opposing participants' attitudes. Finally, the third level presented mostly-inconsistent opinion climates, comprising 2 posts supporting participants' attitudes and 8 posts opposing participants' attitudes. The dependent variables included the eye movements data, to indicate selective exposure and information reading behavior, collected during the information viewing and the questionnaire scores measuring attitude as answered by the participants.

Procedure

The experimental process was divided into three parts. The first part was the pre-test. Questionnaires were used to collect participants' preexisting attitudes on different topics and their interest in the topics. For example, we measured in the pre-test whether participants support the idea that "marriage requires a good match" and the level of interest in the topic. The second part was the formal experiment. After entering the laboratory, participants first signed the research consent form. Then, they sat in front of a computer in a comfortable position, and their eyes were flushed with the center of the computer screen, at a distance of about 50cm. In the experiment, the 5-point calibration method was used to calibrate and validate the eye-tracking instrument. Four points in the 5-point calibration method were located on the diagonal of the screen, each point was close to a diagonal of the screen, and the fifth point was in the center of the screen. Participants were asked to read a fictitious Weibo news feed. Afterward, they answered questions about selective perception and attitude toward the topic. Then, the next trial was repeated until participants had read all the newsfeeds and answered the corresponding questions. The eye-tracking experiment lasted about 20 minutes. The third part was the post-test. The first post-test was performed on the day of the lab experiment, and the second post-test was performed 7 days after the lab experiment. At the end of the post-questionnaire, the participants were informed of the purpose of this study. The data were collected in April 2021.

Participants

G*Power 3.1.9 software was used to estimate the required sample size, which showed that at least 28 participants were required to reach the 95% power of test statics for this within-subject design (Faul et al., 2007). A total of 107 college students (43.9% male, aged 18–26) were recruited from a southern Chinese University. All participants had normal vision and hearing and did not wear frame glasses or contact lenses. After the experiment, each participant would receive RMB 10 Yuan (about 1.5 US$) as an experimental reward.

Apparatus

Tobii T60 eye-tracker was used in the experiment. The experimental material was displayed on a 24 inches computer display. Eye movements were recorded using a sampling rate of 60 Hz. Participants' gaze behavior was recorded and analyzed by Tobii Studio software.

Stimulus Material

To ensure the ecological validity of the experiment, on the one hand, we created a specifically programmed website after a template by *Sina Weibo*, one of the most popular websites, using JavaScript and MySQL to meet the real-time interaction needs of participants; on the other hand, all the research topics and user comments were taken from the real-world content of *Sina Weibo*. The newsfeed resembled the typical layout of a *Weibo* news feed. On the experiment page, participants could open the corresponding posts by clicking the "Full Text" button and the hyperlink of the related article title. To avoid the influence of information sources, avatars, reposts, and likes that might affect the judgment of participants, we replaced the source name with "Anonymous User", and the avatars with landscape paintings (Sülflow et al., 2019), and deleted the number of reposts and likes. The researcher also informed the participants that the removals were to protect the privacy of the publisher.

Topic Selection

We selected 6 topics, including 1 topic for practice and 5 others for experimental use from the top search list on Sina Weibo. In addition, extracted comments from real users on these topics were used for these news items. The topics and some of the views used for the experiments were shown in Table 1.

Table 1. *Stimuli Used for the Study.*

Topics	Some views of the supporters	Some views of the opponents
Does marriage need to be matched	Equivalence of family status is the essence of Chinese marriage, otherwise one person in the marriage will be at a disadvantage.	People in love should not need to consider other factors. Love is about the people, not family status.
Should graduates choose employment within the system of government and institutions?	No matter how old you are, you don't have to worry about unemployment within the system, and work outside the system, although the wages are high, but the cost of living is higher.	If you work in the system, no matter how talented you are, no one cares, and employees in the system may become victims of marketization.
Is it reasonable for Yang Chaoyue (a celebrity with little education but very popular) to settle in Shanghai as a "talent"?	Yang is a talent and Shanghai needs scientific talent as well as celebrity artists.	The evaluation criteria are biased. The benefits given to celebrities far exceed those of scientific talents. No one is willing to seriously invest in scientific research.
Can young people skive while working?	I choose slacks off at work over 996's high intensity work style and occupational diseases, especially when the work does not provide corresponding rewards.	Slacking off in work is not the right way, and hard work is what young people should do. You don't want to be mediocre.
Should young people block their parents in their WeChat circle of friends	Young people block their parents in the WeChat friend circle because they want to distance themselves from their parents and become independent.	Young people shouldn't turn away the people who care about them the most. Parents love you and want to be in your WeChat circle of friends. They only to be closer to you.
Should we support the Hengshui Middle School model where students give up entertainment and get high scores by brushing up on test-taking?	There is nothing wrong with Hengshui High School. It is firmly in the top two in national competitions and provides a way out for poor students.	The educational model of Hengshui High School is flawed in that it deprives young people of the right to entertain themselves and develop hobbies, and shackles their minds.

These topics all met the following requirements. First, each of them bore some degree of controversy; Second, these topics were pertinent to the population of study and they care about these topics; and third, they were in the top ten in terms of popularity on Sina Weibo. In the experiment, the titles and bylines of these topics were expressed neutrally. However, the comments were manipulated to show support or opposition according to the design.

News Feed

Each topic (news feed) contained 10 individual posts and 6 related articles (see Figure 1). Due to screen size limitations, each screen could only present brief information about 4 posts at the same time. However, participants could view all 10 posts by scrolling the mouse wheel. The positions of these ten posts were presented randomly to eliminate sequence effects. When a post was not expanded, participants could browse the title of the post and the first two lines of the body text. Participants would know the main point of the post by reading the first sentence and can decide whether to click and read the full text. After clicking "Full Text", participants could read a post in detail. In addition, the hyperlink titles of 6 relevant articles were placed on the right side of the page. Participants could click the title to open the text. See Figure 1 for details.

To explore the influence of extreme opinion climates on the attitude of participants, we added two additional experimental conditions when collecting data. One was that all 10 posts in the news feed were attitude-consistent posts, it was defined as a completely-consistent opinion climate. And the other was that all 10 posts were attitude-inconsistent posts, it was defined as a completely-inconsistent opinion climate. To avoid repeated exposure of the same participant to the same topic, we designed 10 versions of the experimental procedure according to the Latin square design principle. In formal experiments, each participant used a version of the experimental procedure. The titles and contents of the posts used in the formal experiment were slightly modified based on the real user's post. The number of words in the title was controlled between 14 and 17 words, and the number of words in the text was controlled between 250 and 309 words.

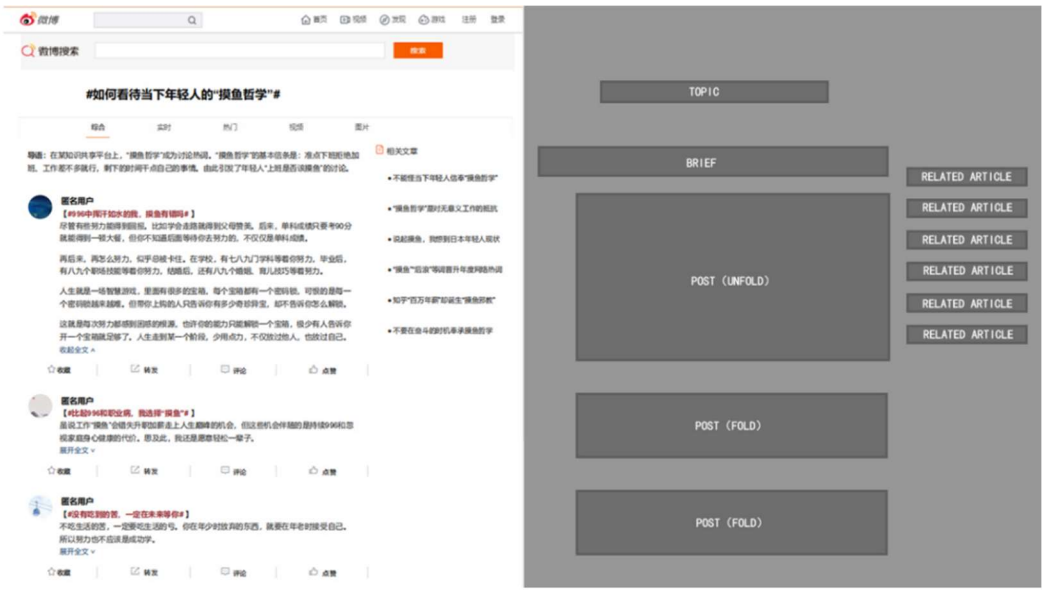
Related Articles

To determine the participants' relative preferences for attitude-inconsistent, attitude-consistent, and neutral articles, we provided six other articles (2 attitude-consistent articles; 2 attitude-inconsistent articles; 2 neutral articles) related to the topic. Participants could actively click a hyperlink of the title to open the full text and read. The locations of these 6 articles were presented in a completely random manner. The word numbers of the title (15–18 words) and text (1,247–1,305 words) were strictly controlled. Referring to the method of Santos (de Los Santos & Nabi, 2019), we placed the position of the related articles' titles at the upper right of the screen.

Stimulus Material Evaluation

To pretest the stimuli, eight college students were recruited to evaluate the experimental materials. After reading the materials related to the topics, the participants were asked "Do you think the views expressed in the topic title /introduction/comment title/post text support 'xxx' " (1 = *Strongly opposed*; 4 = *Neutral*; 7 = *Strongly supported*). The results showed that the scores for topic titles (M = 4.05, SD = 0.32), introductions (M = 4.03, SD = 0.28), attitude-consistent posts titles (M = 6.03, SD = 0.03), attitude-inconsistent posts titles (M = 1.95, SD = 0.03), attitude-consistent posts texts (M = 6.26, SD = 0.03) and attitude-inconsistent comment texts (M = 1.74, SD = 0.03) all met the experimental requirements. The attitude scores of related article titles (M = 4.05, SD = 0.22), attitude-inconsistent article titles (M = 1.70, SD = 0.06), attitude-consistent article titles (M = 5.69, SD = 0.06), attitude-consistent article texts (M = 6.15, SD = 0.07), attitude-inconsistent article texts (M = 1.89, SD = 0.06), and neutral texts (M = 4.03, SD = 0.04) also met the experimental requirements. In addition, participants read the text of the five topics, and answered *Do you think the text of this post has a certain discussion quality?* (1 = *Strongly disagree*; 4 = *Neutral*; 7 = *Strongly agree*). Participants' scores indicated that the discussion quality of the post text (M = 5.55, SD = 0.75) and the related article text (M = 5.43, SD = 0.43) was suitable for the experiment. Overall, the analysis revealed a high degree of agreement among the eight raters, with Krippendorff $\alpha = 0.76$.

Figure 1. *Schematic Diagram of Stimulus Materials.*



Note. The left picture was a sample page, and the right picture was the corresponding areas of interest.

Data Rearrangement. Since it was impossible to determine in advance whether participants' attitudes towards the five topics were consistent with the experimental design, we performed data rearrangement to match the five experimental levels of the independent variables. For example, on the topic of marriage, a participant's pre-test attitude showed that he or she *supported (opposed)* the view that "Marriage needs a good match". If 10 posts/8 posts in a news feed *supported (opposed)* this point of view, then his or her case was adjusted to completely-consistent/mostly-consistent opinion climates. Conversely, if there were 10 posts / 8 posts in the news feeds that *opposed (supported)* the view, then his or her case was adjusted to completely-inconsistent / mostly-inconsistent opinion climates. The data subsequently analyzed were all adjusted data.

Table 2. *Data Rearrangement Rules.*

Opinion climate	Participant's pre-test attitude	Adjusted experimental conditions
10 posts opposing the idea that "Marriage needs a good match"	Participants oppose "Marriage needs a good match"	Completely-consistent opinion climate
10 posts opposing the idea that "Marriage needs a good match"	Participants support "Marriage needs a good match"	Completely-inconsistent opinion climate
10 posts supporting the idea that "Marriage needs a good match"	Participants oppose "Marriage needs a good match"	Completely-inconsistent opinion climate
10 posts supporting the idea that "Marriage needs a good match"	Participants support "Marriage needs a good match"	Completely-consistent opinion climate
8 posts supporting the idea that "Marriage needs a good match"	Participants support "Marriage needs a good match"	Mostly-consistent opinion climate
8 posts opposing the idea that "Marriage needs a good match"	Participants oppose "Marriage needs a good match"	Mostly-consistent opinion climate
8 posts opposing the idea that "Marriage needs a good match"	Participants support "Marriage needs a good match"	Mostly-inconsistent opinion climate
8 posts supporting the idea that "Marriage needs a good match"	Participants oppose "Marriage needs a good match"	Mostly-inconsistent opinion climate

Data from 8 participants (3 males) were eliminated from analyses because their sampling rate was less than 80%, which was calculated by distinguishing the number of samples correctly identified as valid eye movement data. To ensure data quality, only the remaining 99 participants (44.4% male, 18–26 years old) were included in all analyses.

The core results of this study included eye-movement data results and attitudinal effects. The eye-movement data mainly examined the presence or absence of selective exposure in the three stages of first- level selective exposure, second- level selective exposure and further information need of the participants. Attitude effects included participants' immediate attitude effects and attitude effects after one week.

Control Variable Analysis. A 7-point Likert scale was used to examine the participant's interest in the experimental topic, *How interested are you in the topic 'xxx' ?* (1 = *Very disinterested*; 4 = *Neutral*; 7 = *Very interested*). There was no difference in the degree of interest (M = 4.83, SD = 1.21) of the participants in the 5 topics, $F(4, 490) = 2.05$, $p = .087$.

Selective Exposure. Before exporting eye movement data from the eye-tracker, it is necessary to map the eye movement area of interest, and correct the exported raw data to perform statistical analysis.

Mapping Eye Movement Areas of Interest (AOIs). Participants' varying interest levels in posts resulted in diverse reading patterns. The experimenter couldn't predict participants' eye movement trajectories before the experiment. Consequently, during the data analysis phase, the experimenter had to determine the Areas of Interest (AOIs) based on each participant's response after data collection, which enabled the derivation of eye movement data.

After data collection, the eye-tracker automatically generated a video of the eye movements. Using the look-back function, the experimenter could examine the posts participants read and clicked on. Additionally, the starting moments when participants opened the posts were obtained. These starting moments were then used to activate the AOIs. If a participant read a post and subsequently collapsed it, the moment of collapsing marked the end of AOI activation. Similarly, if a participant shifted their focus to another post without collapsing the current one, this was recorded as the end moment of AOI activation. Figure 1 depicted the size and location of the AOIs but did not indicate the start and end moments of AOI activation.

In Figure 1, the first post was displayed in an open state, allowing participants to view the full text, approximately nine lines. The remaining posts were collapsed, displaying only three lines of text. Regarding related articles, clicking on hyperlinks opened a full page, which served as a single AOI. The AOI activation spanned from the moment the page was opened until it was closed. To exclude accidental touches, only data from participants who stayed on the full-text page for more than one second was considered.

Selection of Eye Movement Indicators. According to the eye-mind assumption (Just & Carpenter, 1980), browsing (clicking) probability and reading time reflected how much attention participants invested in different information. In this experiment, each post was initially in the collapsed state. Following Ohme and Mothes (2020), we defined the stage at which participants read the collapsed post as first-level selective exposure. when participants were interested in the content of this post and clicked "Full Text" button to open the post, this reading stage was defined as second-level selective exposure

Browsing probability and average browsing time were the data indicators we used in first-level selective exposure, and click probability and average reading time were the data indicators we used in second-level selective exposure. Let's take an example to explain the method of data analysis. Suppose in a newsfeed, there were 8 posts supporting the participant's attitude and 2 posts opposing the participant's attitude. If the participant viewed 4 posts supporting his attitude and 2 posts opposing his attitude in the first-level selective exposure. Then the probability of the participant viewing posts supporting and opposing his or her attitude was 4/8 = 50% and 2/2 = 100%, respectively. The reason for correcting the data in this way was as follows: if the participant viewed the posts randomly, then one would expect the probability of the participant viewing the two types of posts to be 8/10 = 80% and 2/10 = 20%, respectively. Although the number of posts viewed by the participant in both categories was 2, the participant was more likely to choose posts that were opposed to his or her attitude than the random state. At this point, the absolute number of posts viewed by the participant in a particular category and the absolute time spent viewing them were not very meaningful.

Similarly, the average browsing time was calculated by dividing the total browsing time of the participants in the first stage (e.g., the time spent on attitude-consistent posts) by the total number of such posts (8 attitude-consistent posts). In the second-level selective exposure, we used average reading time to distinguish it from the average browsing time in the first stage, and the data were analyzed in the same way. In contrast, in the study by Sülflow et al. (2019), the experimental stimuli used contained an equal number of pro- or anti-posts, then the absolute reading time was meaningful and can be directly used to measure the participants' selective exposure.

Table 3. *Browsing Probability and Average Browsing Time of Participants in Different Stages (M±SD).*

Opinion climate	Post type	First-level selective exposure		Second-level selective exposure		*n*
		Browsing probability	Average browsing time (s)	Click probability	Average reading time (s)	
Mostly-consistent condition	Supporting	0.92±0.18	1.49±0.96	0.44±0.28	5.01±3.89	54
	Opposing	0.88±0.29	1.66±1.35	0.56±0.41	3.93±4.59	
Half-consistent consistency	Supporting	0.89±0.19	1.44±1.02	0.49±0.31	5.13±4.42	76
	Opposing	0.88±0.29	1.38±0.90	0.48±0.31	4.58±4.49	
Mostly-inconsistent condition	Supporting	0.93±0.19	1.43±0.99	0.62±0.33	4.97±4.19	73
	Opposing	0.90±0.15	1.45±1.00	0.40±0.27	4.70±4.14	

Results

First-Level Selective Exposure

RQ1 wonders if individuals who engage in first-level selective exposure may opt to quickly review the fundamental concepts in various postings without delving into their specific details, or if these same individuals may unconsciously focus greater attention on certain posts that align with their beliefs. To evaluate the genuine reading behaviors of participants, the study utilizes browsing probability and average browsing time as indicators.

Browsing Probability

A two-factor within-subjects ANOVA was performed on the browsing probability data, and it found that the main effect of opinion climate was not significant, $F(2, 200) = 0.20$, $MSE = 0.06$, $p = .821$. The main effect of post type was not significant, $F(1, 200) = 2.35$, $MSE = 0.02$, $p = .127$. The interaction was not significant, $F(2, 200) = 1.43$, $MSE = 0.02$, $p = .241$.

Average Browsing Time

A two-factor within-subjects ANOVA was performed on the average browsing time data and found that the main effect of opinion climate was not significant, $F(2, 200) = 0.47$, $MSE = 1.87$, $p = .623$. The main effect of post type was not significant, $F(1, 200) = 0.67$, $MSE = 0.26$, $p = .415$. The interaction was not significant, $F(2, 200) = 1.63$, $MSE = 0.26$, $p = .198$.

The results showed that there was no difference in the attention resources that participants invested in posts that supported or opposed their attitudes at First-level selective exposure. That's to say, participants in first-level selective exposure only skimmed the general ideas presented in the various posts and did not analyze the specifics of the content.

Second-Level Selective Exposure

Hypothesis 1 proposed that participants: (a) in mostly-consistent opinion climates, exhibit a higher likelihood of clicking on and spending more time reading posts with inconsistent attitudes; (b) in mostly-inconsistent opinion climates, display a higher likelihood of clicking on and spending more time reading posts with attitudes consistent with their own. We used clicking probability and average reading time as indicators.

Clicking Probability

A two-factor within-subjects ANOVA was performed on the click probability data, and the results found that the main effect of opinion climate was not significant, $F(2, 200) = 0.21$, $MSE = 0.14$, $p = .812$. The main effect of post type was not significant, $F(1, 200) = 2.07$, $MSE = 0.06$, $p = .152$. The interaction between the two was significant, $F(2, 200) = 14.13$, $MSE = 0.06$, $p < .001$, $\eta^2 = .124$. Simple effect analysis found that under mostly-consistent conditions, the probability of participants clicking on attitude-inconsistent posts ($M = 0.56$, $SD = 0.05$) was significantly higher than the probability of attitude-consistent posts ($M = 0.44$, $SD = 0.04$;

$P_{\text{attitude-inconsistent posts}} > P_{\text{attitude-consistent posts}}$, p = .018). Under mostly-inconsistent conditions, the probability of participants clicking on consistent posts (M = 0.62, SD = 0.04) was significantly higher than that of inconsistent posts (M = 0.40, SD = 0.04; $P_{\text{attitude-inconsistent posts}} < P_{\text{attitude-consistent posts}}$, p < .001). Under half-consistent conditions, there was no significant difference in the probability of participants clicking on the two types of posts (p = .796).

Average Reading Time

A two-factor within-subjects ANOVA was performed, and the results showed that the main effect of attitude agreement was not significant, $F(2, 200) = 0.20$, $MSE = 29.18$, $p = .823$. The main effect of post type was not significant, $F(1, 200) = 1.86$, $MSE = 7.83$, $p = .175$. The interaction was not significant, $F(2, 200) = 1.70$, $MSE = 7.83$, $p = .186$.

The results showed that at Second-level selective exposure, the criterion for which types of posts participants were more likely to read was not based on whether these posts supported their attitudes, but on which side had fewer posts. That is to say, participants were more interested in reading attitude-inconsistent posts in mostly-consistent conditions, and attitude-consistent posts in mostly-inconsistent conditions. Hypothesis 1 of the study was partially verified, i.e., participants would click on the posts on the side with the lower number, but there was no difference in the average reading time.

Further Information Behaviors

Hypothesis 2 proposed that regardless of climates, Chinese participants were more likely to click on the neutral articles and spend more time reading them, which were measured with clicking probability and averaging reading time.

Click Probability

A two-factor within-subjects ANOVA was performed on the click probability data of participants reading related articles. The results showed that the main effect of opinion climate was not significant, $F(4, 333) = 0.68$, $MSE = 0.14$, $p = .608$. The main effect of the type of the related article type was significant, $F(2, 666) = 4.87$, $MSE = 0.11$, $p = .008$, $\eta^2 = .014$. The interaction was not significant, $F(8, 666) = 1.32$, $MSE = 0.11$, $p = .229$. According to the results of pairwise comparison analyses, the probability of participants clicking on neutral articles (M = 0.35, SD = 0.02) was higher than the probability of clicking attitude-consistent articles (M = 0.28, SD = 0.02; $P_{\text{neutral articles}} > P_{\text{attitude-consistent articles}}$, p = .007) and significantly higher than that of attitude-inconsistent articles. (M = 0.28, SD = 0.02, p = .007; $P_{\text{neutral articles}} > P_{\text{attitude-inconsistent articles}}$, p = .007). There was no difference in the probability of participants clicking on attitude-consistent articles and attitude-inconsistent articles ($P_{\text{attitude-consistent articles}} = P_{\text{attitude-inconsistent articles}}$, p = .968).

Average Reading Time

A two-factor within-subjects ANOVA was performed on the average reading time of related articles. The results showed that the main effect of attitude agreement was not significant, $F(4, 333) = 0.84$, $MSE = 268.96$, $p = .500$. The main effect of the related article type was not significant, $F(2, 666) = 1.80$, $MSE = 171.29$, $p = 0.167$. The interaction was not significant, $F(8, 333) = 0.89$, $MSE = 171.29$, $p = .523$.

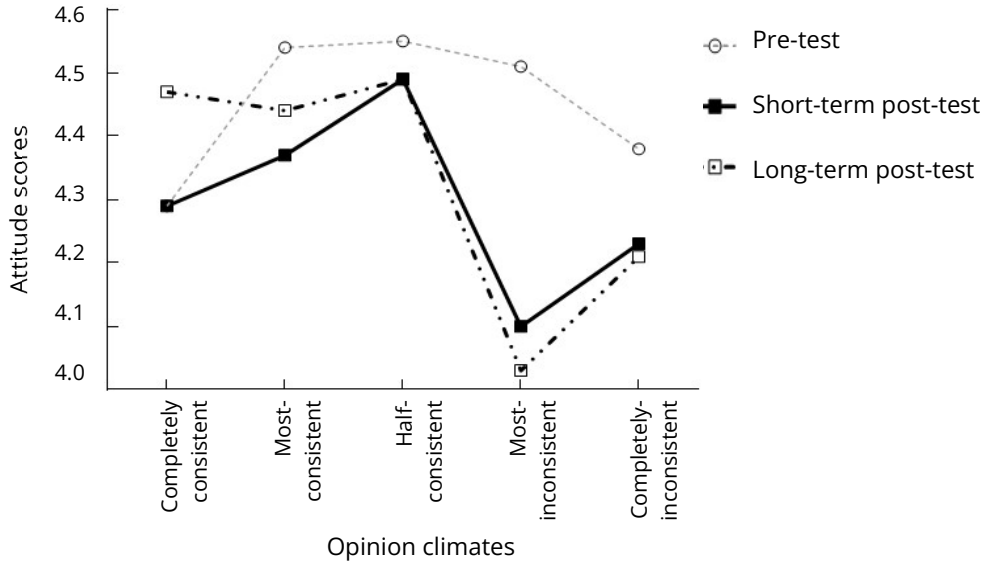
In conclusion, no matter what opinion climates of news feed participants were exposed to, participants were more likely to read neutral articles next. The results partially supported study hypothesis 2 that participants were more likely to read articles with neutral attitudes, but there was no difference in the average reading time for individual articles.

Attitudinal Effects

Hypothesis 3 stated that participants would become more moderate in their attitudes after exposure to newsfeeds that exhibit an overall bias towards their negative views. We also presented RQ2 to explore whether participants' attitudes become radicalized after exposure to mostly-consistent or fully-consistent different opinion climates in newsfeeds, as well as RQ3 for a longer term effect of radicalization.

A total of three tests were conducted in the experiment. The first was a pre-test, the second was a short-term post-test, which took place immediately after the participants were exposed to a news feed, and the third was a long-term post-test, which took place one week after the experiment (see Figure 2). Analysis of variance was performed on the attitude data. The results showed that the attitude of the participants only changed under the mostly-inconsistent conditions, $F(2, 116) = 5.35$, $MSE = 0.935$, $p = .006$, $\eta^2 = .084$. The post-inspection showed that the pre-test attitude score was significantly higher than that of the second post-test scores ($p = .008$; $p = .007$), and there was no difference between the two post-test scores ($p = .961$). Under all other opinion climates, the scores did not change. The results answered RQ2, that participants' attitudes remained stable and did not experience radicalization in the completely-consistent opinion climates and the mostly-consistent opinion climates. The results answered RQ3, which showed that the participants' attitudes did not change immediately after viewing the completely-inconsistent newsfeeds and the most-inconsistent newsfeeds. But after viewing the mostly-inconsistent newsfeeds, participants' attitudes became moderated a week later, which supported our research question.

Figure 2. *Attitude Scores in Different Periods Under Different Opinion Climates.*



Discussion

This study employed a pre-post-test design to investigate the selective exposure behaviors of individuals during low-involvement news consumption. The findings contribute to the ongoing research on the impact of social media on attitude-consistent information behaviors. Prior research has suggested that selective exposure, driven by attitude consistency, may lead users to encounter information aligned with their attitudes, potentially limiting their exposure to diverse perspectives (Bakshy et al., 2015; Möller et al., 2018; Nguyen et al., 2014), thereby fostering one-sided or radicalized views. However, these conclusions may not hold true for Chinese individuals when engaging with low-involvement topics.

This study discovered that Chinese participants were more inclined to read messages with a neutral standpoint rather than those with an attitudinal bias. In the absence of directly neutral information, Chinese participants aimed to maintain a balance in their information intake. Regarding the subsequent attitudinal effects of selective exposure, exposure to completely consistent and mostly consistent newsfeeds did not radicalize the attitudes of Chinese participants; their attitudes remained unchanged. In contrast, exposure to mostly inconsistent newsfeeds did not produce immediate changes in attitudes, but instead led to a more moderate stance after one week. This finding aligns with the Chinese cultural characteristic of promoting the golden mean.

The study supported the existence of selective exposure based on attitude consistency, but this tendency only manifested in second-level selective exposure. Individuals did not demonstrate bias toward information consistent with their attitudes but instead paid attention to "minority" information. In other words, when viewing mostly inconsistent newsfeeds, participants were more likely to read attitude-consistent posts. Conversely, when exposed to mostly consistent newsfeeds, participants were inclined to read attitude-inconsistent posts. When reading mostly inconsistent newsfeeds, participants' motivation for self-improvement drove them to actively select attitude-consistent posts to obtain a broader range of information. Additionally, cognitive dissonance

resulting from viewing mostly inconsistent newsfeeds stimulated participants to process attitude-consistent posts. However, when viewing mostly consistent newsfeeds, participants' self-efficacy increased, bolstering their confidence in their attitudes and positions. Consequently, the cognitive dissonance arising from viewing a small amount of attitude-inconsistent posts was minimal. Furthermore, participants could persuade themselves as fair-minded individuals by engaging with information inconsistent with their attitudes, thus enhancing the balance of their information intake and fulfilling their self-improvement motivation. These results are consistent with prior studies indicating that individuals actively consume attitude-inconsistent information, enhancing the diversity and balance of their information repertoire (Jang, 2014b; Kessler & Zillich, 2019).

Our results contrasted previous studies examining highly involved political topics. For instance, Schmuck et al. (2020) revealed that highly involved individuals paid more visual attention to political ads aligned with their partisan ideology while avoiding posters from parties conflicting with their political attitudes. This information selection behavior allowed participants to avoid cognitive dissonance while emphasizing their own attitudes.

Previous studies are often conducted in strict lab settings. To investigate selective attention in German participants reading political news posts on Facebook, Sülflow et al. (2019) utilized eye-tracking technology. In their laboratory study, participants were presented with a fictional Facebook newsfeed containing posts either in support of or against German refugee politics. The study found no evidence to support the idea that attitude consistency impacts attention distribution in the news feed. An analysis of the experimental design revealed that the experimental setting may have contributed to the lack of selective exposure observed by the researchers. In the Sülflow et al. (2019) experiment, participants were not able to directly click on the news posts they wished to learn more about. Instead, they were required to indicate whether they wanted to click on a single news post after reading the information and express their willingness to click on a particular news post. This methodology does not align with the actual reading behaviors of internet users. Furthermore, a time lag existed between the moment participants viewed the post and when they self-reported their willingness to click on a particular post. This time gap could have introduced confounding factors such as memory errors, which could have adversely affected experimental reliability. Additionally, the participants' willingness to read a particular message further at different times might have fluctuated or changed, which could have also impacted experimental validity. Our experimental findings do not conflict with the results of this study. Our study found that participants did not show any difference in their viewing behavior of posts that supported or opposed their attitudes during first-level selective exposure. However, our results indicated significant differences during second-level selective exposure.

Differences in experimental tasks result in diverse patterns of information reading behavior among participants. Coronel et al. (2023) utilized eye-tracking technology to investigate the impact of person-to-person communication on the transformation of competitive framing environments. During the experiment, American participants were tasked with observing and retaining storylines containing opposing frames within a 30-second timeframe. Subsequently, they relayed the information from memory to the next person in the chain. The researcher examined the ratio of recalled framed stories during various test sessions. All the stories featured a political event that sparked controversy, with participants favoring one frame while opposing the other. The text has a clear structure and logical progression, with causal links between statements. The results showed that during the 30-second literacy session, participants paid more attention to the message opposing their viewpoints, which contrasts slightly with prior research. However, it is generally more likely that people will remember information that aligns with their own attitudes as opposed to information that challenges their attitudes (Loftus, 1972; Neuschatz et al., 2002; Pertzov et al., 2009). In the study conducted by Coronel et al. (2023), the participants were instructed to recall these messages during their experiment. Participants would have to expend more effort remembering complex storylines that contradict their attitudes. In contrast, in studies where participants were exposed to attitude-consistent political information over attitude-inconsistent political information, the experimental stimuli were presented without time constraints and they had more flexibility to view them. Differences in the experimental task could have modified the participants' behavior regarding information-selective exposure.

Implications

This study offers several significant contributions. Firstly, it addresses a notable gap in the literature, as much of the research on selective exposure predominantly focuses on samples from the United States and Western Europe. By utilizing samples from China, this study provides valuable insights into the generalizability of theoretical

principles and empirical findings across different countries. This broader cross-cultural perspective enhances the understanding of selective exposure phenomena.

Secondly, this study expands the scope of research on selective exposure from highly involved political topics to lowly involved news consumption. It builds upon the work of Ohme (2021) and supports the notion that selective exposure based on attitude consistency is more prominent in the realm of political communication (Knobloch-Westerwick & Meng, 2011), highlighting potential over estimations of such effects in non-political contexts.

Thirdly, this study reveals that when Chinese participants engage with lowly involved news, their selection criteria depend on the potential for achieving information balance rather than simply aligning with their own attitudes. This finding underscores the importance of maintaining a balanced information intake, suggesting that individuals prioritize exposure to diverse perspectives even when the topics may not be highly involving.

Furthermore, this study expands the boundaries of selective exposure by examining two levels of exposure. The incorporation of objective empirical data through the use of eye-tracking technology and questionnaire surveys allows for real-time monitoring of the reading process (Chen et al., 2019). The application of eye-tracking measures not only enables an observation of individuals' overall information consumption but also provides insights into participants' selective exposure at different stages.

Lastly, this experimental study explores the long-term consequences of exposure to incidental and proactively selected counter/pro-attitudinal information on individuals' attitudes. It stands out as one of the few lab-based studies in this domain that investigates the downstream effects on attitudes one week after exposure. Most laboratory studies on selective exposure, when examining attitudinal consequences, primarily focus on immediate effects shortly after message exposure.

In summary, this study contributes to the field by broadening the cultural context, expanding the scope of selective exposure research, emphasizing the importance of information balance, investigating different levels of exposure, and exploring long-term attitudinal effects. Its combination of eye-tracking technology and questionnaire surveys provides a comprehensive understanding of the selective exposure process.

Limitations and Future Research

This research also has several limitations that should be acknowledged. Firstly, the news feed used in the study may not fully replicate participants' normal browsing experience, despite our manipulation efforts and instructions to browse as they would typically do. This discrepancy could potentially influence participants' information selection behaviors.

Secondly, the stimulus material used in this experiment primarily consisted of text, lacking multimedia elements such as pictures and videos that are prevalent on most webpages today. The absence of these multimedia elements may have implications for participants' selective exposure behaviors, as they can play a role in attracting attention and shaping information consumption.

Thirdly, it is important to recognize that selective exposure behaviors may differ across different platforms. The presentation of the same stimulus on various devices, such as computers, mobile phones, and tablet PCs, might lead to variations in how audiences engage with and consume information.

Fourthly, the limited number of posts available for selection in this experiment may have contributed to a phenomenon known as treatment hunt syndrome (Kessler & Engelmann, 2019). Participants may have been inclined to exhaustively search for information within the given options, potentially affecting their selective exposure patterns.

Finally, this experiment did not directly test whether participants activated self-improvement motivation after viewing the newsfeed. Future experiments are needed to verify the mediating effect between the three motivations at different levels of involvement and selective exposure within a single experiment.

In future research, it would be valuable to consider users' attributes, such as personalities, processing styles, and emotions. Previous studies have shown that individuals with different emotional states and personality traits exhibit varying information-seeking behaviors. For instance, angry individuals tend to seek confirmation of their opinions, while anxious individuals may favor opposing opinions. Furthermore, individuals with personality traits such as diligence and carefulness have shown a greater inclination towards consuming multiple streams of information (Sindermann et al., 2020; Wollebæk et al., 2019). Future research could also explore the influence of

cultural environment on participants' selective exposure to different topics by including both Chinese and Western participants in the same experiment and treating cultural environment as an independent variable. This would provide valuable insights into how cultural factors shape selective exposure behaviors.

Conclusion

In summary, the division of the first-level and second-level selective exposure is a step forward in our understanding of the phenomenon. However, different means to measure the constructs, and different studies on selective exposure effects on attitude, perception, and radicalization are in order. Ours provides some evidence of the complexity of such processes. When selective exposure assumes that people tend to read information with consistent attitudes and avoid reading information with inconsistent attitudes, it also assumes that over time, it would result in homogeneity in information and bias in information processing, leading to individuals solidifying or even radicalizing in their attitude. However, the results of this study do not support that hypothesis. Instead, our less subjective evidence suggests that individuals prefer to absorb more diverse information. All these are invitations to more research to unravel the intriguing mechanism of selectivity.

Conflict of Interest

The authors have no conflicts of interest to declare.

Authors' Contribution

Qinqin Tian: conceptualization, methodology, formal analysis, writing—original draft, writing—review & editing, visualization. **Shuhua Zhou**: conceptualization; writing—review & editing, resources, supervision. **Shuyi Gan:** data curation, software. **Guangyao Chen:** supervision, writing—review & editing. **Xin Luo:** visualization. **Tingrong Zhi**: visualization.

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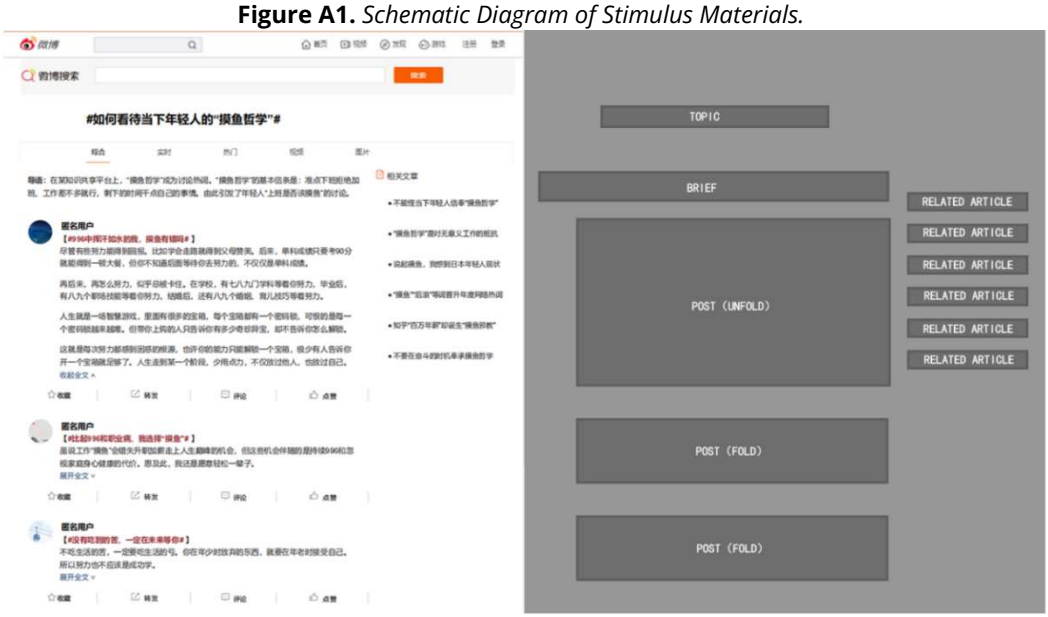
Appendix

Drawing the Interest Area

We want to offer a detailed description of the method used in drawing the interest area. In this experiment, each post was initially in the "collapsed" state, and we defined this stage during which participants read the collapsed post as the first-level selective exposure. When participants were interested in the content of the post and proceeded to click to open the post, this was defined as the second-level selective exposure. But the level of interest in different posts was different for different participants, which led to different reading patterns among all participants. The experimenter could not predict the eye movement trajectory of all participants before the experiment. Therefore, the interest zones could only be set according to each participant's response in the data analysis phase, and the eye-movement data could then be derived.

The eye-tracking device can automatically generate a video immediately after data collection, and the experimenter can check which posts the participant read and which posts he or she clicked on by using the look-back function. The experimenter can also obtain the starting moment when the participant opened the post. Accordingly, we can set the starting moment, and if the participant read and re-collapsed the post, the moment of collapsing the post is the ending moment of the interest area being activated. If the participant did not re-collapse the post, but shifted his/her view to another post, this can also be recorded as the ending moment of interest area activation. Figure 1 shows the size and location of the interest area, but does not show the start and end time of the interest area activation. The first post in Figure 1 is shown in the open state, and participants can see the full text of the post, about 9 lines of text. The other posts are collapsed, and only 3 lines of text are visible. For related articles, as long as the participants clicked on the post, a full page would pop up again, then the whole page is an interest area, from the time the page is opened to the time the page is closed.

Figure A1. *Schematic Diagram of Stimulus Materials.*



Note. The left picture was a sample page, and the right picture was the corresponding areas of interest.

Browsing Probability and Average Browsing Time

Browsing probability and average browsing time are the indicators we used in first-level selective exposure, and click probability and average reading time are the indicators we used in second-level selective exposure. An example may best explain the method of data analysis. Suppose in a newsfeed, there are 8 posts supporting the participant's attitude and 2 posts opposing the participant's attitude. If the participant viewed 4 posts supporting his/her attitude and 2 posts opposing the attitude in the first-level selective exposure, then the probability of the participant viewing posts supporting and opposing his or her attitude is 4/8 = 50% and 2/2 = 100%, respectively. The reason for correcting the data in this way is as follows: if the participant views the posts randomly, then one would expect the probability of the participant viewing the two types of posts to be 8/10 = 80% and 2/10 = 20%,

respectively. Although the number of posts viewed by the participant in both categories was 2, the participant was more likely to choose posts that were opposed to his or her attitude than the random state.

Similarly, the average browsing time was calculated by dividing the total browsing time of the participants in the first stage (e.g., the time spent on posts supporting their own attitudes) by the total number of such posts (8 posts supporting their own attitudes). In the second-level selective exposure, we used average reading time to distinguish it from the average browsing time in the first stage, and the data were analyzed in the same way.

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