Commentary on commentary: a study of the psychological mechanisms of the cognitive schema of Internet users' views

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Abstract: This paper investigates the relationship between personal cognitive schema and their opinions and online behaviors by using questionnaires and in-depth interviews to study Internet users' commenting and "following-up" behaviors. It is found that in the online environment, people still maintain strong maintenance of the existing cognitive schema, but there are signs of moving out of the "comfort zone" and actively reshaping the cognitive schema. However, the phenomenon of cyber violence in the current online opinion environment has a greater hindering effect on users' commenting and "following" behavior, and people are more inclined to use "Ideational following" to judge different opinions. The utopian fantasy of the social media "public sphere" is not conducive to rational reflection on the current online opinion environment.

Keywords: cognitive schema; comments; follow-up

1 Introduction

The Internet has now become an indispensable part of society. As of December 2021, the number of Internet users in China was 1.032 billion, and the Internet penetration rate reached 73.0%. The rapid development of the Internet has given Internet users more and more discourse power, and forms of interaction between Internet users and others through comments have begun to appear. Comments are objective or subjective elaborations and expressions of specific things, based on one's existing knowledge and perceptions, and present a personalized and distinctive quality. At present, Internet comments have tended to become generalized and an important

part of Internet users' online behavior.

The author observed that in their familiar domain, i.e., the domain with which they are relatively close and in which their knowledge base and cognition are relatively well developed, users tend to actively look through the comments and look for views with the same attitude as their own. The author is curious about this: why does the specificity of the familiar domain appear? What are the motivations for users to actively read and find comments that share their attitudes in familiar domains? What is the impact of this behavior on individuals and society?

2 Literature Review

2.1 An overview of the phenomenon of follow-up comments

Follow-up comments refer to the interactive communication between Internet users who receive media messages and the media or other Internet users, and this communication is displayed directly under the news information published by news sites or news media (Ziegele Marc, Quiring Oliver. 2013). In A Brief History of Social Media, British author Tom Standage refers to the Daily Chronicle of ancient Rome, where readers were able to mark on the same book and exchange news through it. The format is very similar to the phenomenon of follow-up in today's online society, reflecting the interactive way in which the public communicates information and opinions. In the 18th century, England, France, and Germany used places such as cafes as public spheres to exchange opinions in open spaces. The follower-up area is seen as a contemporary "18th-century café", a variation of the public sphere (Ruiz C, Domingo D, Micó J L, 2011), which assumes the role of public opinion in the context of the Internet.

Nowadays, the phenomenon of follow-up comments has been studied from multiple perspectives in the academic community. Foreign scholars Springer Nina et al. conducted an overall analysis of the motivations and inhibitors of user comment viewing and the following behavior based on the "use and satisfaction" theory, noting that commenters are motivated by social interaction to engage in the news commenting but do not receive the expected level of cognitive satisfaction. Coe Kevin et al. explored the patterns and determinants of uncivil commenting on newspaper websites through content analysis, indicating that frequent commenters were more civil than infrequent

commenters. Wlather Joseph B. et al. analyzed online comments on anti-marijuana public service announcements (later announcements) on the Youtube platform from a symbolic interactionism perspective, indicating that supportive or derisive comments influenced the assessment of the announcements but not cannabis attitudes, whereas the interaction of identification and comment validity influenced the assessment of the announcements and cannabis attitudes.

And domestic Wen Zhang scholars have conducted a more detailed study on the factors influencing the public's following behavior in unexpected risk events based on the risk information search processing model, which shows that the perceived value of following is the antecedent variable of the public's following behavior, and the benefits and costs brought by following affect the public's perceived value of following at the same time. The study by Yin Xiong, Guoxiong Xiang et al. based on the theory of "uses and gratifications" empirical research on the "satisfaction" of Internet users in the follow-up reading, and concluded that the network news follow-up on the knowledge acquisition, fact acquisition, emotional empathy, social interaction of Internet users in multiple functional dimensions are playing "utility" and other conclusions. In addition, Pingxi Zhao scholar has explored the expression of values in online follow-up from the perspective of the domain, and concluded that there is social stratification of values in the process of online follow-up.

But while these studies have investigated the phenomenon of follow-up comments in terms of audience satisfaction, symbolic interactionism, and social function, they have neglected the psychological aspects of individual cognition.

2.2 A review of cognitive schema theory

Schema is an important concept in cognitive psychology. It was first covered by the German classical philosopher Immanuel Kant in 1781. In his Critique of Pure Reasoning, he pointed out that "new concepts become meaningful only when they are related to what people already know". The Swiss psychologist Piaget first introduced the concept of the "schema" when he studied the process of child growth and cognitive development, which was later widely used in education, information processing, and communication studies. Cognitive psychologists believe that much knowledge is stored in the human memory system in the form of primitives (Anderson, 1983; Rumelhart, 1980). Professor Qingguang Guo defines it as "the basic pattern of human cognitive

behavior, or the structure of the mind, cognitive structure, or cognitive guidance structure."(Qingguang Guo, 2011). Professor Hailong Liu explains the schema as "The schema represents a preconceived, top-down process. It describes the influence of the knowledge we already have in our minds on the current information processing process." (Hailong Liu, 2008)

Robert Axelrod, a foreign scholar, proposed a model of the information processing process based on the theory of the schema, which shows that the schema plays the role of "checker" and "censor" in the processing of information by individuals. In addition, Petty proposed the Elaboration Likelihood Model(ELM), which illustrates a dual processing model of judgment. One is the rapid processing of information based on a schema; the other is a systematic, thoughtful, and detail-oriented judgment process. Later, Markus, H, in the field of social psychology, complemented the theory by examining the relationship between individual cognitive schema and the processing of information about the self, discussing the influence of individual schema on attribution theory. Bem, SL, expanded the schema theory from a gender perspective, discussing the political implications of gender schema theory.

Domestic scholars Qianna Zhou and Julan Zhang, on the other hand, combined the schema theory with the spiral of silence theory, combined with the Fujian Bi incident in China, and explained the role of people's cognitive schema in promoting the existence of the spiral of silence phenomenon in the current network environment. Scholar Muliu Li analyzed the three acceptance conditions of ideological and political theoretical information of college students in China based on the schema theory, and proposed three cognitive schemas for optimizing the communication effect. In addition, domestic scholars Shuhua Zhang and Ting Chen combined the actual phenomenon of youth appearance anxiety in China with the schema theory and found that the media influenced and changed the original information processing mode of youth through marketing, triggering further appearance anxiety through in-depth interviews.

However, these studies do not examine the phenomenon of Internet users following comments from the perspective of individual cognitive schema, and therefore do not answer the questions about why users actively scroll through comments and engage in behaviors such as following in familiar domains.

2.3 Problem formulation

This paper will therefore attempt to answer the following questions from cognitive

schema theory.

Why does the specificity of the familiar domain come into play? What are the reasons why users actively scroll through and look for attitude-consistent comments in familiar domains? What are the psychological and social implications for individuals?

3 Research Methodology

This paper uses the research method of questionnaire and interview method to try to answer the above questions.

3.1 Questionnaire method

3.1.1 Hypothesis building

Based on the questions above, the corresponding hypothesis is presented here.

H1: the more familiar the domain, the more the audience tends to view the reviews.

H2: Significant positive association of audience's follow-up opinions with their own opinions.

H3: When no supportive opinions are seen, users tend to go to other platforms to get opinion support.

3.1.2 Sampling method and collection

This hypothesis corresponds to the study population of Internet users. A random sampling method was used. This survey completed the process of data collection, organization, and analysis on July 15, 2021. The survey was mainly based on open-ended and closed-ended questions with the following main contents: demographic information, the descending statement part of the independent variable X, and the descending statement part of the dependent variable Y. This questionnaire contains 19 questions, including 9 single-choice questions, 7 scored questions and 3 fill-in-the-blank questions. The online promotion was used and distributed through the WeChat friend circle, Qzone, and Questionnaire Star sample bank.

The total sample size of the questionnaires was 280, and after excluding those questionnaires that took less than 50 seconds to complete, the final number of valid

questionnaires was 232, and all of them passed the consistency test.

In the survey population, women accounted for 70.5%, men accounted for 29.5%; age concentration with the 18-25 years old student group, but other age groups are accounted for; interviewed group, more than 50% said in 3-6 hours, 32% of the group said in more than 6 hours, only 17.5% of respondents said in less than 3 hours. And when interviewed about whether they browse comments, as many as 96% said they do.

3.2 In-depth interview method

3.2.1 Interview outline creation

The interview questions were divided into three main sections.

The first part mainly deals with the basic information of the interviewees, including their age, occupation, location, etc.

In the second part, the research questions were downscaled to interview questions. The questions included their perceptions of "following" behavior, the reasons for doing or not doing comment flipping and "following" behavior, and the psychological and attitudinal changes behind the process of browsing comments and following posts.

In the third part, the preparation mainly deals with possible deeper digging.

During the interviews and the conduct of the study, the researcher tried to avoid the four ethical issues and transgressions highlighted by scholar Al- an Bryman: (1) causing harm to research participants; (2) not using informed consent documents or materials; (3) violating the privacy of research participants; and (4) deceiving research participants. The interviewees were also allowed to remain silent or withdraw from the interview if they had any questions they did not want to answer or if they were dissatisfied with the interview process. Interview materials that the interviewees declared that they did not want to disclose were not included or cited in this study. The entire research process was conducted in strict compliance with ethical and moral principles of scientific research, and each participant voluntarily chose whether or not to participate in the study after being fully informed about the study. The researcher treated each participant with respect and as much equality as possible in accordance with the principle of responsibility for the research and kept the research process and all original data strictly confidential.

3.2.2 Selection of interviewees

In this study, semi-structured in-depth interviews were conducted with 10 in-depth Internet users of variable duration each. The interviews began on July 17, 2021 and ended on July 19, 2021. The interviewees firstly included the author's WeChat friends, and secondly, a larger research sample was collected through a "snowball" approach. According to the maximum sampling principle of the qualitative research method, when the 10th interviewee was recruited, all the interviews were sufficient to answer the research questions and the sample collection was closed.

The interviews were conducted by telephone interviews and text interviews by WeChat. And with the consent of the interviewees, the whole process was recorded with recording devices. The interview results were compiled into a verbatim transcript, and the total number of words in the interview transcript was 12,248. The process of interview content was completed by the author. The basic information of the interviewees is shown in the table.

Table 1 Basic information of the interviewees

Respondents	Age	Permanent Locations	Commenting on the habit of following posts	Interview Highlights
ZZ	20	Jinhua,Zhejiang	Will browse comments, not "follow"	Strong negative attitude towards “follow-up” behavior
Xiao He	22	Nanjing, Jiangsu	Will browse comments, not "follow"	Emphasize the emotional connection brought by "follow-up"
Xiao Yang	21	Nanping, Fujian	Will browse comments, not "follow"	
Fang Fang	20	Dali, Yunnan	Will browse comments, will "follow"	
Xiao Zhang	21	Heze, Shandong	Will browse comments, not "follow"	

Respondents	Age	Permanent Locations	Commenting on the habit of following posts	Interview Highlights
Little H	20	Beijing	Will browse comments, not "follow"	Maintain a high level of trust in his own opinion and think rationally about why he differs from others
Yaoyao	21	Nanning,Guangxi	Will browse comments, not “follow”	Pay high attention to the similarity of one’s own views to those of others
Jinjin	22	Nantong, Jiangsu	Will browse comments, not "follow"	
Xiao Lu	19	Hangzhou, Zhejiang	Will browse comments, will "follow"	
Xiao Zeng	19	Guangzhou, Guangdong	Will browse comments, will "follow"	

4 Research findings and discussion points

4.1 Strong maintenance of the cognitive schema

Once a cognitive schema is formed, it has strong stability and cannot be easily changed. In the questionnaire, the respondents were asked, "If the mainstream opinion agrees with you, does it strengthen your own opinion?" and "Will you stick to your own views if the mainstream opinion does not agree with you?" Questions are scored out of a total of 10 points, with the degree of conformity increasing from 1 to 10 in descending order. The mean scores of the two questions were 7.3 and 6.92, respectively. This shows that people will strengthen their agreement with the existing schema if they were in line with the mainstream view, and they are not willing to change it easily if they were not agreed with it. The statements of multiple interviewees also corroborate the view well. "I already have my own understanding, and I may understand why people think that way after reading other people's comments, but I would still be more inclined to my own opinion at the beginning." "It's possible that I might think he's right at that moment, but after a while, I'll still hold my own opinion."

In addition, the behavior that users will insist on finding comments that are consistent with their own views better supports the trust in the cognitive schema and the resulting behavior of trying to defend it. By analyzing the average of the four questions, the probability that users choose to look for other platforms when they do not see a supportive opinion is 42.98%. By comparison, the probability that users will insist on looking for comments that agree with their own views is 80%, indicating that users do not necessarily insist on going to other platforms to get opinion support, but the probability that they will insist on their own views and continue to look for opinion support on this platform. Hypothesis H3 partially holds.

Not only that, but when absorbing others' views through browsing comments, people tend to develop disdain in their first reaction to opinions that don't match their own. "If it's extremely inconsistent, I might be contemptuous and even mock his thoughts and opinions from the inside." "Maybe I would feel a little outrageous seeing views that are opposed to mine." When they did not see comments that were consistent with their own views, the average score of the degree of conformity that people still insisted on their own views remained at 6.88, which shows that people's maintenance of the existing cognitive schema is still the first choice when they are subject to the collision of different views.

In the process of opinion export, people also tend to be influenced by established cognitive schema, with their following comments' opinions being significantly and positively associated with their own and trying to act on their own views on others. One interviewee stated, "I presume to correct them." From the table below, it can be seen that using correlation analysis, using Pearson correlation coefficients to indicate the strength of the correlation to examine the degree of correlation of the above problem variables, it was found that the willingness of users to see a consistent view was significantly correlated with strengthening the degree of agreement with the view, adhering to the view, and making comments to follow, with p-values less than 0.05. Hypothesis H2 holds.

Thus, the cognitive schema is powerful before, during, and after viewing comments, and people maintain and affirm their existing cognitive schema by generating disdain for inconsistent opinions, continuously searching for consistent opinions, and exporting their original opinions.

4.2 Out of the "comfort zone": active reshaping of the cognitive schema

However, in the open environment of social media platforms, people are gradually showing their desire for diverse opinions and trying to get out of their "comfort zone". By browsing comments, people are fully aware of multiple views, "shocking" and actively "reshaping" existing cognitive schema.

In the sixth question of the questionnaire, "What kind of content do you tend to view in the comments?" Only 20% of the respondents chose "contents they are familiar with" and 74% chose "random, no specific content", which means that H1 is not valid. It can be seen that people do not have strong limitations in choosing the main content of opinion input, and they are willing to learn different opinions about any content.

All 10 interviewees said that one of the motivating factors for browsing comments was the desire to understand other people's perspectives and to know more multifaceted insights. "You see other people's ideas, whether they are similar to your own or contrary to your own, and it will intentionally or unintentionally influence your own judgment, but you can't say that this influence is a bad thing, it will enrich your perspective on something." "If what others say is right I will accept it, and at the same time will also correct some of my wrong views under his comparison." "I think the three outlooks, in general, are in line with the mainstream society, and some of the comments we can see, it is still of the more positive and sunny kind. So I think I should also have this kind of tendency of thinking." It can be seen that the "inviolability" of people's cognitive schema in the current Internet era has been greatly changed, and they are willing to accept different views in a pluralistic opinion environment, and actively revise the existing schema to adapt to the overall public opinion environment.

Not only that, the reshaped cognitive schema will be actively mobilized by users to process similar information in this way. The whole process of receiving, modifying, re-forming, and re-applying is a continuous polishing of one's cognitive schema, so as to better adapt to society and complete the socialization process. "Browsing comments is a process that constantly shapes my three outlooks." "I think it is an indirect accumulation of experience for me." But although users' initiative to modify their cognitive schema on their own has greatly increased, people will still maintain a certain firm attitude towards their own established views and try to show the shadow of their established views from the modified schema. "I am actually doing an act of changing and reversing my own viewpoint. But it doesn't completely negate my own ideas, it

just makes modifications to my original views. For example, when a friend comes to discuss a matter with me and asks me what I think about it, I will most likely tell him my own viewpoint combined with the public's viewpoint. I want my view to seem reasonable and more in line with the public, but I also want to express my own view."

4.3 "Ideational Following": Concerned Responses in a Public Domain Utopia

Habermas states that the public sphere is a sphere of our social life that consists of various dialogues in which citizens act as a group, where they are free to assemble and combine, to express and make their opinions public. (Hui Wang and Yangu Chen, 1998) The early public sphere can be traced back to the square meetings of ancient Greece. In 18th century Europe, coffee shops and bars became open spaces for the public to exchange opinions. Today, various social media provide a platform for the public to fully express their opinions and demands, and the society hopes that they will recreate the "public sphere". However, the abusive, extreme, and “war-leading” behaviors of comments in real social media networks makes the illusion of a "public sphere" only a utopia after all. In this case, users gradually developed a way to balance the relationship between self-expression and the concern of "following" comments - "ideational following".

"Ideational following", i.e., users have the idea that they want to "follow" the comments to express their agreement or disagreement, but do not take any actual action, but only support or deny the comments in their minds. Out of fear of online violence, users are more likely to use the "Ideational following" method to hide their opinions in their own minds. In the questionnaire, only 32.45% of the respondents would "follow", while several interviewees expressed similar views. "I am afraid of saying the wrong thing, afraid that it will lead to abuse, and I feel a little bit afraid of online public opinion." "If I express my views, some people may net violence or something like that, and there will be that concern. There are students around me who will go to follow the post and be scolded by some people through private messages." "Fear of being perceived as taking sides. The Internet is too scary, if you just post a sentence, or you reply under a comment, there will be people to attack you, thinking you are taking sides. I’m afraid that will make some people who do not really understand my ideas misunderstand me."

When confronted with the social impact of comments and "follow-up", negative attitudes toward them prevailed. While acknowledging the socially progressive nature of comments and "follow-up" in promoting common communication and expression of opinions, users believe that the current online commenting environment is not promising. "It actually creates a trap that allows groups to comment without thinking. More and more people will fall into this situation, it seems easy to say something, but in fact, it is very obvious that the comments are harmful to the whole society. Most of the comments are still irrational, and the more such irrational comments there are, the more they will have a good promotion effect on the formation of our social climate, the whole public opinion guidance, and the handling of many things." Thus, it can be seen that the current network public opinion environment has a significant hindering effect on individuals' reluctance to comment and "follow".

5 Summary and Discussion

5.1 The co-existence of the immutability of cognitive schema and active remodeling

This study theorized the psychological cognitive schema of Internet users' opinions and their online behaviors through questionnaires and in-depth interviews, trying to answer the question of "the influence of cognitive schema in users' opinions and online behaviors". The study found that the follow-up opinions were significantly and positively associated with their own opinions, and when they did not see supportive opinions, they tended to continue looking for consistent opinions, but did not exactly choose to go to other platforms to get support, but chose to look for support on their own platform. However, users do not tend to browse comments in more familiar areas, reflecting a significant increase in current users' pursuit of pluralistic opinions. By browsing comments, users intend to learn about various views and absorb them, trying to actively transform the existing cognitive schema, and then continuously improve and optimize their personal cognitive schema to achieve better socialization results. Therefore, hypothesis H1 is not valid, hypothesis H2 is valid, and hypothesis H3 is partially valid.

5.2 The Utopia of Democracy and the Public Sphere Behind the Act of Commenting and "Following"

The study found that users have a positive attitude toward the pluralistic opinion discussions stimulated by comments and "following" behavior in the Internet environment. Different groups of people have different cognitive schema and may have different views on the same content, which helps to show the full picture of the event in the process of expression and interaction, and enhances the democratic process of the online society. At the same time, users show signs of being willing to actively receive multiple views and actively act on their own existing cognitive schema to continuously improve and refine them, and under this trend, rational discussion in online society is expected to further develop.

However, it is worth noting that online violence in the current "post-truth" context is still a major dilemma that hinders rational discussion. The anonymous environment of the Internet has encouraged people to take a chance and make irrational comments under the domination of emotions. The overall online commentary is characterized by mutual abuse, malicious "war-leading" and excessive emotional venting, which is worthy of caution and reflection.

6 Limits and future perspectives

This study attempts to systematically analyze the cognitive schema psychological mechanism in users' views and their online behaviors, but there are still shortcomings. Due to objective factors, the number of valid responses and interviewees is small and limited to the range of students aged 18-25, which is only representative of the young student group, and its applicability to all Internet users needs to be further studied.

In future research, researchers in the fields of psychology, sociology, and communication can pay more attention to the phenomenon of "follow-up" of Internet users, as well as expand the research and practice of online opinions.

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