Spiral of Silence: A Powerful Perspective of Understanding the Public Opinion

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First, this article mainly focuses on the theory spiral of silence itself, which means that we try to roughly and shortly conclude the background, key concepts, and the relationship between concepts of the theory, but the impact and evaluation about the theory won't be discussed. Second, by reviewing the development of the theory, this article classifies the previous conclusion into five aspects, empirical verification research, theoretical extension research, development of variables (concepts), the effect of the spiral process, and some latest researches under an online context. Finally, we use the original theory and new findings based on the literature to analyze the process of the spiral of silence in the public opinion of Chongqing Wanzhou Bus Case (CWBC) on Sina Weibo.

Keywords: Spiral of Silence, Verification, Extension, Variables, Wanzhou Bus Case.

In 1974, Elisabeth Noelle-Neumann published the article *The Spiral of Silence, A theory of Public Opinion* in *Journal of Communication*, which is regarded as the formal establishment of the spiral of silence theory. Through subsequent decades, this theory has been developing and becoming more and more sophisticated.

This theory originates in the time between the limited effects model and the powerful effects model, that the moderate effects model. As a bridge of limited effect model and powerful effect model, moderate effect model focus on media, audiences themselves, and some environmental factors at the same time. Based on the concepts involved in the spiral of silence, it is obvious that this theory pay attention to all of the elements above, dominant opinion on media coverage (media), attitude certainty (audiences themselves), and perceived public opinion and perceived future opinion (environmental factors).

Concepts and relationship

According to the original article, Noelle-Neumann (1974) wanted to figure out the process of public opinion formation empirically based on some previous conclusion, that for individuals, avoiding to be isolated is more important than the judgment of them. From the five hypotheses in the original article, she proposed variables as follow[1],

H1. Perceived distribution of opinion, and perceived future opinion; Intensity of observation, and degree of interest, perceived possibility of exposure;

H2. Willingness to expose views;

H3. The frequency of being displayed of one certain opinion, and the divergence between the perceived distribution of opinion and current distribution of opinion;

H4. Perceived current distribution of opinion, and perceived future distribution of opinion;

H5. Involved by hypotheses above.

After a survey involving questions about the topic of law, moral, value, international affair, and political affair, some relationship was tested. Using figure 1 to summarize the relationship among variables above, there are three key relationships. First, perceived opinion distribution and perceived future opinion have a relationship with the willingness to express. Second, the more frequently an opinion is displayed, the more likely public would think it as a dominant opinion; Third, the more public perceive an opinion as dominant opinion, the more likely they think it is also the dominant opinion in the future. However, when there is a divergence between perceived opinion and perceived future opinion, the perceived future opinion will mainly influence the willingness to express.

Thus, Noelle-Neumann drew the conclusion that, this is an interactive spiraling process, that those who hold the perception of being in minority, would keep being silent, which make the sound of minority quieter and the sound of majority louder.
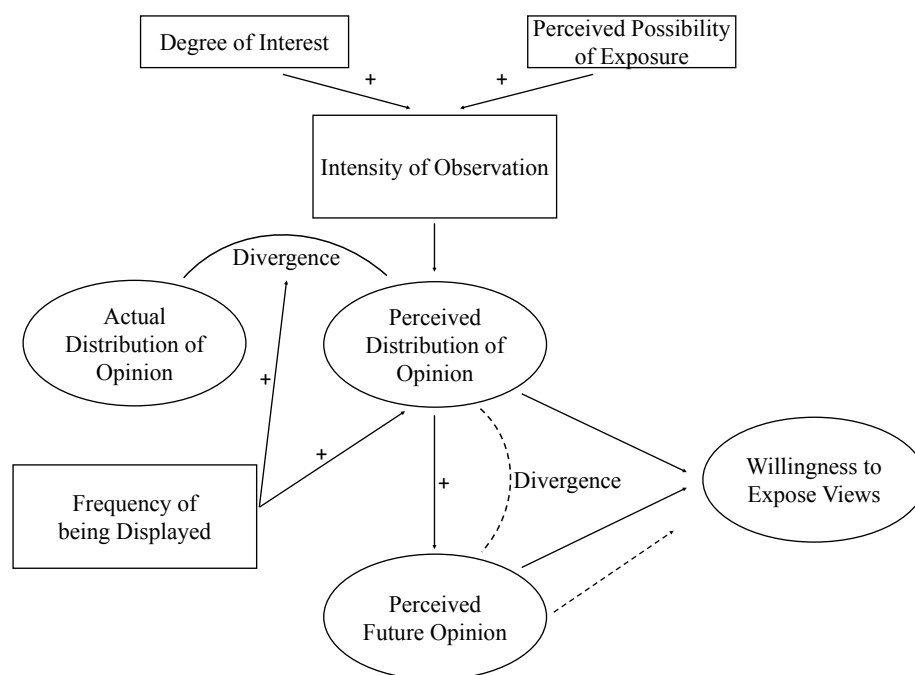

Figure 1. The relationship between concepts/variables in the original silence hypothesis
Dash line means this relationship would only happen under a certain condition.

Meanwhile, there are also some other important concepts like quasi-statistical organ, pluralistic ignorance, hardcore, and opinion climate, which would be discussed in the part of theory review.

Theory review
Verification of spiral of silence
In a 2004 study, through a second analysis of the data collected during the 1948 presidential election, the researchers corroborated the important role played by spiral of silence in political elections, highlighting the forces of the hardcore in the original theory, explaining the relationship between social isolation and fear of isolation (McDonald, Glynn, Kim, & Ostman, 2001).

Fourteen years later, based on the new media context, researchers find some new relationships. The effect of the spiral of silence may change based on the types of issues, that congenial content has a positive relationship with opinion expression on enduring issues, while

disagreeable content has a positive relationship with opinion expression on, transitory, and emerging issues (Gearhart & Zhang, 2018).

Extension of the spiral of silence

Kennamer (1990) has also verified that individual will be less likely to participate in the discussion of an issue when they exposed to the environment in which the information is opposed to their opinion, while this study thinks this process from a perspective of self-serving biases. In other words, this introduces a new mechanism. Another research has expanded the theory on the theoretical informational level of the theory based on data collection methods for in-depth interviews. The results show that people use social, economic and political conditions as clues when dealing with controversial information. When predicting public opinion, people rely on opinion leaders and attitude distribution. When estimating the distribution of public opinion, people use projective information as a reference. In general, people use a narrower array of information to predict the atmosphere of opinions (Shamir, 1995). Moreno-Riaño (2002) tests the atmosphere of the silent spiral theory and expands the conceptual hierarchy of opinions, classifying them into micro, macro and group levels, and studying their different impacts on respondents. The results of the experiment show the importance of the opinions of the individual's consensus influences the individual's views, their perception of macro and group opinion levels is a complement to the perceived majority.

Based on online data collection during the 2014 US midterm elections, the researchers extended spiral of silence to the environment of the online Partisan media. They found that supportive Partisan media is directly related to the perception of others sharing opinions. Because of the different conflict avoidance methods of individuals, such a relationship has different results. The supportive of personal opinions in kinship is also relevant to support for partisan media. In addition, when personal opinions receive majority support in self-social networks, they tend to share opinions online. (Wang, Hmielowski, Hutchens, & Beam, 2017)

Development of variables

Apart from the classic variables of the original theory of spiral of silence, there are also some variables which are completely new or previously not got enough attention, playing an important role in the process of development of the theory. These variables or confounders have complemented the theory which makes the spiral of silence more sophisticated and explanatory.

For some new variables, on the one hand, the independent variables of the theory could be moderated by some new variables. As an independent variable of the theory, perceived public opinion could be influenced by the mass media coverage. Gunther (1998) designed an experiment, in which he created four different versions of two articles respectively, and found that favorable content may help respondents form a positive perception of public opinion and vice verse. As another key variable, the perceived future opinion could be influenced by the exemplar distribution (Perry & Gonzenbach, 2000), but the exemplar distribution has no relationship with the spiral of silence effect.

On the other hand, some variables could have a direct or indirect impact on the dependent variable, the willingness of expression. Huang (2005) thought about the theory from a cultural and social perspective by comparing the United States and Taiwan and proposed that, the spiral of silence is more easily to be formed in a collectivism cultural environment, rather than individualism. There are also some variables tested from an angle of individual psychology, saying that the communication apprehension, fear of isolation (classic variable) have a negative relationship with the willingness of expression, and the efficacy has a positive relationship with the willingness of expression (Neuwirth, Frederick, & Mayo, 2007). According to an recent research using agent-based modeling, the process of spiraling varies partly based on the size of the social network of an individual.

For the variable which is not focused enough before, the attitude certainty is the main part of the related research which could be seen as the operationalization of the concept of 'hardcore' of the spiral of silence or empirical method of measuring the hardcore. The more certain the attitude of an individual is, the more difficult the opinion climate would have an impact on the opinion expression of an individual (Matthes, Kimberly Rios, & Christian, 2010).

At the same time, there are also some researches trying to find some factors which could influence the dynamic process of the spiral of silence (Matthes, 2015; Sohn & Geidner, 2016). Time is a key variable through the process of the spiral (Matthes, 2015), three-wave panel data releases that, the opinion climate change and willingness of expression change can interact with each other over time, and the correlation may get strengthen. A recent study using agent-based modeling has pointed out that, a broad process of spiraling won't happen in a small social network (cover less than 1% of the population) (Sohn & Geidner, 2016).
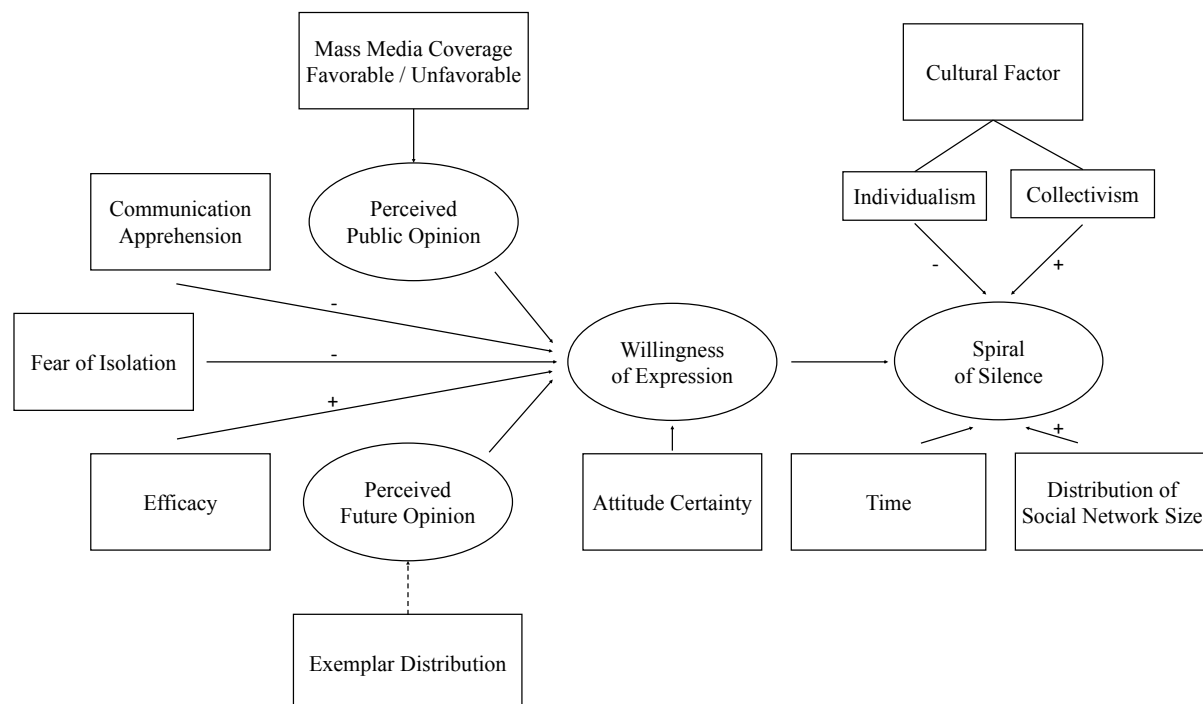

Figure 2. The development of variables in the spiral of silence theory
Dash line means the relationship is not strong.

The effect of the spiral of silence

Some researchers try to find and summarize the effect of the spiral of silence (or a certain effect under the mechanism of the spiral of silence), and previous researches have covered both the micro level (self-expression, behavioral decisions, and interpersonal communication) and macro level (organization, and society).

On micro level, a survey conducted in 1998 showed that, after judging the importance of the topic, people will decide whether they express their views on the topic, and people tend to answer issues about family and friends rather than social topics (Moy, Domke, & Stamm, 2001), which could be seen as an impact of the mechanism of spiral of silence on self-expression.

For behavioral decisions, based on a survey of 1996 US election, researchers found that the perception of opinion distribution not only affects the willingness of expression but also affects willingness of participating in politic related activities such as vote. Specifically, a hostile environment may have negative effects on participating in political activities (Scheufele, 2001). In addition, Supadhiloke (2015) has proposed the bandwagon effect and underdog effect to explain two different behaviors: voters will vote for the majority in the pool of opinions and

voters will sympathize with parties or candidate that tend to fail in the election. In a network survey of vaccination for children, mothers who tended to refrain from supporting children were more actively involved in the discussion of child vaccination topics, including seeking, sharing, defending and predicting information (McKeever, McKeever, Holton, & Li, 2016).

Through the process of interpersonal communication. Studies verified that people tend to censor their opinions in a hostile public opinion climate for fearing of isolation, and then use multiple expression avoidance strategies to avoid independence from the opinion climate (Hayes, 2007; Hayes, Glynn, & Shanahan, 2005). In addition, people are more likely inclined to speak out if they perceived their opinions to be supported by local news media and the public especially under the condition of utilizing conflict avoidance (Dalisay, 2012). In political discussions and political networks, Huge and Glynn (2013) point that the minority get more delayed feedback.

On the macro level, Bowen and Blackmon (2003) demonstrate that the climate of opinion in the workgroup affects the employees' expression especially about their true personalities and the decision of whether to follow the organization's voice or keep silent.

For the whole society, when public opinion tends to be more and more hostile to a specific practice (the mechanism of the spiral of silence), there will be a tendency in the institutional field to resist such external opposition (deinstitutionalization) (Clemente & Roulet, 2015). In other words, the spiral of silence could be seen as a mechanism of forming against to authority. Based on the data from the World Values Survey covering 32 democracies, a study about country confirmed that in one country with zero tolerance values, the value can promote the participation of non-violent protests greatly, which means that when the value of country is regarded as the majority opinion, a silent spiral is formed, and the will of the country becomes the will of the people (Rapp & Ackermann, 2016).

Related research under online context

The research about the spiral of silence under online context (i.e. social media, social network, online discussion, posting and withdrawing) presents a relatively different trend and feature with previous research, that the study about the verification of the theory dominate the mainstream, but little research focuses on the extension, development of variables and the effect of the theory.

For verification, on the one hand, many research draw similar findings. First, the phenomenon of spiral of silence could also present online and even more serious (perception of public opinion and perception of future opinion could have a stronger relationship with the willingness of expression), though there are some moderate factors, such as the importance of the issue, which could have an effect of liberation on spiral of silence (Gearhart & Zhang, 2014). Moreover, according to the meta-analysis of a more specific study, researches propose that the relationship between perceived opinion climate and the opinion expression about political topics is stronger than thought previously, and the relationship online is not weaker than offline (Matthes, Knoll, & von Sikorski, 2018). Second, the relationship between dependent variables and independent variables in the original theory still shows the same direction. For example, the unfriendly opinion climate of Facebook has negative relationship with expression about political topics and vice verse (Kim, 2016), and exposed to favorable political content predicts expressing, and exposed to unfavorable political content predicts silence, which supports the spiral of silence in the social network site environment (Gearhart & Zhang, 2015).

On the other hand, some interesting conclusion only is found from the research under online context, that the process of the spiral of silence is more difficult to occur in a homogeneous social network but easier to occur in heterogeneous social network (Fox & Warber, 2015; Miyata, Yamamoto, & Ogawa, 2015). Specifically, Fox and Warber (2015) define the

heterogeneous social network as the different social network with different value and orientation, while Miyata (2015) define the homogeneous social network as the network in which the people are familiar with each other, so they are relatively not afraid of being isolated.

It is worth mentioning that, Chen (2018) has involved both supporting and disagreeing opinion expression in the theoretical framework of the theory by examining the behavior of expression and withdraw.

Case analysis

The characteristics of Chongqing Wanzhou Bus Case

Chongqing Wanzhou Bus Case (CWBC) was a traffic accident that occurred on October 28, 2018. A NO.22 bus ran from the Jiangnan New District on the south bank of the Yangtze River to the Wanzhou City on the north bank. When driving to the middle section of the Second Bridge of the Yangtze River in Wanzhou, the bus suddenly crossed the solid line of the road center and crashed into the Yangtze River after the red car that is driving normally.

None of the 15 people in the car survived. In the investigation of the cause of the accident, public opinion has been reversed many times. Initially, the dominant opinion believed that the retrograde car forced the bus driver to avoid being hit was the cause of the accident. Then, the driving recorder by a passing car restored some of the accident truth, and the dominant opinion turned into that, the suddenly retrograde bus should be responsible for the accident, which made the original mainstream opinion a minority opinion. Finally, in-bus monitoring showed that the conflict between the bus driver and one passenger was the real cause of the accident, which became the new dominant opinion ("2018 Chongqing bus crash," 2018).

Platform nature. The fermentation process of CWBC took place on Weibo, and the characteristics of the platform can promote a silent spiral formation process to a certain extent. To be specific, the hot search recommendation mechanism of Weibo has made the audience pay attention to this case, and the three dominant opinions mentioned above are also presented on the Weibo hot search list, this level of attention made people follow the dominant opinion. It is worthy to note that although there is a high reading volume, the number of comments is very low, which means that many audiences kept silent. In addition, the "like" mechanism has also made the dominant opinion more and more dominant, and minority opinions have been increasingly submerged, which has intensified the process of the spiral of silence. Specifically, the audience's attention is limited. When dominant opinions take up people's focus, the opinions of minority people are easily overlooked, and the feedback accepted by the dominant opinion is far more than the minority's.

Content nature. As a social media platform, Weibo has many mainstream media with large readers. The coverages of mainstream media promote the development of content nature. In the process of traceability of the CWBC, the mainstream media kept reporting on the cause of the accident, which has an impact on the perception of public opinion of audiences (Gunther, 1998).

Behavior nature. The effect of the spiral of silence in this event especially the public opinion made people take actions when they faced with the same question later. According to the news after this case, people tend to stop passengers from harassing bus drivers because they ensure that their words and deeds will become public opinion.

The causes of the constant changes of dominant opinion in CWBC

Issue importance. CWBC is a social event, which caused huge casualties. It is also controversial,

which indicate the high importance of the issue. The audiences tend to pay attention to this incident, but the number of people participating in the discussion is far less than the number of followers. According to the interception of the real-time data of the Weibo topic, we found that the number of readings on CWBC reached 1.46 billion times, and the number of discussions reached 247,000 times.

Media congruency. In the process of the evolution of the three mainstream views, the media's views are highly consistent, and this consistency strengthens the mainstream view and guides public opinion. For example, the People's Daily, Global Times, and Chengdu Business Daily reported the same video and similar textual descriptions of the real cause of this accident (Gearhart & Zhang, 2018).

Efficacy. When people are convinced that their opinions will be recognized by mainstream media and mainstream opinions, people will tend to express opinions. After the first reversal of public opinion, one video proved that the female driver was not at fault, people suggested that some netizens and the media should apologize to the female driver, including the female driver's husband, who also accepted media interviews and demanded a public apology. These remarks were recognized by public opinion, and some netizens who had made false statements also took the initiative to apologize (Neuwirth et al., 2007).

Gender. In the formation of the first dominant opinion, the discussion of gender also accelerated the process. In CWBC, the initial dominant opinion speculated that the retrograde of the car driver might be the main cause of the entire accident since the live video showed that the car was parked in the opposite lane. When the media reported that the driver of the car was a woman, the audience was more convinced that the driver's poor driving level led to improper overtaking, causing retrograde and eventually causing accident. At this stage, there was a heated discussion around the female driver, but there was less discussion about the male bus driver of another key person in the accident, which reflected that the gender difference in the incident would affect people's attitude towards the incident.

The climate of opinion. After the first silent spiral occurred, the discussion environment of the issue presented a hostile climate of opinion. The emotional and moral critical comments on the topic were more likely to receive people's attention, and thus received more "Like". When there are numerous irrational views supported by the majority in the public opinion field, this is not conducive to the formation of an inclusive public domain, so that a few people who do not agree with this view choose to remain silent. After the first public opinion reversal, the Weibo platform presented a relatively friendly climate of opinion. The audience no longer stuck to the gender dispute but inclined to analyze the real cause of the accident. The majority opinion is that the bus driver's sudden retrograde behavior should be responsible for the accident, but the judgment of the driver's behavior is a minority opinion. In the end, according to the exact evidence, the investigator gave the real cause of the accident. The climate of opinion at this stage has once again become hostile. The dominant opinion is that the contradiction between the passenger and the driver is the root cause, however, there are different views on the division of the responsibility of the involved parties. Such controversy has led to a negative situation in the overall opinion climate.

The disappearance of conflict avoidance. Before this accident, which experienced three reversals of public opinion, the values of social traditions considered that the dispute between passengers and drivers was a trivial matter. To avoid conflicts, most people choose to keep silence and pretend not to see that. But after this incident, it showed that the silence of most people would

have serious consequences when faced with a serious situation. In subsequent follow-up reports, many passengers took the initiative to stop passengers who contradicted the bus driver, actively avoiding similar consequences. People no longer consider conflict avoidance, they choose to take their own personal safety as the first priority (Dalisay, 2012).

Suggestion of breaking the spiral of silence
Institutionalization. According to the study of Clemente and Roulet (2015), when public opinion climate gets too hostile, the public opinion becomes a deinstitutionalization power to against the institutionalization power. In this case, there should be a management of public opinion on institutionalization level, which means the government could introduce relevant laws and policies during the period of the spiral of silence to lead the public opinion in a positive direction. After that, the government could impose clear penalties on behaviors that disrupt driving on buses, at the same time, encourage and reward people for complaining about similar behaviors to increase the chances of this phenomenon being rectified, thus forming a level of promotion and supplement in the social sphere. In this way, the government can ease the contradiction between the institutional and non-institutional levels, promote social stability and better protect the lives and property of the people. For example, the government should not only categorize the interference with driver driving into the crime of endangering public safety but also set up special laws to deal with the incident.

Hardcore. The hardcore refers to those who ignore the threat of isolation during the silent spiral rotation with a high-level attitude certainty. Noelle-Neumann believes that when an opinion is favored by the majority so that it becomes common sense, the hardcore becomes the person who is most willing to express opinions publicly, which may lead to the reversal of spiral of silence. In response to the phenomenon that the public opinion in this case has been reversed many times, and the wrong public opinion has become the mainstream paradox. We believe that experts, scholars, and authorities should be involved in discussions in the public domain, as the hardcore, timely release and update the correct information to guide public opinion. For example, in this case, some medical experts gave a physiological explanation for the bus driver's misdirected behavior, thus denying some speculation that the bus driver attempted suicide or deliberately crashed into the car.

Opinion climate promoting. In CWBC, one of the reasons for the formation of silent spirals is the fragmentation of information and the dissemination of misinformation. The mechanism of Weibo and the reports of news media are responsible for this. On the one hand, the gatekeeper can clean up irrational, erroneous and inflammatory statements, which can help develop a friendly opinion climate, rather than a hostile opinion climate. On the other hand, the mainstream media should avoid media trials, uphold the principle of journalistic objectivity, try to restore the facts of the incident itself, and refute some false information, thus promoting the general direction of overall public opinion towards a positive level.

Notes

1 In fact, not every variable listed in this section are the original variable in the original article, some variables are concluded by writers. It is for the aim of concluding the relationship between some key concepts of the theory conveniently.

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