

An Overview of Research Related to Spiral of Silence in the Digital Age

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Abstract

The spiral of silence theory, as one of the most powerful and influential theory addressing the dynamics between the media and public opinion, has intrigued numerous communication scholars, particularly the political scientists. Based on its contributions to the analysis of political life in the traditional media context, this paper attempts to provide an overview of how the spiral of silence is currently applied to the examination of the constantly evolving climate of public opinion in the cyberspace. Aside from acknowledging this theory's explaining power in the digital world, this paper also points out some emerging challenges related to new issues such as online anonymity, interactivity, cross-cultural differences and so on. This overview hopefully will offer useful suggestions for further investigation of the spiral of silence in a digital era.

Key words: spiral of silence; digital media; new media; public opinion

1. Introduction

Communication scholars have long been interested in the dynamics between the media and public opinion. Among all the theories aimed at explaining media effects on the formation of public opinion, the spiral of silence theory is doubtless one of the most powerful and influential ones.

The spiral of silence was first conceptualized by German political scientist Elisabeth Noelle-Neumann in the 1970s after her years of research in public opinion. Although this theory has been successfully applied to many fields in mass communication studies over the years, it also encounters numerous challenges. Particularly, the relationship between perceived public opinion and one's willingness to express that opinion discovered in previous studies, although significant, is weak in strength (Glynn, Hayes, & Shannhan, 1997). To clarify the weak relationship, Noelle-Neumann (1974) admitted that some people who hold strong opinions would still choose to speak out regardless of their fear of isolation. Nevertheless, she did not offer any further empirical data concerning how individuals with strong opinions play into the spiral of silence effect. Since this theory was invented mainly based on political life in an era dominated by the traditional forms of media such as newspaper, radio and TV, it has received critics of not taking into consideration various important factors, such as new media formats, individual characteristics, and cross-cultural differences (Glynn, et al., 1997; Hayes, Glynn, & Shanahan, 2005; Miller & Morrison, 2009; Willnat, Lee, & Detenber, 2002). With the rapid development of science and technology in the 21st century, this theory is faced with new changes in the environment as well as the mode of communication triggered by the recently emerging World Wide Web. Thus it is the timing for media scholars to have an overview of the history and development of this significant theory and to evaluate how well this classic theory can fit in with the newly developing forms of media.

2. Spiral of Silence in traditional media context

The concept of the spiral of silence originated from the studies of political campaign. Noelle-Neumann (1984) used the statistics of the 1965 election in Germany to demonstrate the potential influence of the public opinion. As former head of the Allensbach survey research institute, she found out that although the two parties were almost even in the support they received for the first six months, the situation changed dramatically with the Christian Democrats gaining dominant favor two months prior to the election.

Along with her research of political life, Noelle-Neumann thought the term *public opinion* is misleading and unsatisfactory in its attempt to explain mass media's function in the shaping of majority opinion. Therefore, Noelle-Neumann (1993) redefined this term as the attitudes or behaviors that one must express in public if one is not to isolate oneself, or the attitudes or behaviors that one can express without the risk of isolating oneself. Based on her clarification of the term *public opinion*, Noelle-Neumann (1993) put forward the ground-breaking Spiral of Silence, which is targeted at extrapolating how dominant public opinion can influence individual opinions and behaviors.

To be specific, Noelle-Neumann stated a few assumptions related to this hypothesis. First, the society tends to isolate individuals holding minority views from the rest. This is because the society needs to achieve social collective cohesion by maintaining a certain degree of consensus on a series of values and goals (Noelle-Neumann, 1991). Therefore, individuals disagreeing with commonly shared values and opinions are constantly threatened by the society with a possibility of being isolated from the majority. Second, individuals assess the climate of public opinion with fear of being isolated from time to time. The formative process of individual opinion is always accompanied by individual fear of being estranged from the majority in the society (Sanders, Kaid, & Nimmo, 1985). Third, individuals always adjust their own behavior according to the perceived public opinion. This set of ideas, usually known as conformity hypothesis, is crucial to the spiral of silence theory. Furthermore, Noelle-Neumann (1989) suggested that two environmental conditions of public opinion might influence the effect of the spiral of silence: the extent to which the topic is emotionally charged and morally loaded, and the intensity of how the topic is discussed in trend-setting media. She also added a few variables which are vital in investigating the spiral of silence: the majority opinion of the issue, perception of the majority opinion, the expected popularity of one's minority opinion in the future, and willingness to speak out one's view in public.

Although there are many arguments about the basic concepts involved with the spiral of silence, most researchers have agreed upon one factor that is essential to the theory. This factor is concerned with how much an issue is morally loaded (Scheufele, & Moy, 2000). The assumption is that the more morally loaded and controversial an issue is, the more emotionally charged this issue will be and the more likely it will be to cause the spiral of silence effect. We can roughly divide these issues into the following categories: issues that deal with political partisans (such as elections and opinions about a political party); issues that might put a certain group of people and their benefits at risk (such as abortion and nuclear energy); issues that challenge traditional values (such as gay marriage, cloning, and euthanasia). One thing about these issues is that some of them are very much divided among different parties in the society and may not have a clearly formed public opinion. For example, as far as the issue of abortion is concerned, both parties have their own morally justified arguments. The pro-life party maintains that a fetus is a human being who has the right to life; the pro-choice party insists that individuals have the right to make the decision that is best for themselves. Since it remains uncertain whether a public opinion exists in regard to issues like this, it would be mysterious what kind of role the spiral of silence plays in these issues as individuals can still perceive the public opinion in the quasi-statistical sense. Further investigation need to be conducted concerning how individuals perceive these issues that are highly controversial and almost evenly divided between two opposite partisans.

As far as the perception of public opinion is concerned, the spiral of silence attaches much importance to the influence of mass media in facilitating the formation of climate of opinion. Noelle-Neumann (1984) asserted that there are two sources from which individuals draw information to make judgments about the majority opinion, i.e., direct observation and the trend-setting media. Direct observation is based on individual's daily experience of interactive activities in this person's social network. Since individual's random sampling of public opinion is limited and oftentimes does not represent the real public standing of this issue, people are more likely to rely on the mass media in their judgment of public opinion. According to Neumann, the mass media speed up the alternation of minority opinion in the spiral of silence. Although the opinions transmitted by the mass media are the extension of individual opinions in real life, the mass media do not always represent the real world's opinions proportionally, but sometimes offer a distorted picture of various views. Particularly, she emphasized the indispensable role of television in shaping mainstream ideology because television was the most influential form of media around her time. Television has three features that enable its role in shaping public opinion: first, it is everywhere and people cannot escape from the exposure to TV programs; second, television reinforces certain views by iterating it repeatedly over time, which manipulates the direction of mainstream views; third, journalists inevitably reflect their own beliefs and values more or less in the message conveyed on television programs, which also facilitates the shaping of public opinion (Glynn & McLeod, 1985).

In addition to the importance of perceived public opinion, Noelle-Neumann emphasized that individual opinions and behavior can also be influenced by their expectations of what the future trend in public opinion concerning a particular issue will be. The future prospects for the distribution of opinion are subtly associated with the media's interpretation of the current public opinion and in this sense contribute a lot to individual's initiative to speak out their mind. Taylor (1982) pointed out that, in the spiral of silence, both a person's perception of the current opinion and assessment of future trend will affect individual's judgment of the future success of an opinion concerning this issue. His study proved the hypothesis that people with opinions that are consistent with the majority are likely to think their opinions will be supported in the future. Nevertheless, he also asserted that personal beliefs can have a much stronger effect on individual confidence in the opinion's future success, suggesting that individual beliefs interact with individual perception of current majority opinions in predicting the trend of public opinion in the future.

One of the major consequences indicated by the Spiral of Silence theory is its influence on one's willingness to speak out in public, which focuses on the relationship between one's perception of the mainstream and the initiative to express one's idea publicly. Much of previous research concerning the willingness to speak is conducted by surveys rather than in a real environment. Therefore, it has received a lot of doubtful reviews in the sense that questionnaires cannot evaluate people's willingness to speak fairly because they do not resemble a real situation. Despite so many doubts and questions from critics, not many experimental designs were conducted to fill this gap, which is partly because of the difficulty and cost in creating a reality-like environment. Scheufele & Moy (2001) used a split-ballot technique to investigate two closely related ways of perceiving willingness to express opinions about biotechnology. In the first group, participants were asked to answer a hypothetical standard question whether they would be willing to express an opinion in a given situation. In the second group, participants, after completing the survey, were asked to join a focus group discussion with different views on biotechnology. As expected, the results show that the overall spiral of silence effects in the hypothetical condition is much weaker than the effects in the real condition. Consistent with the traditional spiral of silence model, the study found that fear of isolation and perceptions of the opinion climate are both significant predictors of people's willingness to express an opinion. As Noelle-Neumann (1974, p. 45) has advocated, willingness to express one's opinion is dependent on the individual's assessment of the frequency distribution as well as future trend of various opinions in this person's environment. The stronger a person believes that his belief is (or will be) the dominant one, the more likelihood there will be for this person to expose his opinion to the outside world. A substantial consequence the willingness to speak out may give rise to is that it can interact with the social environment and shift the climate of opinion to a certain extent. On the contrary, if a person thinks his view is the minority one, the person is less likely to express this view, resulting in the vanishing of the minority opinions. However, the spiral of silence did not specifically give an explanation to the fact that some minority opinions can grow in their strength and quantity without being silenced by the dominant mainstream culture, such as the growing voice from GLBTQ communities.

A large portion of research on the effect of spiral of silence has been concentrating on individual's reported willingness to speak out his or her opinion. Different from traditional spiral of silence model, some scholars have alternative assumptions about the possible consequence of the spiral of silence. One of the assumptions is the conformity hypothesis advocating that although some individuals will remain silent with fear of isolation if they perceive their own opinion as the minority, others, in order to avoid tension and conflict, are willing to conform to the mainstream ideas. Despite the rationality of this hypothesis, some scholars also have different views towards it. One of the alternatives is the projection hypothesis. Hayes (2007) did a study of the possible opinion expression avoidance strategies people may adopt in a hostile environment. In this study, 91 students were asked to describe how they would respond to a hypothetical group discussion scenario, in which the majority people's opinion is opposite to what the subjects believe. The results show that people would adopt a variety of strategies to censor their own opinion expression. These strategies include expressing indifference or equivocation, trying to change the subject, or reflecting the question back with giving any response. Although this study is also based on hypothetical survey questions, it is one of the few studies that ever explored all other possible SOS consequences aside from remaining silent. This study indicated that individuals actually use a series of opinion expression avoidance strategies to deal with an environment that is filled with hostile opinions.

3. Spiral of silence in the cyberspace

Although the spiral of silence was raised more than 30 years ago, the theory is still potent in analyzing the interaction between public opinion and individual views. On the other hand, with the introduction of computer and internet technology into regular households, we are witnessing an accelerating process of revolution in the tools, channels and surroundings of communication. A lot of the changes brought about by the Internet exceed our expectations and imaginations from a traditional point of view, and still they never ceased to surprise us. In an era when a new invention can phase out every few years, will the theory of spiral of silence still be applicable and remain as powerful as it used to be? This question cannot be answered in a simple sentence. Thus, it is necessary for us to take a glance at the recent research related to the spiral of silence on the Internet.

There has been some research that partially proved the effect of the spiral of silence. Liu and Fahmy's (2011) study investigated how the important factors within the spiral of silence theory contribute to the cyberspace. They compared the online and offline settings in their different modes of speaking out regarding the controversial topic – the legalization of same-sex marriage. The research showed that respondents were less likely to feel isolated on the Internet than in a real world. Nevertheless, the findings also suggested that the respondents were likely to be discouraged from expressing their minority opinions online, especially if their positions were considered extreme by the majority opinion holders online. As a result, this study failed to support their hypothesis that individuals are more likely to speak out their opinions in the cyberspace than in an offline setting, suggesting that the online setting is no difference from the real world and the spiral of silence might continue to affect the virtual communities. On the other hand, the study obtained mixed implications regarding the perceived current opinion and future trend. Although statistics showed that the consistency of individual views with the current majority opinion predicted the willingness to speak out offline, the research did not achieve the same effect of perceived future trend on the climate of opinion in the cyberspace.

Nevertheless, many other studies have suggested a limited applicability of the spiral of silence. Ernste, Fan, Sheets, & Elmasry (2007) probed into the process of how the public opinion can influence the online climate of opinion by comparing public opinion polls against the Usenet newsgroup discussion from 1993 through 2004. Based on the data of polls collected on ideological self-identifications and Usenet newsgroup postings collected in Google groups, they used an ideodynamic model to examine Usenet self-assertions as either being liberal or conservative. The model takes into analysis two opposite hypothesized dynamics: one is the effect of the spiral of silence, which accounts for the increasing dominance of the majority opinion; the other is the hypothesis of the diffusion of innovations (Rogers, 1995), which extrapolates the possibility that a minority position can gain favor despite the preponderance of the majority opinion in certain conditions. As the results show, although the polls indicated that self-identifications as conservative, moderate, and liberal stay almost static through the 23 years from 1981 to 2004, liberal self-assertions did not decrease as expected by the conformity hypothesis of the spiral of silence. On the contrary, liberal self-assertions have maintained their proportion and, in later years, even increased in its strength suggesting a deindividuation effect that is becoming more apparent in computer-mediated communication. It also suggested that diffusion theory might be more powerful in interpreting the opinion dynamics in the cyberspace than Noelle-Neumann's theory of spiral of silence because the latter failed to explain the fact that liberal assertions are becoming more visible despite the continuous dominance of conservative self-identification. This study also draws our attention to the characteristic of anonymity, which might be the cause of deindividuation effect.

Not many experimental studies have been conducted concerning this topic. Yun and Park's (2011) experiment is one of the few that used manipulation of conditions to test individual's willingness to speak out in computer-mediated communication. In the pre-test, subjects were asked to complete a questionnaire measuring their individual position in abortion, the perceived climate of opinion and their fear of isolation in offline and online environment. Later the subjects were exposed to an online forum with dominant positions either for or against abortion. The factor of anonymity was also manipulated in the experiment, with half of the conditions requiring participants to register before posting a message and half not requiring registration. In the post-test questionnaire, the participants were asked to answer questions about their position, the manipulation check and their perceived climate of opinion and etc. The results supported the hypothesis that people are less likely to be influenced by the fear of isolation in an online forum due to the lack of physical presence. People were willing to speak out in online forum whether they thought their opinion as the majority or the minority one in an offline setting.

It seemed that respondents were willing to express their own opinions despite their perception of the offline majority opinions, indicating that it is the immediate online context that affected Internet users' decision to articulate. However, the test of whether people will refrain from expressing their views due to fear of isolation did not deliver a clear picture. Since the online forum offers an anonymous environment, the fear of isolation should not exist in the cyberspace. However, the fact is that correspondents may still choose not to speak out if they detect a predominance of the majority opinion. The research suggested that participants' willingness to post a message might also be associated with their individual levels in the fear of isolation. They came to the conclusion that individuals' willingness to post a message on the forum is influenced by the immediate opinion climate on the forum, or the perceived opinion climate online.

4. New context and new issues

Since there has not been sufficient research investigating the spiral of silence on the Internet, it is not easy for us to get a clear picture of how the cyberspace may work in its cultivation of the dynamic interaction between mass media and individual opinions. Yet the limited amount of available literature offers a mixed attitude towards the spiral of silence on the Internet. Thus it is necessary to have a general idea of the advantages and disadvantages of research in this field before moving ahead.

Among all previous research concerning the spiral of silence, one issue that has not been substantially explored is the process of how individual's willingness to express opinions is conditioned by his or her perception of opinion climate. Although Noelle-Neumann has defined the process as a monitoring mechanism in a quasi-statistical sense, this term "quasi-statistical" remains ambiguous regarding how exactly each individual applies this quasi-statistical monitoring mechanism to perceive public opinions, and more questions arise concerning the sources on which individuals depend in their judgment of opinion climate. Aside from the popular view that individuals perceive the public opinion from mass media, other researchers suggested that individuals may rely on smaller reference groups rather than an overall judgment of the whole society to decide what the society's beliefs on a certain issue are (Glynn & McLeod, 1984; Katz, 1983; Kennamer, 1990; Salmon & Kline, 1985; Taylor, 1982). Therefore, the individual's assessment of public opinion at least involves two different measurements, i.e., the overall environment (created by the mass media) and the immediate environment (defined by smaller reference groups). Furthermore, the Internet complicates the situation by creating a virtual-reality world that resembles the real society in many ways but also differs greatly from the traditional mass media. The Internet is different from the traditional media in at least the following four aspects.

First, the population of internet users does not necessarily represent the population who use traditional media such as TV and radio. As the popularization of computer and internet technology began only in the late 1990s, it is commonly believed that the average age of computer/internet users is much younger and more educated than the overall generation. As suggested by the Usenet study (Ernst et al., 2007) concerning the change in public opinions over the years, we would expect the population of internet users to be more liberal-minded and more receptive of views in opposite of mainstream ideology. If this is true, the online climate of opinion might not be consistent with the offline climate of opinion. This newly emerging form of media might push researchers into probing four dimensions of public opinions in the future: the overall climate in traditional media, the immediate climate in traditional media, the overall climate in cyberspace, and the immediate climate in cyberspace.

Second, the communication online is interactive and user-oriented in contrast with traditional media. The tradition media including TV, radio and newspapers can only offer a certain amount of information via a limited space of medium form. If a TV viewer does not like the program on a certain channel, he or she can change to another channel, even though the program on another channel might not intrigue the viewer either. The internet, instead, provides individuals with the powerful search engines like Google and Bing, which enables people to locate any information they desire with a click of mouse. Search engines not only facilitate the congregation of people with minority opinions, but also accelerate the formation of online communities among them. Nowadays, you can easily find any online communities featuring any idiosyncratic issue or view by using search engine. In addition, people do not have to actually show up in person to address their own opinion. If individuals can always find communities sharing and supporting their own minority opinions, it would be questionable how much fear of isolation will exist in a virtual world. The internet might create a platform for individuals to identify themselves with peers and express their ideas freely with a minimum fear of isolation.

Third, individual's input in public opinion might weigh much more in the cyberspace than in traditional media. Although all the major news agencies have their own online versions, the voice of individuals has increased greatly in the cyberspace. For one thing, people can ask questions, leave comments or even criticisms online; for another, these questions, comments, criticisms will be read by millions of individual internet users just like a newspaper editorial or an anchor's commentary. In this sense, individuals have almost the same influence as these mass media organizations in the virtual world. If each individual realizes his/her power in influencing the opinion climate online, it would be doubtful that people will still refrain from articulating their ideas that conflict with the majority of the society. Since the interactivity of the digital world offers individuals a opportunities to articulate their opinions, which can compete with mainstream online media run by governments and big corporations, it is very likely that this is the reason that the ideology in the cyberspace is getting more liberal over the years.

Fourth, the Internet maximizes individual's exposure to minority group's opinions as well as the values and beliefs held by a different culture. Domestically speaking, the cyberspace not only offers a place for subcultures to gather, survive and prosper, but also gives subcultures more exposure to people holding mainstream ideas. In this way, the co-existence of mainstream culture and subcultures online may promote the mutual respect and understanding between them. Internationally speaking, the internet has elevated the cross-cultural communication from an organized but limited intergovernmental level to a much more accelerated and sophisticated individual level. It is amazing how easily and comfortably people can chat with someone who is thousands of miles away at almost no cost. Language is not even a barrier with the invention of various online translation tools. Since we predict that frequent internet users have a much more broadened vision, we would expect that Internet users might be more aware of the cultural and partisan differences concerning value-laden topics and thus might be more tolerant and receptive of minority opinions. If this is true, it would be sensible for us to come up with the hypothesis that the Internet creates an environment that is more lenient toward minority views and thus would cause less fear of isolation among Internet users.

4.1 The climates of opinion online and offline

One question that has not been sufficiently addressed is whether the online climate of opinion is identical to the offline one. Although a few previous studies have tested the spiral of silence theory, most of them are based on the assumption that the majority opinion online is the same with the majority opinion offline. However, there have been some indications that this might not be the case. One important factor most researchers did not fully recognize is that the Internet users are a whole different population from that in real world. As most would agree on, the Internet users are most likely to be a young, well-educated and liberal-minded middle-class population with more males than females. If the Internet users are a biased population, there is every reason we should doubt that the online climate of opinion is identical with the offline one.

The research by Ernste et al. (2007) offers us some informative hints. Their research demonstrated that the offline proportion between liberal and conservative self-identifications, obtained by public opinion polls, had remained constant during the time period from 1993 to 2004. Nevertheless, although the amount of liberal self-assertions in Usenet postings had been equal to that of conservative self-assertions from 1993 to 1996, liberal self-assertions have been gaining their position in the cyberspace. Since the time from 1993 to 2004 is a period when the development of the Internet was accelerating in terms of its speed, population and accessibility, it is reasonable to come to the assumption that the Internet has been gradually occupied by an increasingly dominant group of liberal-minded users during its process of expansion to a more generic population. Yun and Park's (2011) research not only distinguished the online climate from the offline climate, but also specify it to be what they defined as the immediate online environment, which refers to the specific online forum existing away from the interference of the dominant offline majority opinion. Their research found that it is the online immediate climate of opinion, rather than the perceived offline majority opinion, that influence people's willingness to post.

4.2 Anonymity in the virtual world

One difference of the Internet from the real world is the fact that people can express their opinion freely online without being identified physically. Many researchers have expected this feature of anonymity in communicative setting would bring about a revolution that promotes the redefinition to the way of free expression among the individuals. There have been a few theoretical frameworks concerning the role of anonymity in the formation of public opinion.

The deindividuation theory claims that, in a situation where a person perceives his or her identity is hidden from others, this person will articulate his or her opinion regardless of the opinion climate. Joinson (2001) found that individuals are more willing to disclose personal information online in comparison to face-to-face communication. Although not much research has directly tackled this issue in terms of the formation of public opinion, some statistics have already implied the difference anonymity can make. The longitudinal study conducted by Ernste et al. (2007) offered some indications that the factor of anonymity might contribute to the individual perception of the degree of fear of isolation. Although Noelle-Neumann's theory did not specifically talk about the change in public opinion, much of the past research has been based on the implicit assumption that the climate of opinion stays static most of the time. Ernste et al. (2007) found in their data that the liberal expression of ideas has been increasing in the cyberspace dramatically, especially during the period of widespread access of individuals to the Internet. This might be some indication that the anonymity on the Internet may have played an important role in shifting the ratio between liberal and conservative ideas. Nevertheless, another framework called SIDE, i.e., social identity model of deindividuation effects (Postmes & Spears, 1998) disagreed with the hypothesis that individuals with anonymous identities will articulate their ideas without inhibition in the cyberspace. After analyzing sixty studies related to the influence of anonymity on people's behavior, Postmer and Spears did not find sufficient evidence to support the deindividuation theory. On the other hand, they found the tendency that people's behaviors might become more normative.

Therefore, the SIDE (social identity model of deindividuation effects) advocates that group immersion and anonymity can actually make an individual's social identity more salient. As a result, individuals are more likely to perceive self and others based on the prototypical features of a certain group they belong to and act accordingly (Postmes, Spears, & Lea, 1998). The only experimental design involving the manipulation of anonymity can be found in Yun and Park's (2011) study of willingness to post a message online. In their experiment, half of the participants were asked to register before posting and half of them were not. Surprisingly, the statistics did not find any significant difference between the registration and non-registration conditions. The reason for not achieving any anonymity effect might lie in the way how anonymity was manipulated: for one thing, people can still offer fake personal information for registration; for another, people who are time-conscious are less likely to go through the trouble of registering to post a message anyway. Further investigation needs to be conducted in this aspect.

Although being able to speak out one's ideas anonymously is believed to encourage the free expression among the minority opinion holders, anonymity might not be a gain without sacrifice. Although the fear of isolation is strong in the real world, it does not mean the virtual world can completely eliminate people's fear of isolation. Contrary to what most people would believe, anonymity might even escalate people's fear of isolation online, especially in a virtual setting dominated by hostile atmosphere. Since both sides related to an issue can speak their mind without being physically present, many online discussion on a controversial issue can lead to a much harsher verbal conflict, featuring a language that demonstrates defamation, profanity, and even hate and racism. However, there has not been much research regarding how the degree of hostility in online discussions can silence the minority opinion holders.

4.3 Cross-cultural differences

Apart from the accusation that the spiral of silence failed to account for individual characteristics, another flaw of this theory suggested by many scholars is how the spiral of silence ignores the cross-cultural difference in the willingness to speak out. In a country or culture with predominant collectivism such as China, people value the importance of harmony and uniformity over individual expression, and thus do not encourage assertions of minority opinions in public. In western countries like America, where individual differences are regarded as a virtue, people are more likely to appreciate the spirit of and the courage for speaking out their mind. Since the Internet offers a platform for people from all around the world to participate in online discussions, how this cross-cultural difference will interplay between the majority and minority opinion is still a mystery. For example, in regard to the issue of abortion, people would expect pro-choice views will be dominant in western countries that value individualism. Nevertheless, pro-life activists are actually more witnessed in western countries and people in Asian countries tend to be more tolerant of abortion.

4.4 Selective Exposure and Polarization

In traditional media, selective exposure is a concept referring to behavior that individuals tend to pay attention to the information that is consistent with his or her preexisting attitudes, which leads to the reinforcement of the attitudes (Klapper, 1960; Lazarsfeld, Berelson, & Gaudet, 1944; Sears & Freedman, 1967). Previous studies have found significant elective exposure among internet users. For example, Knobloch-Westerwick & Meng (2010) did an experiment by asking participants to browse through an online magazine covering different political issues with opposite attitudes. The results showed that participants preferred articles that were consistent with preexisting attitudes rather than articles that were opposite to their attitudes. Johnson, Bichard, and Zhang (2009) also found that internet users practice selective exposure when reading political blogs, especially for heavy blog users who are politically active and highly educated.

Many scholars believe that selective exposure is related to the polarization of political views. Klapper (1960) claimed that mass media, instead of shifting individual beliefs and attitudes, can only reinforce people's predisposition. Stroud's (2010) study of the National Annenberg Election Survey discovered that there is a strong relationship between selective exposure and political polarization. However, it is still not clear whether polarization caused by selective exposure will necessarily lead to moderated voices of minority groups or not. Kobayashi & Ikeda (2009) studied political web browsing behavior and found that although internet use promotes exposure to attitude-consistent opinions, it does not suppress people's exposure to conflicting arguments and neither has any negative effect on political tolerance. This study suggested that selective exposure on the Internet will not result in a society with fragmented political atmosphere. Another view represented by Sunstein's (2007) fragment thesis claimed that selective exposure of media content based on preexisting ideology will result in a diverse speech community with members of fragmented interests and greater political extremism. Warner (2010) tested the fragmentation thesis by studying the effects of exposure to ideologically homogeneous views online. The results demonstrated that exposure to ideological homogeneity cause attitude extreme in the conservative condition, suggesting online political extremism is possible. Due to the mixed literature regarding to this issue, further investigation is needed to clarify the relationship between selective exposure and its influence on the climate of opinion.

5. Implications for future research

Although the spiral of silence theory was propounded prior to an era of Internet access and information explosion, its significant power in explaining the relationship between mass media and individuals cannot be underestimated. However, the theory itself obviously has some weaknesses and inconsistencies that deserve further investigation. Most critics come from the view that this theory tends to ignore the personal characteristics in deciding whether or not to speak out and that treating all the people in a society as a whole will most likely suffer from overgeneralization. Aside from its lack of considering individual characteristics, the way we defines public opinion might face new challenge in an Internet era.

First, since most public opinions in the society are not decided by polls, how individuals evaluate the majority opinion in a quasi-statistical sense is unclear. At least there are three sources individuals can rely on to complete their assessment of public opinion: they can either follow the traditional media, or listen to the opinions of reference groups, or keep track of the Internet. However, with various sources of information offered by different parties nowadays, people can choose whatever sources they prefer and thus are more susceptible to misjudgments of the climate of opinion through their selective attention.

Second, since the virtual environment is so different from that of the traditional real world, it is reasonable for scholars to question the application of the spiral of silence to the cyberspace. Previous studies either assumed that the climate of opinion in cyberspace is the same with that in the real world, or did not explicitly address the opinion climate on the internet. However, some statistical studies implied a rising tendency of liberal expressions in the cyberspace over the years, which offered a strong indication that the Internet differs from the real world in its majority opinion. Because of lack of empirical research in this specific field, it is unclear how anonymity might downplay people's fear of isolation, especially when it comes along with the effect of harsher comments on the opposite opinions.

Third, even in terms of the traditional media, the previous research delivers a mixed picture of the dynamics between willingness to express opinions and the perceived support for those opinions. In a meta-analysis of survey studies on the spiral of silence (Glynn et al., 1997), the statistics only found a small yet significant relationship between people's perceptions of support for their opinions and their willingness to express those opinions. On the other hand, the relationship between the two variables did not show any difference between current support and future support. Obviously, with the belief that survey-based studies might not be able to capture people's willingness to speak fairly under a hypothetical condition, we would expect more experimental studies in the future to offer a better analysis of this issue.

With all these factors combined together, the picture of computer-mediated communication becomes more and more confusing, leaving a challenging task for mass media scholars. Although it is still too early to draw any conclusions, previous studies definitely provide us with a guideline of where and how we should keep our investigation.

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