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THE SPIRAL OF SILENCE IN VIRTUAL SPACE: EXAMINING HOW
EXPERT PARTICIPATION, DIGITAL MEDIA FORM, AND OPINION
CONGRUENCY RELATE TO OPINION EXPRESSION

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Mass Communication

in

The Manship School of Mass Communication

by
Yiwei Zhang
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ABSTRACT

This study tested the spiral of silence in both Social Networking Sites (SNS) and online discussion forums. It argued that online expert participation may influence people's willingness to take part in an online discussion. A two (opinion climate) by two (expert participation) experiment was designed to examine how expert participation influenced the relationship between people's willingness to speak out and opinion climate with the controversial topic: abortion. In this study, the spiral of silence effect was only found when experts were present in the discussion.

CHAPTER 1. INTRODUCTION

One of the foundational principles of modern democracy is that every person may express political opinions freely and equally. In the ideal situation, nobody's opinion should be overlooked or overshadowed by others. However, in real life, the minority's opinions are easily overshadowed by the majority's. The spiral of silence theory (Noelle-Neumann, 1974) is one of the most prominent theories to describe and express such phenomenon.

Noelle-Neumann outlined the spiral of silence theory in 1974 and tested this theory in the face-to-face communication setting. Forty years later, society has changed and the Internet has become an important part of people's daily lives. The Internet has been viewed as a booster of democracy. Many people believe that the Internet breaks social hierarchy and provides a virtual space where every person shares an equal chance to express. Therefore, scholars predicted that spiral of silence may disappear in computer-based-environments, and they tested spiral of silence online (Lee, Choi & Lee, 2004; McDevitt, Kiouisis & Wahl-Jorgensen, Wanta & Dimitrova, 2002; Yun & Park, 2011, 2003). However, the results contradicted with each other. Some scholars, like Yun and Park, found the significant relation between opinion climate and people's willingness to speak out online. Some scholars, like Wanta and Dimitrova, found no significant results but only some indications supported spiral of silence effect online. Other scholars, like Lee and his coworkers, found opinion climate could influenced people's willingness to express online only when it interacted with some other moderators. Further, the appearance of Social Networking Sites (SNS) makes the interpretation of spiral of silence in an online environment more difficult. Several scholars tested spiral of silence theory on SNS from different angles (Fox & Warber, 2015; Gearhart & Zhang, Hampton, et al., 2014; Lee & Kim, 2014; 2014; Porten-Chee & Eilders, 2015). The results also contradicted with each other. For example, the results of Gearhart and

Zhang's (2014) study showed that spiral of silence exists on SNS, but Porten-Chee and Eilders' (2015) study showed contradicted conclusions. Moreover, among the studies about spiral of silence on SNS, the experiments were rarity. There is only one experiment (Gerhart & Zhang, 2014) about spiral of silence has been done on SNS until now.

One of the reasons for the mixed results for online spiral of silence studies was some scholars focused too much on examining the existence of spiral of silence and testing traditional moderators of spiral of silence online, while ignoring the possibility that the new environment may create new factors which could affect people's willingness to express. The new factors also may affect the relationship between opinion climate and people's willingness to speak out.

After its introduction, some scholars began to doubt the key propositions of spiral of silence and bring up new factors that may influence this theory. Scholars questioned the suitability and sufficiency of fear of isolation as the only motivator to explain people's willingness to speak out in different opinion climates. Scholars found people's interest in politics (Kim, Han, Shanahan & Berdayes, 2004), communication apprehension (Neuwirth, Frederick, & Mayo, 2007), cultural differences (Trubinsky et al., 1991), willingness to self-censor (Hayes, Glynn, Berdayes & Shanahan, 2005), attention to news (Lee, 2007), efficacy (Huang, 2005), and attitude certainty (Matthes, Morrison & Schemer, 2009) also influenced outspokenness. In spiral of silence studies in computer-mediated communication, scholars also pointed out that several unique factors in the computer-mediated-environment could influence the relationship between people's willingness to speak out and opinion climate, for example, user-generated content consumption (Porten-Chee & Eilders, 2015), anonymity (Yun & Park, 2011), participant's identity presentation strategy (Fox & Warber, 2014), individuals' online information selection strategy and information perception models (Schulz & Roessler, 2012) and website sources

referenced (Nekmat & Gonzenbach, 2013). Some of those factors were supported by research, such as participant's identity presentation strategy, while others, such as anonymity and website sources referenced, were not supported by research.

This research examined another potential explanation for the mixed results of online spiral of silence studies: the identities and behaviors of subjects whom participants speak with. In other words, the identities of the people we communicate with and how they behave may influence willingness to speak out in different opinion climates. Previous studies supported this argument. Previous studies showed that communication targets' status (McClendon, 1974), identity (Henson & Denker, 2007), and other social cues influenced people's willingness to express. Scholars thought people's willingness to express would be influenced by their knowledge about the audience (McDevitt et al., 2003; Zuercher, 2008). Some special identities, like instructors to students, had a much greater influence on subjects than others and silenced people no matter what kind of opinion climates they were in (Henson & Denker, 2007).

The appearance of the Internet not only changed the way we communicated with people, but it also changed the people who we communicated with. Unlike face-to-face communication, which is limited by many physical, social or geographical factors, the Internet allows communication with all kinds of people on a variety of topics. It expands the opportunity for a common person to communicate with people who hold special identities, for example, experts in some specified areas. The Internet also provides those with special identities, such as experts, a channel to show, spread and market their abilities to common people. For example, experts can use blogs, twitter, YouTube or any other online platform to showcase and market their expertise. They can play active roles in all kinds of online discussions, using their identities to make themselves more reliable. It is not unusual for individuals to read reviews from an expert in the

cosmetics industry on Amazon when trying to purchase some lotion, or to meet an expert in gay culture when debating online with others about gay marriage. It is easy to find individuals online who define themselves as experts through the use of expertise, experience, or titles, like Abby Johnson, who defines herself as "planned parenthood director turned prolife advocate" on twitter.

The studies about other moderators also implied that expert participation might influence people's willingness to speak out online. For example, the people who have high willingness to self-censor (Hayes, Glynn, Berdayes & Shanahan, 2005) may care more about the identities of their audience, and the unique identities of their audience, like experts, may influence their willingness to speak out. Expert participation online also may intensify or weaken people's attitude certainty, and then influence people's willingness to speak out (Matthes, Morrison & Schemer, 2009).

However, although previous studies about experts implied that experts may have great influence on common people's attitudes, opinions and behaviors, especially when the experts play a role as an opinion leader (I deleted Zaller, for I found it in fact I don't need a citation here), no scholars have studied how expert online participation would influence people's willingness to speak out.

We don't know what role experts play in people's willingness to express in online discussions. The aim of this thesis is to explore how expert participation influences people's willingness to express in online discussions. We would use experiment, which is rarity in the spiral of silence studies on SNS, to test our hypothesis. First, it reviewed previous literature on how the audience's behavior influences subjects' willingness to express. Second, it briefly reviewed spiral of silence studies of the online environment. Then, it discussed the role of expert participation in online discussions. Finally, the results of a 2 x 2 experiment manipulating expert

participation (expert/ no expert) and opinion climate (friendly/hostile opinion climate) were provided. The study found that expert participation influenced people's willingness to speak out, but it only worked on social networking sites(SNS).

CHAPTER 2. LITERATURE REVIEW

Spiral of Silence and Audience Composition

Forty years ago, Noelle-Neumann (1974) formulated spiral of silence theory to explain why some groups remain silent while other groups are more vocal in forums of public disclosure. Spiral of silence theory rests on five assumptions: threat of isolation, fear of isolation, willingness to speak out, quasi-statistical sense, and spiral of silence. It describes a process where people can use “quasi-statistical sense” to find out whether or not their opinions are popular. If people find they are in the minority, they will perceive threat of isolation and be in fear of isolation. Fear of isolation will make people in the minority refrain from public expression of opinions. On the other hand, people in the majority will be more vocal and have willingness to speak out. As a result, “the tendency of the one to speak up and the other to be silent starts off a spiraling process which increasingly establishes one opinion as prevailing one” (Noelle-Neumann, 1974, p. 44).

As the most famous theory to answer questions about people's willingness to express in political debates, spiral of silence theory has attracted scholars' attention since its debut. Scholars tested this theory from different angles, with different issues, and in different contexts, for example, the spiral of silence studies of gay bullying (Sherice & Zhang, 2014), abortion (McDevitt, Kioussis & Wahl-Jorgensen, 2003), genetically modified food (Kim, Kim & Oh, 2014), environmental activism (Hayes, 2007), political candidates (Lee, Choi, & Lee, 2004), and political debates (Wanta & Dimitrova, 2000).

Although numerous studies supported Noelle-Neumann's conclusions, there are also many contradictory results and inconsistent findings in spiral of silence studies. In 1997, Glynn, Hayes, and Shanahan did a meta-analysis of survey studies about the opinion climate and people's

willingness to speak out. Their study found a significant but very small "relationship between the degree to which a person believes other hold similar opinion and willingness to express those opinions" (Glynn, Hayes, & Shanahan, 1997, p. 452). Their findings made scholars doubt the suitability and sufficiency of fear of isolation, and search for new factors to explain the relationship between opinion climate and willingness to speak out. In 2000, Scheufele and Moy did a conceptual review and empirical outlook about 25 years of spiral of silence studies. They pointed out the main criticism of the spiral of silence as a macro theory was "factors other than fear of isolation that potentially influence people's willingness to speak out" (Scheufele & Moy, 2000, p. 13).

Many variables have been found out that might affect outspokenness, for example: people's interest in politics (Kim, Han, Shanahan & Berdayes, 2004), attention to news (Lee, 2007), efficacy (Huang, 2005), communication apprehension (Neuwirth, Frederick, & Mayo, 2007), willingness to self-censor (Hayes, Glynn, Berdayes & Shanahan, 2005), social capital (Dalisay, Hmielowski, James & Yamamoto, 2012), cultural differences (Trubinsky et al., 1991), and attitude certainty (Matthes, Morrison & Schemer, 2009).

Attitude certainty is an indicator of attitude strength. It means that people hold their attitudes with varying levels of conviction. Matthes (2010) and his coworkers found that attitude certainty is a key variable to identify hardcore believers, those not likely to be swayed by the opinion climate. Opinion climate could only determine opinion expression when individuals hold their attitudes with low or moderate attitude certainty (Matthes, Morrison & Schemer, 2010).

Communication apprehension could be understood as the fear/anxiety an individual feels when communicating with others (McCroskey, 1977). Scholars found that an individual's

communication apprehension was negatively associated with individual's willingness to express in public (Ho et al., 2008; Neuwirth, Frederick, & Mayo, 2004; Willnat et al., 2002).

Moy, Domke and Stamm (2001) found that perception of issue importance was a significant predictor of one's willingness to speak out. They found that that individuals' perceived importance of affirmative action was positively related to their willingness to speak out after controlling other variables.

One of the highly likely but ignored factors that may influence the relationship between opinion climate and people's willingness to speak out is the audience composition (Hayes et al., 2001; Henson & Denker, 2007). Few studies have examined how identities and behaviors of the audience affect people's willingness to speak out in different opinion climates, but the results of some studies suggested that people's willingness to speak out can be influenced by audience behaviors and identities.

The results of Henson and Denker's (2007) study about spiral of silence in the classroom gave evidence about how audience identity may influence people's willingness to speak out. Henson and Denker found that when students found the opinion they held was different than the view they perceived their instructors held, they were more likely to be silent in the classroom. However, students "did not feel as if the communication climate was unsupportive of their views" (Henson & Denker, 2007, p. 18). Instructors' attitudes influenced students' willingness to express much more seriously than other students' attitudes did. Students' willingness to speak out was influenced by the identity of their audience.

Nekmat and Gozenbach's study about websites also predicted that the audience's identity might influence subjects' willingness to express. Nekmat and Gozenbach (2007) predicted that individuals would be more likely to express themselves in website-based forums belonging to an

ideologically similar activist group as compared with a main-stream news source. Although their study didn't support their hypothesis, it was still a helpful deduction about how the identities and behaviors of the audience might influence people's willingness to speak out.

The discussion about social cues in online spiral of silence studies may be a unique support to the argument that audience identity and behavior might influence people's willingness to speak out. More than one scholar has attributed non-significant results online to low social pressure caused by the low social cue environment on the Internet (McDevitt et al., 2003; Zuercher, 2008). McDevitt (2003) found that a short online conversation would make participants express more moderate opinions than when they expressed in face-to-face communication. He posited it was caused by the decreased social cues online, which limited “the capacity for opinion surveillance when discussants are physically isolated from each other” (p.457). Zuercher (2008) pointed out that McDevitt's results could be explained by what McClendon found in 1974, that the perception of equal status increased the perception of similarities between individuals, which could be detected by “dress, body language, and use of space” (p.15). Zuercher thought the reason the people's opinions were moderate in McDevitt's study is that McDevitt didn't give subjects enough time allow social cues to develop. He predicted that those in the minority opinion would be more likely to express their unconstrained opinions through computer-mediated-communication at the beginning due to decreased social cues, but over time, the minority would be less likely to express their opinions due to the development of social cues. Although there was no empirical evidence support McDevitt's and Zuercher's argument about how social cues influenced people's willingness to speak out in computer-mediated-communication, their arguments were still a good illustration of how the identity and behavior of the audience might influence people's willingness to express: people

may change their willingness to speak out after detecting their audience's attitudes, opinions and identities through their dress, body language and use of space.

In conclusion, in spiral of silence studies, there are few studies about how the audience's behaviors and composition influence people's willingness to speak out in different opinion climates. However, it is likely that people's willingness to express would be influenced by their knowledge about the audience. Some audiences who have special identities, like instructors to students, have a much greater influence on subjects than others. People with special identities may sometimes silence people, regardless of the opinion climate. Therefore, research is needed to determine how individuals with special identities might affect people's willingness to express online and what kind of special identities have that influence. Through this knowledge, we can improve our online discussion environment and decrease the negative influence of spiral of silence.

Spiral of Silence and Online Discussion

The Internet has changed our lives. It has provided us with new ways to learn, build social connections, make money, have fun, and communicate with others. Spiral of silence scholars believed the Internet provided new ways for people to determine opinion climates, express themselves, and finally affect the opinion climate. They tested spiral of silence in chatrooms, Bulletin Board System, news websites, social media and other online forums to detect whether spiral of silence still worked and determine what factors may intensify or weaken it in different digital media forms. They got mixed results.

Wanta and Dimitrova (2002) tested an individual's willingness to speak out in online chatrooms that offered anonymity during the 1996 U.S. president election. While no statistically significant changes happened in the debate, postings for the winning candidate did increase while

postings for the losing candidate decreased over time. Although they didn't get statistically significant results to support online spiral of silence theory, they found some indication to suggest that spiral of silence may happen even in an anonymous environment.

Another study about spiral of silence in the chatroom was done by McDevitt and Wahl-Jorgensen in 2003. They ran an experiment in both face-to-face and electronic chatroom settings, and they found the participants in the computer-mediated setting were perceived as more moderate than participants in the face-to-face setting. They found that in a computer-mediated environment, instead of speaking out (taking a stand), the participants in minority were more likely to speak up in neutral fashion. They posited it was caused by the decreased social cues in computer-mediated-communication.

Online discussion boards such as the comment region of news website, which could be defined as “a text-based computer-mediated communication environment that allows individuals to interact with one another without the constraint of time and place” (Hew, Cheung, & Ng, 2010, p. 572), were another digital setting spiral of silence scholars were interested in. Lee, Choi and Lee (2004) longitudinally investigated spiral of silence theory in Korean bulletin board postings on the national election. They hypothesized those “supportive postings for the candidates would increase as they gained favorable media coverage or when they were shown as leading a poll” (p.5). They found online postings fluctuated in ways consistent with the presentation of the candidate in the traditional media, but not consistent with the results of opinion polls. Therefore, they found limited support of spiral of silence theory. They concluded that “spiral of silence may exist online in accordance with the mass media” (p. 22).

Yun and Park were curious about the influence of anonymity to the relationship between opinion climate and individual's expression willingness in online discussion forums, and they ran

an experiment to test it in 2011. They found that “people were equally willingly to speak out in an online forum whether they perceived their opinion offline as in majority or in the minority,” and “people were less likely to post a message when they perceived their opinion as minority online or the messages on the forum were the opposite of their opinions” no matter whether they were in anonymous environment or not (p. 216). Their results were questionable, since only a quarter of participants passed the manipulation check.

Nekmat and Gozenbach (2013) tried to determine whether the website source would influence the relationship between opinion climate and people's willingness to speak out on the discussion forums. They designed a 2 x 2 experiment manipulating website source (mainstream news/ideologically homogeneous activist group) and opinion congruency (minority/majority opinion). They found an individual's willingness to participate in online discussions was only affected by opinion congruency.

Social Networking Sites (SNS) are yet another digital form on which scholars have tested spiral of silence. Scholars believed spiral of silence would work on SNS, for SNS include both anonymous system and real-name system, and most of SNS are completely or partly based on real-world anchored relationships (Zhao, Grasmuck, & Martin, 2008). Thus, the social relationship on SNS are an “expansion of an existent real-world social network and anchored to others in an offline setting, such as through institutions or mutual friends” (Zhao, Grasmuck, & Martin, 2008, p. 1818).

Gearhart and Zhang (2014) tested spiral of silence on Facebook on the topic of gay bullying. They also found that “the more congruency of one's opinion with the nation as whole, the less likely one would read but not comment on the issue under friendly situation, and the less likely to ignore the comment under friendly situation” (p. 31). They also found that the degree of

self-censorship and perception of issue importance would change people's willingness to express and response strategies.

Lee and Kim (2014) tested spiral of silence theory on Twitter. They used journalists in Korea as the sample and tested their outspokenness on Twitter with two controversial issues in South Korea. They found that “journalists who perceived a greater discrepancy between their opinions and the opinions of common Twitter users were less like to express their opinion on Twitter” (p. 262). Their study suggested that the spiral of silence could work on Twitter users who use their real names.

Recently, a Pew report (Hampton et al., 2014) gave strong evidence for the existence of spiral of silence processes on social media. They found: 1) compared to in-person conversation, people were less likely to discuss specific topics in social media; 2) People on Facebook were more willing to join in online discussion if they felt that their Facebook followers supported them, and less likely to share their opinion to offline friends if they found their Facebook or Twitter friends not on their side. 3) Facebook and Twitter users were less like to share their opinions in face-to-face settings than others. Therefore, the authors conclude, “People reported being less willing to discuss the Snowden-NSA story in social media than they were in person—and social media did not provide an alternative outlet for those reluctant to discuss the issue in person” (Hampton, et al, 2014).

As a conclusion, in the online discussion, the influence of spiral of silence was not as significant as in the face-to-face settings. The spiral of silence studies in the chatroom showed that the difference between people's willingness to speak in different opinion climates was moderate at best. On the online discussion forum, the results of spiral of silence studies suggested that opinion congruency in online forums would influence people's willingness to

speak out. In SNSs, spiral of silence was found to exist and to influence people's online discussions. Perceptions about whether issue importance and degree of self-censorship would influence people's willingness to speak out did not matter in a friendly environment or hostile environment. Although scholars have found some similar results in the online spiral of silence studies, the often-contradictory results cannot be ignored. Such results indicate that the explanation of spiral of silence in online environment is not perfect, and there may be some other factors that exist in the online environment and influence people's willingness to speak out.

Online Expert Participation

Different people hold different opinions about how to define experts. Trepte and Scherer (2004) defined experts as people who know a lot, influence other people, and are asked for advice. For this definition, having expertise is the main difference between experts and novices or less experienced people. Expertise can be measured in two ways: first, expertise is measured as outstanding performance (Ericsson et. al, 2006) ; second, expertise is measured as years of experience.

Another popular definition of experts is that experts are the people who are authorities in institutions like political parties, private firms or academic institutions. From this definition, authority is another main characteristic of experts. Henrik Bang (1999) challenged the characteristic of authority, and developed a new concept called “expert citizens,” which means people who are not authorities but feel they can implement policy as well as the authorities. Professionals in voluntary organizations are included as expert citizens. Expert citizens also need to have expertise.

Experts are often viewed as opinion leaders, and sometimes, opinion leaders and experts were defined as being the same, especially in online environment. However, these are two

different concepts, and Trepte and Helmut (2004) have done research to differentiate them. Trepte and Helmut divided experts and opinion leaders into four groups: 1) “the ‘informed opinion leaders’ who rate high on opinion leadership and know a lot in their area of interest” (p.1); 2) the “dazzlers who rate high on opinion leadership but are ill-informed in their area of interest” (p.1), 3) the “silent experts” who know a lot but have not worked as opinion leaders (p.1), and 4) the inerts who belong “to a not-informed and non-opinion leading group” (p. 1).

Therefore, experts can be defined as people who have outstanding performance in one area, and have worked in the specific area for years. Most of them have worked as authorities in institutions. Sometimes, some of them were viewed as opinion leaders in the specific area.

The Internet provides both common people and experts a chance to communicate with each other. For common people, compared to a face-to-face setting, the Internet can meet their need to search for authoritative and professional opinions in specific areas, search for advice from experts, and take part in high-quality discussions. The popularity of expert websites was cited as evidence of how interested common people are in communicating with experts. For experts, the Internet provides them a new channel to show, spread and market their expertise. Many people use content marketing to become known as experts, so they can sell more books and attract more clients and opportunities. For website builders and discussion organizers, inviting expert participants into their online discussions is an effective strategy for them to organize discussion board activities. They view expert participation as an effective way to solve participants' questions and improve the quality of their discussion activities ("Mastering Online Discussion Board Facilitation"). For these reasons, massive information exchanges and online discussions happen between experts and common people on the Internet every day. Experts play active roles in online discussions.

Although expert participation is usually meant with goodwill, for common people in online discussions, expert participation may not be good news. Like instructors in the classroom (Henson & Denker, 2007), the special identities experts hold may reduce people's willingness to think independently and express themselves freely. Experts have expertise, and sometimes, they may also be authorities or opinion leaders. In online discussions, to some people, the expertise of expert may make them worry about their qualifications to take part into the discussion. They may believe they don't have enough knowledge to understand what experts discuss, argue with experts, or persuade experts to change their opinions. If common people view these experts as opinion leaders, things may get worse. Previous studies have shown that opinion leaders play an important role in the process of common people forming their policy attitudes (Zaller, 1992). Citizens have little incentive to invest their limited time to learn about the complex issues they face. Most of the time, citizens rely on the information and analysis provided by opinion leaders (Downs, 1957). Therefore, if common people view the expert as an opinion leader, they may not only reduce their willingness to express, but also reduce their willingness to think independently, which would finally lead to the expert's opinions overshadowing the common people's opinions in online discussions. Moreover, the authority identities of some experts may make people feel that they don't share equal status with experts in the specific area, and then reduce the perception of similarity between them and experts (McClendon, 1974), which would ultimately negatively influence people's willingness to express (Zuercher, 2008).

Nevertheless, expert participation in online discussions is not viewed as a negative thing by most people. Compared to the negative aspects of online expert participation, most people believe expert participation improves the quality of online discussion, informs citizens, inspires citizen to think, and finally attracts more citizens to join in high quality online discussions

("Mastering Online Discussion Board Facilitation"). Both opinions about online expert participation are justifiable. Therefore, in this study, we want to know:

R1a: Will expert participation reduce people's willingness to speak out in traditional websites? More specifically, does expert participation either increase or decrease people's willingness to speak out in online discussion forums?

R1b: Will expert participation reduce people's willingness to speak out in SNS? More specifically, does expert participation either increase or decrease people's willingness to speak out in Twitter?

Although we can't know how expert participation will influence people's willingness to speak out without empirical study, it seems much clearer when we combine expert participation with opinion climate. As mentioned before, sometimes the existence of experts may intimidate common people, especially when experts work as opinion leaders or authorities. People tend to agree with, or at least avoid arguing with, experts in discussions. In contrast, support from experts may make people have more confidence in themselves and be more willing to speak out. Therefore, it is fair to assume that:

H1a: In online discussion forum with experts, people will be more likely to speak out in a friendly environment (experts agree with their opinion) and more likely to withhold their opinion in a hostile environment (experts disagree with their opinion).

H1b: In SNS with experts, people will be more likely to speak out in a friendly environment (when experts agree with their opinions) and more likely to withhold their opinion in a hostile environment (when experts disagree with their opinion).

CHAPTER 3. METHOD

Procedure

Data were obtained through an online survey (N=508) on Amazon's Mechanical Turk Service. Participants were asked to complete an online survey, which included a pretest, an experiment and a posttest in the form of questionnaire. In the beginning of the survey, participants were informed by a consent form.

The first part of the questionnaire consisted of pretest questions. People were asked about their initial position and perception of importance on several controversial topics. To ensure the accuracy of experiment, the questions about abortion were asked together with three other controversial issues.

Based on their initial position on abortion, participants were divided into four different experimental conditions: congruent opinion climate with common users; incongruent opinion climate with common users; congruent opinion with common users and experts; incongruent opinion climate with common users and experts.

In this section, digital media form was employed as a control variable. All participants were asked to imagine that they were reading the stimuli in two different digital media environments: their friend's twitter comment zone and the comment zone of a famous news website. The order in which participants saw the two digital media environments were counterbalanced to control for order effects.

Then participants began the third part of the questionnaire, the post-test survey. In this part, they answered the questions about issue position and their willingness to comment on different digital forms. They also answered the demographic questions and completed a manipulation check. Fear of isolation degree, communication apprehension degree, attitude

certainty, and media use habits were tested. The whole process lasted 30 minutes and participants received 25 cents after they completed the survey. All the materials and procedures used in this experiment were approved by the IRB.

Operationalization

Climate of Scenario

Traditionally, opinion congruity versus incongruity has been established as the traditional central independent variable (Glynn, & McLeod, 1984), and willingness to speak out has been viewed as the main dependent variable. To test willingness to speak out successfully, Noelle-Neumann (1993) emphasized the effect of a real situation. Therefore, to test spiral of silence theory successfully, twelve messages were selected from an actual abortion discussion on twitter and NYTimes.com. Six of the messages supported the prolife group and the other six supported the prochoice group. Respondents were exposed to either an environment totally supporting prolife or an environment totally supporting prochoice. In this way, a clear line was created between majority opinions and minority opinions in one opinion climate environment.

Expert Participation

Based on previous studies (Childers, 1986; Katz & Lazarsfeld, 1955; Noelle-Neumann, 1983; Troidahl & Van Dam, 1965), experts are people who know a lot, influence others and are always asked for advice. The main characteristic of an expert is his/her expertise, or relevant knowledge, skills and ability. Expertise can be operationalized by years of experience. In most studies, people who work in one area for more than ten years can be considered an expert. Expertise comes not only from political parties, private organizations, or academic institutions, but also from voluntary organizations and other non-authoritative organizations. Therefore, in this study, scholars in abortion-related fields like law, medical science and women's studies, as

well as representatives and activists from non-profit organizations, were considered as experts. All of the fictitious experts were required to work in a field related to abortion more than 10 years. In the experiment, half of the respondents read expert messages and a half of them did not. The expert messages included two parts: first, it included the working experience of the fictitious expert; second it included the opinion of the expert. The expert messages were identified by the expert ID, which consisted of a name and a title. The non-expert messages were identical to the expert messages for part two (the opinion), yet they did not include the working experience (part one), indicating the opinion of a non-expert.

Digital Media Form

In the initial spiral of silence study, Noelle-Neumann chose to use a train test to measure people's willingness to speak out in face-to-face communication. She asked participants to imagine themselves in a train, in which a group of strangers were talking about controversial issue, and then she tested their willingness to speak out in different opinion climates. Glynn, Hayes and Shanahan (1997) created a new way to measure the speaking out variable by using multiple questions to present more than one scenario. This method has been adopted by many other scholars in spiral of silence studies. For example, Perry and Gonzbach (2000) used multiple questions to present six scenarios of online and offline settings in their study.

Therefore, based on previous studies, this study uses written descriptions and fictitious screenshots of different comment zones presented in two scenarios, a social media site and an online discussion forum, to measure people's willingness to speak out in different settings. We used regular news sites to represent traditional websites. We used Twitter to represent SNS. The two settings were chosen because the diversity of interaction on the sites, which can occur between friends, acquaintances, and strangers, allowed for experts to naturally enter into the

conversation. In the experimental manipulation, participants first read comments embedded either in a fictitious screenshot of their friend's twitter comment zone or in a fictitious screenshot of a regular news website's comment zone. They then read the same comments, yet embedded in the other format (news site or twitter). Except the format, the messages they read in the two screenshots were identical. After seeing and reading the comments in each format, they were required to answer questions about their willingness to express on that particular format. To reduce the effect of order, the order in which participants saw the two digital media environments were counterbalanced.

The reason we chose to test SNSs and online discussion forums separately and treated digital media form as a control variable was that we believed SNS (web 2.0) were different than online discussion forums (web 1.0). We thought the different features of SNSs (web.1.0) and online discussion forums (web 2.0) may influence the results. For example, online discussion forums are anonymous and have low social cues, but most SNSs include both an anonymous system and a real-name system and are completely or partly based on real-world anchored relationships (Zhao, Grasmuck, & Martin, 2008). That difference would lead to totally different online relation on SNS and online discussion forum and finally might influence people's willingness to speak out.

Measurement

Willingness to Speak Out

Based on previous studies (Baldassare & Katz, 1996; Glynn, et al., 1997), the dependent variable of people's willingness to speak out was measured by two question: 1) how likely they would be to post their comments in the comment section of regular website (measured on a 5-point scale, 1=not likely at all to 5=very likely), and 2) how likely they would be to post their

comment in their friend's twitter comment section (measured on a 7-point scale, 1=not likely at all to 5=very likely). Then we calculated the z-scores of them for further comparison.

Fear of Isolation

People's fear of isolation degree ($M=2.51$, $s.d=0.52$) was also measured by a 5-point scale (strongly disagree = 1 to strongly agree = 5). The statements were based on a previous study (Matthes, Hayes, & Shen, 2009, p. 29). The statements were: 1) "One of the worst thing that could happened to me is to be excluded by people I know." 2) "It would be bother me if no one wanted to be around me." 3) "I dislike feeling left out of social functions, parties or other social gatherings." and 4) "It is important to me to fit into the group I am with." The four questions were summed up to form a fear of isolation index. The Cronbach's alpha was 0.76.

Attitude Certainty

According to Matthes, Morrison and Schemer's study (2010), attitude certainty ($M=4.45$, $s.d= 0.867$) was measured by asking how certain people feel in their opinion of abortion legalization. Respondents described their feeling on a 5-point scale (not at all certain=1 to very certain = 5).

Issue Importance

According to Moy and her coworkers (2001), the control variable respondents' perceptions of the importance of issue ($M=3.84$, $s.d=0.9$) was gauged by letting respondents describe how important they feel the topic of abortion is based on a 5-point scale (not important at all= 1 to extremely important = 5). Subjects were asked to answer their perception of issue importance both to the nation and to themselves. The two questions were summed up to form a issue importance perception index. The Cronbach's alpha was 0.55.

Communication Apprehension

According to Ho and McLeod (2008), communication apprehension ($M=3.22$, $s.d.=0.6$) was measured with 4 items based on a five-point scale (strongly disagree =1 to strongly agree =5). The four items were adapted from a McCroskey's PRCA-24 scale (1977). The statements were: (1) "I like to get involved in group discussion," (2) "I'm afraid to speak up in conversations," (3) "I enjoy talking at a small group meeting," and (4) "My body feels relaxed when I speak during a small group meeting" (Ho & McLeod, 2008, p. 197). The four questions were summed up to form a communication apprehension index. The first, third and fourth question were coded reversely. The Cronbach's alpha was 0.72.

Demographics

The analyses in this study took into account several demographic variables, such as gender, educational background and age as control variables.

Data Analysis Techniques

Factorial ANOVA analyses and regression analyses were used to answer the research questions and test the research hypotheses. First, we used factorial ANOVA to test if expert participation and opinion climate would influence people's willingness to express, and we tested it on the online discussion forum and SNS separately. Expert participation and opinion climate were employed as independent variables. Age, educational level, gender, and ethnicity were employed as control variables. Then, we used regression to check the influence of fear of isolation, communication apprehension, attitude certainty, and issue importance to the relationship between opinion climate and people's expressing willingness.

CHAPTER 4. RESULTS

Demographics and Manipulation Check

A total of 508 people took part into this study. Of those participants, 453 passed the manipulation check, which consisted of correctly identifying the general stance of the messages in the stimuli. The participants who failed to identify the general stance of messages correctly were considered not to have read the stimulus messages. Therefore, the final analyses were conducted with the data obtained from the resulting 453 participants.

Among the people who passed manipulation check, 59.6% of them were white, 28.4% of them were Asian/pacific islanders, 3.1% of them were African American and 3.3% of them were others. Participants ranged in age from 18 to 65 years old, though 84% of them were between ages 18 to 44. People with higher educational degrees where overrepresented: 97.3% of participants completed high school, while 57.2% of them earned a Bachelor's or higher degree. In this study, there were more male participants (63.6%) than female participants (36.3%). Participants held different opinions on the issue of abortion: 25.6% participants opposed abortion, 51.2% participants supported abortion and 13% participants held neutral attitudes to abortion.

Spiral of Silence and Expert Participation

The first research question was about whether expert participation would influence people's willingness to speak out online or not. Therefore, two one-way ANOVA were calculated comparing people's willingness to speak out for the subjects who either were or were not exposed to expert messages. Age, educational background worked as control variables. People's willingness to express in online discussion forum and people's willingness to express on SNS were tested separately. There were no significant results ($N=452$) found between people's willingness to express on expert participation both on SNS ($F(1,448)=0.074$, $p>0.05$) and on

online discussion forum ($F(1,448)=0.034$, $p>0.05$). Therefore, expert participation did not influence people's willingness to speak out independently.

The first hypothesis focused on examining whether the relationship between people's willingness to express and opinion climate would be influenced by expert participation online. To answer these questions, we sorted the people who supported a prolife position but encountered prochoice messages in the experiment and the people who supported prochoice but encountered prolife messages in the experiment as the first group ($N=181$). This group represented the people who meet an incongruent opinion climate in spiral of silence theory. Then we sorted the people who encountered messages in the experiment that were similar to their own position as a second group ($N=204$). This group represented the people who met a congruent opinion climate in the spiral of silence theory. In this part, we did not include the people who held neutral attitudes about abortion, since they did not meet the premise of spiral of silence that a clear demarcation of majority vs. minority opinion on any given issue should be presented, which Neumann restated in 1993 to respond the contradictory results in spiral of silence studies.

Then we tested people's willingness to speak out on an online discussion forum and SNS separately. First, we tested how expert participation influenced people's willingness to speak out in different opinion climates in an online discussion forum. As Table 1 showed,

Table 1: Summary of ANOVA analysis for expert Participation, opinion climate and people's willingness to speak out on different digital media Forms

People's Willingness to Speak Out on Online Discussion Forum				People's Willingness to Speak Out on Social Networking Sites		
Source	Mean Square	F	Sig.(one-tail)	Mean Square	F	Sig.(one-tail)
Expert Participation	0.02	$F(1,385)=0.005$	0.472	0.202	$F(1,385)=0.549$	0.229

* $p<0.1$ ** $p<0.05$ *** $p<0.01$

Table 1 continued

People's Willingness to Speak Out on Online Discussion Forum				People's Willingness to Speak Out on Social Networking Sites		
Opinion Climate	0.800	F(1,385)=0.902	0.171	0.627	F(1,385)=0.809	0.184
Opinion climate * Expert	0.141	F(1,385)=0.388	0.267	2.901	F(1,385)=3.857	0.025**

*p<0.1 **p<0.05 ***p<0.01

a two (opinion climate) by two (expert participation) between-subjects factorial ANOVA was calculated comparing people's willingness to speak on online discussion forum for the subjects who met either a congruent opinion climate or an incongruent opinion climate and who read expert messages or not. Age, gender, ethnicity and education background worked as control variables. The main effect for opinion climate congruency was not significant ($F(1,385)=0.005$, $p>0.05$). The main effect for expert participation was not significant ($F(1,385)=0.902$, $p>0.05$). Finally, the interaction was also not significant ($F(1,385)=0.388$, $p>0.05$). Therefore, result showed that there was no significant influence of expert participation to the relationship between people's willingness to express and opinion climate on traditional website ($F(1,385)=0.02$, $p>0.05$). The hypothesis H1(a) was not supported.

Then we tested people's willingness to speak out in different opinion climates on twitter. As Table 1 showed, a two (opinion climate) by two (expert participation) between-subjects factorial ANOVA compared people's willingness to express on SNS for the subjects who met either a congruent opinion climate or incongruent opinion climate and who read expert messages or not. Age, gender, education background and ethnicity worked as control variables. The main effect for opinion climate congruency was not significant ($F(1,385)=0.549$, $p>0.05$). The main effect for expert participation was not significant ($F(1,385)=0.809$, $p>0.05$). However, a significant interaction between opinion climate and expert participation was found

($F(1, 385)=0.388$, 1-tailed $p<0.05$). Therefore, hypothesis H1 (b) is supported. As Figure 1 showed, on SNS, when experts participated in the discussion, the subjects who were in a congruent opinion climate were more likely to speak out than the subjects who were in an incongruent opinion climate. When experts didn't participate in the discussion, the subjects who were in incongruent opinion climates were more willing to speak out than the subjects who were in a congruent opinion climate.

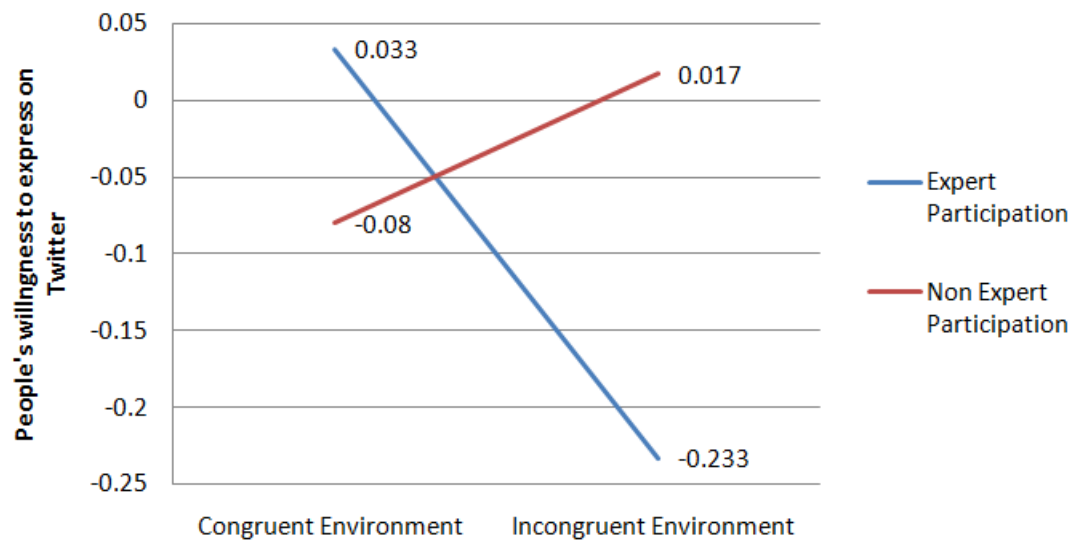


Figure 1: Interaction of expert participation and opinion climate in predicting willingness to express on Twitter

CHAPTER 5. DISCUSSION

The aim of this study was to examine whether online experts' participation would influence people's willingness to speak out in different opinion climates in computer-mediated communication. To make the study more universal, expert participation was tested on both SNS (twitter) and online discussion forum (the comment region of a news website). Results showed that expert participation did not influence people's willingness to speak out independently. However, when combined with opinion climate, it influenced people's willingness to speak out on twitter. On twitter, expert participation made people in minority less likely to speak out and made people in majority more likely to speak out. The results of this study provide support to previous studies suggesting special identities can influence people's willingness to speak out (Henson & Denker, 2007).

This study supported the prediction that some audience identities and audience behaviors would weaken people's willingness to express in different opinion climates. Similar to previous studies about instructors in classroom (Henson & Denker, 2007), the expert identity, like the instructors in the classroom, influenced people's willingness to speak out in different climates. However, unlike the instructors in classroom, who could silence students no matter which opinion climate the student was in, the online expert could only reduce people's willingness to speak out when participants were in the minority. Moreover, Henson and Denker's study only found that the instructor would decrease the expression willingness of the students who held opposing opinions, but in our study, we found that expert participation could not only decrease expression willingness of people in the minority, but also increase the expression willingness of people in the majority. Since we didn't find significant results regarding how expert participation changed people's original opinions and attitude certainty degree, we can assume the reason

people changed their willingness to express is not that they were persuaded by an expert and decided to rethink their opinion. Therefore, the most possible reason leading to the result was as predicted, that the existence of experts intimidated common people, especially when common people viewed them as opinion leaders or authorities. Common people didn't think they had enough knowledge and ability to argue with experts. Therefore, the people in the minority tended to keep silent, although they were not persuaded by experts. In contrast, the support from experts encouraged people in majority to express, although their attitude certainty degree didn't increase.

This argument was also supported by previous studies about individuals' behaviors on SNS. A previous study found that SNS were partly or completely based on real offline anchored relationships (Zhao, 2008). Family members, friends, and coworkers are connected on SNS, and SNS are rarely an anonymous environment. The public or semi-public profile and the connected user list on SNS mean users are, to some extent, limited by their background in real life. Therefore, people on SNS were more seriously influenced by social environment than when they were on other websites. Scholars found, on SNS, people were more likely to present "hoped-for possible selves," which are socially-desirable identities an individual hopes to establish and believes can be established given the right condition (Yurchisin et al, 2005). Therefore, for individuals who care more about their image and other people's impression of them, they will want impress other people with socially-desirable features like wise and erudite, but avoid association with features like stupid or ill-informed. They are more easily influenced by expert participation. Therefore, we found expert participation increased the majority's willingness to express and decreased the minority's willingness to express on SNS.

There is another important finding in this study. This study found that on SNS, when experts didn't participate in the discussion, the people in minority were more likely to express

than the people in majority. This result conflicts with the results of Gearhart and Zhang's (2014) study about spiral of silence on SNS, but is in line with findings from Porten-Chee and Elider's (2014) study about online spiral of silence. When combined with the non-significant results of fear of isolation and other traditional moderators in this study, the results of this study to some extent support previous scholars' expectation about the Internet: the features of the Internet weaken the influence of spiral of silence and provide an effective communication channel to engage citizens in democratic debates. However, this study found that the decrease in spiral of silence only happened when excluding the influence of unique online factors like expert participation.

Similar to previous scholars like Yun and Park (2011), this study tried to explain the mixed results of online spiral of silence studies by testing some unique factors in the online environment which may influence the relationship between people's willingness to express and opinion climate. To some extent, there are still some unanswered questions. We found an effective factor in online environments, expert participation, which could influence the existence of spiral of silence and which has been ignored by other scholars. Therefore, it is possible that some of the contradictory results found by previous studies were caused by the influence of expert participation. However, to some extent, this study left more contradictory results. For example, in contrast with previous studies about spiral of silence in online discussion forums (Nekmat & Gonzenbach, 2013; Yun & Park, 2011), this study didn't find that the in-forum opinion congruency influenced people's expression willingness significantly. Moreover, unlike Gearhart and Zhang's (2014) study about spiral of silence in SNS, this study didn't find that issue importance and attitude certainty influenced people's willingness to speak out significantly. Such contradictory results may be caused by the different way this study measured people's

willingness to speak out. However, this study still left some contradictory results, and it implied that there may still exist some other undetected moderators in the online environment that influence the results of spiral of silence.

The results of this study implied that the Internet in fact provides a good environment for democratic debate, However, in contrast to what was expected, the existence of online experts did not increase the effect of online democratic debate by providing professional viewpoints, but actually decreased the effect of online democratic debate by silencing opposing voices with their expertise. Therefore, we may need to reconsider the usefulness of the expertise of experts in the online environment. The worst part is, online experts exist everywhere online, and sometimes they may not speak out for truth, but instead speak out for money. It is not unusual to meet some people who express opinions in comment zone of Amazon, but they in fact were employed by company itself. There are many websites online about how to develop fake reviews on Amazon as well as websites on the methods to spot fake reviews (“how to spot a fake review on Amazon”). In China, the existing of "Shuijijun" (the people who post comments for money) not only provide common people with experts' "viewpoint," but also have been shown to change people's perceptions about opinion climate. Feng and his coworkers (2012) found out that "a deceptive business entity that hires people to write fake reviews will necessarily distort its distribution of review scores, leaving distributional footprints behind” (p.98).Therefore, this study implied that the audience's behavior in online environment may decrease the positive influence of the Internet, and we may have to reconsider the way we organize online discussions.

This study filled a void in the literature about spiral of silence online. This study found that expert participation influenced people's expression on digital media in different opinion climates. However, there were still many limitations in this study. The first is the study didn't consider the

behavior of the people whose positions were neutral. They may have totally different reactions than individuals who are prolife or prochoice. Second, when measuring people's willingness to express, this study only considered one response strategy: posting a comment on the website or social media site. People may have different willingness when they choose to use different response strategies. For example, people who were unlikely to post comments on websites may prefer to discuss the same message with their offline friends. Future research can explore these issues in greater detail.

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APPENDIX A: IRB APPROVAL

ACTION ON EXEMPTION APPROVAL REQUEST



TO: Yiwei Zhang
Manship School

FROM: Dennis Landin
Chair, Institutional Review Board

DATE: February 13, 2015

RE: IRB# E9182

TITLE: The spiral of silence in virtual space: Examining how expert participation, digital media form, and opinion congruency relate to opinion expression

Institutional Review Board
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New Protocol/Modification/Continuation: New Protocol

Review Date: 2/12/2015

Approved X **Disapproved**

Approval Date: 2/12/2015 **Approval Expiration Date:** 2/11/2018

Exemption Category/Paragraph: 2a

Signed Consent Waived?: Yes

Re-review frequency: (three years unless otherwise stated)

LSU Proposal Number (if applicable):

Protocol Matches Scope of Work in Grant proposal: (if applicable)

By: Dennis Landin, Chairman 

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –

Continuing approval is **CONDITIONAL** on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.

8. SPECIAL NOTE:

**All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at <http://www.lsu.edu/irb>*

APPENDIX B: QUESTIONNAIRES

Consent Form

1. Study Title: The spiral of silence in virtual space: examining how expert participation, digital media form, and opinion congruency relate to opinion expression
2. Performance Site: Amazon's Mechanical Turk Service
3. Investigators: For any questions about this study, participants may contact investigators Yiwei Zhang (yzha127@tigers.lsu.edu) . They may also contact the principle investigator, Dr. Kasey Windels, at kwindels@lsu.edu.
4. Purpose of the Study: This study examines people's on-line expression in social media and traditional websites.
5. Subject Inclusion: "Individuals between the ages of 18 and 65 who have met the personal qualifications of Amazon Mechanical Turk."
6. Number of subjects: 600
7. Study Procedures: Firstly, participants will answer a few questions about some controversial topics. Then they will be asked to read some messages about one of the controversial topics. Thirdly, they will be asked to answer more questions about the controversial topics. The entire study should take no more than 30 minutes.
8. Benefits: Subjects will be paid 50 cents to participate in the study.
9. Risks: Participants are not expected to participate in any treatments that would incur the risk of physical or mental injury during their participation in this study.
10. Right to Refuse: Subjects may choose not to participate or withdraw from the study at any time without penalty or loss of any benefit to which they might otherwise be entitled.

11. Privacy: Results of the study may be published, but no names or identifying information will be included in the publication. Subject identity will remain confidential unless disclosure is required by law.

You may direct additional questions regarding study specifics to the investigators. If you have questions about subjects' right or other concerns, you can contact Dennis Landin, Institutional Review Board, (225)578-8692, irb@lsu.edu, www.lsu.edu/irb.

By completing this online study, you are agreeing to take part in the above described research project. Please begin the study now by clicking on the "next" button below.

Pre-Test Questionnaires

1) To what extent do you support or oppose the following issues?

	Strongly Oppose	Oppose	Neither Support nor Oppose	Support	Strongly Support
Legalization of Abortion					
Marijuana Legalization					
Lower Drinking Age					
Gay Marriage Legalization					

2) How important is the issue of abortion to you?

not at all important 1, 2, 3, 4, 5 very important

3) How important do you think the issue of abortion is to the nation?

not at all important 1, 2, 3, 4, 5 very important

4) How important is medical Marijuana legalization to you?

not at all important 1, 2, 3, 4, 5 very important

- 5) How important is medical marijuana legalization to the nation?
not at all important 1, 2, 3, 4, 5 very important
- 6) How important do you think the issue of lowering the drinking age is to you?
not at all important 1, 2, 3, 4, 5 very important
- 7) How important do you think the issue of lowering the drinking age is to the nation?
not at all important 1, 2, 3, 4, 5 very important
- 8) How important do you think the issue of gay marriage legalization is to you?
not at all important 1, 2, 3, 4, 5 very important
- 9) How important do you think the issue of gay marriage legalization is the nation?
not at all important 1, 2, 3, 4, 5 very important

Post-Test Questionnaires

Please read the following materials and answer the questions.

A. Imagine that you are browsing news on a popular news site, and you find an opinion article called, “This Is What an Abortion Looks Like.” In the comment section of this article, some people are talking about abortion legalization. The following comments were posted in the comment section.

After reading these comments, please answer the following questions,

To what extent do you support the Legalization of abortion now?

not support at all 1, 2, 3, 4, 5 strongly support

To what extent do you oppose the Legalization of abortion now?

not oppose at all 1, 2, 3, 4, 5 strongly oppose

How certain are you in your opinion?

not at all certain 1, 2, 3, 4, 5 very certain

If you were on this website and encountered this discussion, how likely would you be to post a comment in response to it?

not likely at all 1, 2, 3, 4, 5 very likely

Regardless of your answer to the previous question, please write what you would say if you did choose to post a comment in response to this discussion.

Now suppose that you encountered this same discussion within the comment section of your friend's twitter instead of a news site. Several people have posted comments in your friend's twitter comment zone under the article which your friend retweeted from the news site. The content of their comments are same as the above comments which you read several minutes ago

If you were on twitter and encountered this discussion, how likely would you be to post a tweet in response to it?

not likely at all 1, 2, 3, 4, 5 very likely

Regardless of your answer to the previous question, please write what you would say if you did choose to post a tweet in response to this discussion.

B. Imagine that you are browsing twitter and you find one of the people you are following retweets an opinion article from a popular news site called "This is What an Abortion Looks like."

In the comment section, several people are talking about abortion legalization. The following comments are posted in the comment section.

After reading these comments, please answer the following questions.

To what extent do you support keeping abortion legal?

not support at all 1, 2, 3, 4, 5 strongly support

To what extent do you support restrictions on abortion?

not support at all 1, 2, 3, 4, 5 strongly support

How certain are you in your opinions about abortion?

not at all certain 1, 2, 3, 4, 5 very certain

If you were on twitter and encountered this discussion, how likely would you be to post a tweet in response to it?

not likely at all 1, 2, 3, 4, 5 very likely

Regardless of your answer to the previous question, please write what you would say if you did choose to post a tweet in response to this discussion.

Now suppose that you encountered this same discussion within the comments section of the news site instead of on twitter. Several people have posted comments in the news site comment section under this article. The content of their comments are same as the above comments which you have read several minutes ago.

If you were on this website and encountered this discussion, how likely would you be to post a comment in response to it?

not likely at all 1, 2, 3, 4, 5 very likely

Regardless of your answer to the previous question, please write what you would say if you did choose to post a comment in response to this discussion.

--

What was the general stance of the messages you read in the comment section?

A: Most messages support legalization of abortion.

B: Most messages oppose legalization of abortion.

To what extent do you agree or disagree with following statements?

	Strongly Oppose	Oppose	Neither Support nor Oppose	Support	Strongly Support
It is scary to think about not being invited to social gathering by people I know.					
One of the worst thing that could happened to me is to be excluded by people I know.					
It would bother me if no one wanted to be around me.					
I dislike feeling left out of social functions, parties, or other social gatherings.					
It is important to me to fit into the group I am with.					

To what extent do you agree or disagree with following statements?

	Strongly Oppose	Oppose	Neither Support nor Oppose	Support	Strongly Support
I like to get involved in group discussion.					
I'm afraid to speak up in conversations.					
I enjoy talking at a small group meeting.					
My body feels relaxed when I speak during a small group meeting.					
It is important to me to fit into the group I am with.					

Do you have a Twitter account?

A. Yes. B. No.

How long do you spend on Twitter every day?

A. Less than 10 minutes.

B. 10 minutes to 30 minutes.

C. 31minutes to 60 minutes

D. 61minutes to 120 minutes

F. More than 120 minutes

How long do you spend looking at websites every day?

A. Less than 10 minutes.

B.10 minutes to 30 minutes.

C.31minutes to 60 minutes.

D.61 minutes to 120 minutes.

E.121 minutes to 180 minutes.

F. More than 180 minutes.

What is your gender?

A: Male. B: Female

What is your age?

A: 18-24 years old.

B: 25-34 years old.

C: 35-44 years old.

D: 45-54 years old.

E: 55- 64 years old.

F: 65-74 years old.

G: 75 years or older.

What is the highest degree or level of school you have completed? If currently enrolled, highest degree received.

A: no schooling completed

B: Nursery school to 8th grade

C: Some high school, no diploma

D: High school graduate, diploma or the equivalent (for example: GED)

F: Some college credit, no degree

E: Associates degree

F: Bachelor's degree

H: Master's degree

G: Professional degree

H: Doctorate degree

Please specify your ethnicity.

A: White

B: Hispanic

C: African American


D: Native American


E: Asian/ Pacific Islander

F: Other

APPENDIX C: STIMULUS

Prolife and Expert Participation

 **COMMENTS**



Share your thoughts.

All

Readers' Picks

NYT Picks

Newest ▾

Lan · now
As a lawyer for 10 years, I don't know how can **abortion** not be considered murder if the killing of a pregnant woman is considered Double Homicide?

Reply · Recommend

Ekaternia · now
I am a women's grief counselor. Believe me, it's murder. Every single unborn Child has the right to live.

Reply · Recommend

Fell · now
I think it would be easier just to give your child up for adoption. Don't kill your child. The child did nothing wrong and your taking away.

Reply · Recommend

Alicia · now
Because they are babies! I can't believe people would spend so much money to have an abortion! They don't want the baby put him her up for adoption

Reply · Recommend

Rose · now
I object to abortion legalization. You are killing a human being!

Reply · Recommend

Dr. Olive Wallace · now
Even from scientific perspective, women should not have abortions. Abortions increases a woman's risk of future miscarriages by 60%

Reply · Recommend



@Lucy



Add photo



Location disabled

135



Tweet



Ian Dennis @IanJDennis · now

As a lawyer for 10 yrs, I don't know how can abortion not be considered murder if the killing of pregnant woman is considered Double Homicide.



Ekaterina @transformind · now

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Rory Fell @RoryFell · now

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Alicia Busick @AKSassyPirate · now

Because they are babies! I can't believe people would spend so much money to have an abortion! Put the baby up for adoption!



Albany Rose @AlbanyRose1 · now

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Dr. Olive Wallace @iWillBeBrief · now

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Prolife and No Expert Participation

COMMENTS



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Newest +

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[Reply](#) · [Recommend](#)

Fel I · now

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[Reply](#) · [Recommend](#)

Alicia · now

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[Reply](#) · [Recommend](#)

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[Reply](#) · [Recommend](#)


John Murphy · now


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[Reply](#) · [Recommend](#)





@Lucy

 Add photo

 Location disabled





135


 Tweet



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


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Albany Rose @AlbanyRose1 · now





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Olive Wallace @iWillBeBrief · now


Abortions increase a woman's risk of future miscarriage by 60%.


   


Prochoice and Expert Participation


@Lucy


Add photo Location disabled 135 Tweet


**Ian Dennis** @IanJDennis · now
I work in public health, I need to say that women are 14x more likely to die during or after giving birth than to die from abortion. .

**Ekaterina** @transformind · now
Anybody who has been in law school knows that legal abortion is about the right of privacy and is a fundamental right guaranteed by US Constitution.

**Rory Fell** @RoryFell · now
I never understand people who are pro life. Being pro choice doesn't mean you encourage abortion. It means you support the mom's choice. .

**Alicia Busick** @AKSassyPirate · now
I am a demographer and I support prochoice. Thousands of studies showed that abortion is an effective way to curb overpopulation and reduce crime.

**Albany Rose** @AlbanyRose1 · now
For all the ignorant [#prolife](#) out there: my body isn't yours to regulate.

**Olive Wallace** @iWillBeBrief · now
if someone can't afford a baby, or if they get raped, why should we force them to have it.

COMMENTS



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NYT Picks

Newest ▾

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Prochoice and No Expert Participation





@Lucy





 Add photo


 Location disabled





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

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[Reply](#) · [Recommend](#)

VITA

Yiwei, Zhang, a Chinese international student, received her Bachelor's degree at Jinan University in 2013. To meet her interest in journalism, she decided to enter graduate school in the Manship School of Mass Communication at Louisiana State University. She will receive her Master's degree in August 2015.