



Luodan Pan

**Expression Opinions About Hong Kong
Protests on Facebook: A Study of the Spiral
of Silence Theory in Social Media**

Dissertação de Mestrado

Dissertation presented to the Programa de Pós-graduação em Comunicação Social of PUC-Rio in partial fulfillment of the requirements for the degree of Mestre em Comunicação Social.

Advisor: Prof. Arthur Cezar de Araujo Ituassu Filho

Rio de Janeiro
February 2021



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Abstract

Pan, Luodan. Ituassu Filho, Arthur Cezar de Araujo. (Advisor) **Expression Opinions About Hong Kong Protests on Facebook: A Study of the Spiral of Silence Theory in Social Media.** Rio de Janeiro, 2021. 133 p. Dissertação de Mestrado – Departamento de Comunicação Social, Pontifícia Universidade Católica do Rio de Janeiro.

This political communication research analyzed the impact of digital media on public opinion. This is a qualitative and interpretive study that observes how users participate in political discussions through social media. The survey aims to analyze the opinions and expressions surrounding the proposed theme, using case study as a research strategy, and adopting methods such as frame methods and qualitative content analysis. Starting from this concept, question are raised: In the 2019 Hong Kong protests, existed a Spiral of silence phenomenon on social media? This research has important scientific and innovative contributions. In order to understand these issue, based on the Spiral of silence hypothesis, this study manually analyzed 76 posts on the Facebook website of the South China Morning Post and 2,000 public comments. The development of the theory Spiral of silence (Noelle-Neumann, 1974) pointed out that people retain their opinions when they think that the climate of opinion is contrary to their own opinions, and this silence will increase over time. The analysis of this research shows that on the Facebook platform, a minority of opinion holders tend to retain their opinions, but as time goes by, a minority of determined people begin to express their opinions, which shows an intermittent “Spiral of silence” in time, probably motivated by factors exogenous to the observed discussion environment. The research aims to contribute to the advancement of the environment for public political participation on the current social media, through the study of the media environment and media content. The background of the research is the Hong Kong Anti-Extradition Law Amendment Bill movement. This special background has innovative significance, enriching empirical research on Eastern countries, and providing new ideas for non-campaigns political participation research.

Keywords

Spiral of Silence; Facebook; Hong Kong; Extradition Bill; Social Media.

Resumo

Pan, Luodan. Ituassu Filho, Arthur Cezar de Araujo. **“Expressão de opiniões sobre protestos de Hong Kong 2019 no Facebook: um estudo da teoria da Espiral do Silêncio nas redes sociais**. Rio de Janeiro, 2021. 133 p. Dissertação de Mestrado – Departamento de Comunicação Social, Pontifícia Universidade Católica do Rio de Janeiro.

Esta pesquisa em comunicação política analisou o impacto das mídias digitais na opinião pública durante os protestos de 2019 em Hong Kong com base na hipótese da espiral do silêncio (Noelle-Neumann, 1974). Se trata de um estudo qualitativo e interpretativo que observa como os usuários participam das discussões políticas por meio das mídias sociais. A pesquisa procura analisar as opiniões e expressões em torno de o tema em estudado, privilegiando o estudo de caso e adotando métodos como a análise de enquadramentos e de conteúdo. Em concreto, questiona-se se nos protestos de 2019 em Hong Kong, ocorreu um fenômeno da espiral do silêncio nos debates sobre os protestos de 2019 em Hong Kong, nos comentários sobre as notícias postadas na página oficial no Facebook do South China Morning Post. Para responder à esta questão, este estudo analisou manualmente 76 notícias postadas pela fanpage e 2.000 comentários às mesmas. A teoria da Espiral do Silêncio afirma que pessoas que se reconhecem como minorias evitam expressar o que pensam publicamente, quando pensam que o clima de opinião da maioria é contrário às suas próprias opiniões. Os resultados desta pesquisa mostram que nos comentários da fanpage analisada, uma minoria de usuários tendeu a se autocensurar com o passar do tempo, confirmando a hipótese da espiral do silêncio, mas que após um certo período, voltou a expressar suas opiniões apesar de continuarem sendo uma minoria, o que evidencia uma “espiral do silêncio intermitente” no tempo, provavelmente motivada por fatores exógenos ao ambiente de discussão observado. A pesquisa visa contribuir para o avanço da discussão sobre participação política nas mídias sociais na atualidade, por meio do estudo do ambiente e do conteúdo midiático. O contexto do objeto da pesquisa é o do Projeto de Lei de Extradicação de Hong Kong em 2019. Este estudo tem um significativo caráter inovador no Brasil, pois enriquece o repertório de pesquisas empíricas sobre os países asiáticos, ainda incipiente na comunicação política, fornecendo novos achados que incentivam futuras pesquisas em perspectiva comparada, utilizando teorias já consolidadas.

Palavras-Chave

Espiral do silêncio; facebook; Hong Kong; lei de extradição; mídias sociais.

Table of contents

1. Introduction.....	11
2. Theoretical Framework.....	17
2.1. Internet and political participation.....	18
2.2. The basic elements and rethinking of the Spiral of silence	30
2.3. The Spiral of silence on Facebook.....	37
3. Context of Hong Kong	43
4. Methods.....	53
4.1. Data Collection.....	54
4.2. Data Analysis	60
4.3 Climate of opinions.....	94
4.4. Other Findings	106
5. Result and Discussion	109
6. Conclusion.....	115
7. References	122

List of figures

Figures 1. Protestors in a live video of the SCMP on June 12, 2019.....	68
Figures 2. The demonstration scene in a live video of the SCMP on June 12, 2019.....	69
Figures 3. The police in a live video of the SCMP, June 12, 2019	69
Figures 4. Hong Kong's leader Carrie Lam's press conference, June 18, 2019.....	70
Figures 5. Screenshots from the SCMP video post on June 13, 2019	71
Figures 6. Screenshots from the video post of the SCMP on June 13, 2019	72
Figure 7 Screenshot of Video footage released by SCMP	107

List of tables

Table 1. Representative media of Hong Kong.....	55
Table 2. Object of Methods	56
Table 3. 2 Top 5“ Engaging” Stories (n = 37)	58
Table 4. 2 Top 5 “Comments” Stories (n = 37)	60
Table 5. Coding Categories of Posts.....	62
Table 6. Sample 1	63
Table 7. Sample 2	64
Table 8. Sample 3	66
Table 9. Sample 4	67
Table 10. Sample 5	68
Table 11. Sample 6	70
Table 12. Sample 7	72
Table 13. Sample 8	73
Table 14. Posts Analysis - first wave	73
Table 15. Posts Analysis - second wave	75
Table 16. Media’s opinion about Hong Kong’s movement	96
Table 4. 2 Top 5“ Comments” Stories (n = 37)	98
Table 17. Analysis of comments on the top 5 posts on June 12-18 (in order of total comments number)	99
Table 18. Analysis of comments on the top 5 posts on September 4-10 (in order of total comments number)	101
Table 19. categorization of comments.....	103

List of charts

Chart 1. Climate of Opinion on Hong Kong's Movement - Media
SCMP 104

Chart 2. Climate of Opinion on Hong Kong's Movement - Users'
Comments 105

1. Introduction

This is a project in the field of communication studies, the study of the case of Hong Kong analyzed how the "Spiral of silence" theory was in social media. It is a research of a qualitative and interpretive nature that asks, more generally, how the "fourth era of political communication" (Blumier, 2016; Esser, 2019) affects formation of public opinion.

The present dissertation aims to advance the theoretical and empirical state of knowledge on the processes operating when people monitor opinion climates and express their opinions on social networking sites (SNS). In doing so, it privileges research strategies such as case studies (Schwandt, Gates, 2018) and qualitative content analysis (Maier, 2017; Peräkylä, Ruusuvuori, 2018), for the study of shared representations and meanings. From this broader conception, one specific question is developed: In the 2019 Hong Kong protests, existed a Spiral of silence phenomenon on social media?

Current researches show that our social media environment has changed a lot compared to the past. Some traditional researches believe that social media has promoted public communication and changed the relationship between traditional public opinion, media and politics. On social networking services such as Facebook or Twitter, people can easily express their opinions on politically and civically relevant topics to a large group of other people as well as assess the opinion distributions on these topics. However, more and more studies have pointed out that the complex political uses of social media are subverting democracy. Controversial issues such as fake news, bots, disinformation, and polarization are gradually being discussed.

Taking these phenomena into account, this research is based on the traditional theory Spiral of silence to observe whether and how this phenomenon occurs on social media platforms. Following this theory, human beings constantly observe their social environment in order to determine opinion trends among people surrounding them. Based on the prevailing opinion climate, people decide whether to contribute to a discussion or not: Individuals voice their opinion when they know

that their opinion is socially acceptable and withhold their view when they assume that their opinion might be deviant from the majority.

Thus, following a line of pioneering German authors of *The Spiral of Silence: Public Opinion--Our Social Skin*, such as Elisabeth Noelle-Neeumann (1993), this project dialogues with international literature (Neubaum, 2016; Schulz, Roessler, 2012; Chaudhry, Gruz, 2019; Gearhart, Zhang, 2013; Stoycheff, 2016; Pang, Ho, Zhang, 2016; Hoffmann, Lutz, 2017) and Hong Kong (Chan, 2016; Chan, 2017; Chen, Chan, Lee, 2016; Fu, Chan, 2015; Lee, 2005), seeking to contribute with their own models of media analysis and democracy of Hong Kong. From this point on, the intention will be to demonstrate that this proposal has a potential for scientific and innovation growth, guided by methodological rigor and sustained in outstanding production in the area of Communication and Information.

We take 2019 Hong Kong movements as a case study, by observing climate of opinion of the "South China Morning Post" on the Facebook homepage and corresponding users 'during the protest period, to verify whether the Spiral of silence phenomenon is established, and further reflect the impact of the climate of opinion on political participation online. Starting from this concept, we want to understand: In the 2019 Hong Kong protests, existed a Spiral of silence phenomenon on social media? By testing the traditional theory - the Spiral of silence on Facebook, we observed the climate of opinion in the environment of the neutral media South China Morning Post, and reflect on new problematics in the Internet, finding that under what climate of opinion, users 'political participation is more democratic.

In this sense, this is a project of Communication of a qualitative and interpretative , which avoids criticizing the hegemonic paradigms, but sustains the need for greater epistemological diversity in the field (Denzin, Lincoln, 2018; Salgado, Stanyer, 2019). Thus, this project moves away from explanatory objectives, based on a cause and effect perspective, and embraces interpretations related to media affects, that is, the ways in which the media affect culture, practices and political institutions (Barnhurst, 2011).

We take 2019 Hong Kong movements as a case study. This special background has innovative significance, enriching empirical research on Eastern countries, and providing new ideas for non-campaigns political participation research.

Hong Kong, a city state with one of the world's highest Facebook penetration rates (Chan, 2016). New media in Hong Kong is developing rapidly, and people tend to obtain information through social media. At the same time, Hong Kong returned to China and still enjoys a high degree of autonomy under the "one country, two governance" system. Hong Kong has an environment of speaking liberty. The Anti Extradition Law Amendment Bill movement in 2019 reflected many social issues, including socials medias, civic participation, governance of government. The political participation of Hong Kong citizens has been rising since their returned. In this context, it is very appropriate to study the facebook's SOS effect through this movement. Hong Kong 's problem is not a matter of political elections, the research can also provide new path for the SOS theory.

The study of the Hong Kong case can contribute to the research of the democratic movement on social network. Based on Hong Kong's political system, residents and the media can freely express their support for different parties, and citizens' political participation has been increasing since Hong Kong's return. According to the Press Freedom Index published annually by Reporters Without Borders, Hong Kong stood at 73rd in 2019, by comparison, Brazil stood at 105th in 2019, and the United States stood at 48th. Therefore, the case of Hong Kong is representative and comparable, which can be compared with the communication studies of other democratic countries.

For more than four decades, the spiral of silence theory (Noelle-Neumann, 1974, 1993) has guided scholarship interested in the reciprocal effects of the individual's opinion expression behavior and the formation of public opinion. Following this theory, human beings permanently observe their social environment in order to determine opinion trends among people surrounding them. Based on the prevailing opinion climate, people decide whether to contribute to a discussion or not: Individuals voice their opinion when they know that their opinion is socially acceptable and withhold their view when they assume that their opinion might be

deviant from the majority. In the long run, this silencing mechanism is thought to increase the visibility of the alleged majority faction, while the supposed minority faction loses ground in the public spot. The social psychological explanation for this mechanism was provided by human beings' fear of isolation, meaning that people's behavior is driven by the wish to not be rejected by their social surrounding. In the context of a controversial discussion, a person would rather keep silent than contradict the prevailing majority who could punish him/her for being deviant.

While these assumptions have been explored, criticized, and extended by an extensive body of research focusing on face-to-face communication (Neubaum, 2016), the examination of these predictions in online realms is still in its infancy. Testing the validity of the Spiral of silence theory in these new communication environments becomes even more relevant when considering that social networking technologies such as Facebook combine both sources that Noelle-Neumann (1993) posited to affect the individual's inferences about public opinion: mass media (e.g., online news content integrated on the Facebook news feed). The juxtaposition of these communication sources, therefore, may offer an appropriate forum for users to easily make inferences about how the "general public" evaluates a public issue.

China has been a field little explored by research in Communication occidental. The importance of studying themes lies for exploring circumstances of media in Hong Kong, and the potential development of democratic debates online, which involve the relationship between society and government, as well as those that address other instances where standards are produced. In this sense, this research completes approach on digital media and help to enrich the field.

According to specialized literature, there are many ways in which digital media have affected democracies in general. The hypermediatization of society (Howard, 2006) not only transforms a series of traditional parameters of political information (Vargo et al., 2012), political representation (Coleman, Blumler, 2010; Karlsson, 2013; Ituassu et al., 2016), the public debate and the public sphere (Dahlgren, 2005; Müller, s / d), and public opinion (Esser, 2019), as it presents a variety of technological elements such as algorithms, robots, social media platforms

and management software large volume of data (Howard, 2006; Semetko, Tworzecki, 2018; Ituassu et al., 2019).

In short, based on the above, it is justified here that this study has great potential for scientific and innovation growth, guided by methodological rigor, based on production with prominence in the area of Communication and Information. In the next sections, the objectives, object and questions, the theoretical and methodological discussion.

General and Specific Objectives

This political communication research analyzed the impact of digital media on public opinion. The survey aims to analyze the opinions and expressions surrounding the proposed theme, using case study as a research strategy, and adopting methods such as frame methods and qualitative content analysis. Starting from this concept, question are raised: In the 2019 Hong Kong protests, existed a Spiral of silence phenomenon on social media?

This is a qualitative and interpretive study that observes how users participate in political discussions through social media. By testing the traditional theory - the Spiral of silence on Facebook, we observed the climate of opinion in the environment of the neutral media South China Morning Post, and reflect on new problematics in the Internet, finding that under what climate of opinion, users' political participation is more democratic.

This study used the method of framing analysis and coding, recognized the climate of opinion, through manual analysis of the posts published by the media and through the corresponding users' feedback (comments, reactions). This kind of interpretative and qualitative research can provide in-depth observations of Hong Kong's case and facilitate the interpretation of the opinions of the media and users.

As a case study, we chose the Facebook page of the South China Morning Post, a traditional Hong Kong media. This is a newspaper with a neutral view. It is Hong Kong's newspaper of record, owned by Alibaba Group. The newspaper's circulation has been relatively stable for years—the average daily circulation stood at 100,000 in 2016. In a 2019 survey by the Chinese University of Hong Kong, the

SCMP was regarded as the most credible paid newspaper in Hong Kong. We collected public Facebook comments posted in response to news stories published by SCMP on their official Facebook page (www.Facebook.com/scmp). During the data collection period (in May), the South China Morning Post page received about 2,383mil likes and 3,658,007 followers (May 26). During the period of Hong Kong movements, it provided multi-angle reports including pictures, videos, and news.

With reference to the experimental background of the Silent Spiral Theory, we study whether this phenomenon exists in a group or community on Facebook. The theory of the Spiral of silence can be divided into three phases, each of which is related to a different influence in the spiral process: The first is the influence of the mass media into public opinion, and the generation of public opinion, which is, the formation of the "Climate of opinion"; the second is the public's perception of the "climate of opinion", and evaluate himself if is consistent with public opinion; the third is the impact of Climate of opinion on human behavior and attitudes. In general, the willingness to speak out is considered the key variable of the theory (Roessing, 2009; Scheufele & Moy, 2000). These steps based on the SOS theory: We choose this media page on facebook, which has enough power to effect the public opinion, and those Facebook users who are influenced by this climate, as the research object. Observe the climate of opinion, aim to find the answer.

In the following sections, this paper elaborate on the background of social network, the existing updated theories, the context of the case of Hong Kong, the methods and conclusions.

2. Theoretical Framework

This section presents in a systematic way the main phases of improvement of analysis of the theory Spiral of Silence (SOS), also seeking to summarize existing research. In the context of technological renewal, trying to restructure the methodology of the SOS, analyzing the background of the Internet and the context of Hong Kong, which is useful for the purposes of the master's thesis in preparation.

With the emergence of Internet technology, the Internet has played an increasingly important role in social, political, and cultural aspects. In particular, social media has promoted public communication and changed the relationship between traditional public opinion, media and politics. On social networking services such as Facebook or Twitter, people can easily express their opinions on politically and civically relevant topics to a large group of other people as well as assess the opinion distributions on these topics (Bode, Vraga, Borah, & Shah, 2014; Walther & Jang, 2012). These platforms offer a series of features allowing people to pass along, recommend, or comment on politically relevant information and raise the awareness of a networked audience more easily than ever before (Messing & Westwood, 2014).

The argument presented argues that predicting the fate of the SOS in the light of current communication technologies is quite complex. Although there is widespread sentiment “that the theory might make sense intuitively” (Bodor, 2012, p. 2), but empirical evidence supporting the key assumptions of the SOS theory is rather weak. The lack of empirical evidence is commonly attributed to violations of the conditions specified by Noelle-Neumann such as the moral loading of an issue (Roessing, 2009), the disregard of the time component (Bodor, 2012; Scheufele & Moy, 2000), inadequate operationalizations of willingness to speak out (Roessing, 2009; Scherer et al., 2006) and a misunderstanding of the incongruity or dissonance of opinions as independent variable in the effects process (Bodor, 2012).

Although empirical evidence is weak, the fundamental ideas of the SOS theory remain compelling and provide a sound framework for predicting effects of media exposure on perception and discourse behavior (Schulz & Roessler, 2012). What we need to see now is due to the prevalence of online communication, it is

necessary to reconsider the theoretical framework and test the theory under the new conditions of online communication.

Hong Kong, a city state with one of the world's highest Facebook penetration rates (Chan, 2016). New media in Hong Kong is developing rapidly, and people tend to obtain information through social media. At the same time, Hong Kong returned to China and still enjoys a high degree of autonomy under the "one country, two governance" system. Hong Kong has an environment of speaking liberty. The Anti Extradition Law Amendment Bill movement in 2019 reflected many social issues, including social medias, civic participation, governance of government. The political participation of Hong Kong citizens has been rising since their returned. In this context, it is very appropriate to study the facebook's SOS effect through this movement. Hong Kong 's problem is not a matter of political elections, the research can also provide new path for the SOS theory. Nowadays, there are many cases of political problems caused by society conflicts in the world, such as the 2019–20 Catalan Protests in Spain and the Separatist Movement of Rio Grande do Sul in Brazil. These issues are worthy of our rethinking the effect SOS, which not just limited within political elections. At the same time, with the rise of social media, the capacity of citizen mobilization has been further strengthened. The relationship between public, politics, and media also requires us to rethink.

Therefore, this section review the reasons for the formation of the SOS, finding whether have the effect of SOS online, as well as the definition of several basic variables and their changes under new communication technologies.

2.1. Internet and political participation

In the sense of enabling citizens to conduct public discussions, the idea that online communication can play a key role in the formation of public opinion is not new. As the Internet became more and more available in the 1990s, both the mass media and the scientific community started to evaluate this "new" communication technology as a potential public agora enabling lively political discussions and enhancing democratic processes (Neubaum, 2016). Optimistic and skeptical views

have been voiced in this regard, resulting in a debate that is still on-going to date (Neubaum, 2016).

What the Schulz(2012) perceives as the climate of opinion strongly depends on which information he or she selects from the mass media's coverage and from his or her social environment. With online media the choice of information has become much bigger compared with content available offline, which is especially true for information coming from the social environment.

Scholars holding an optimistic viewpoint ("utopian vision;" cf. Papacharissi, 2008) has elaborated on how the use of computer networks usually enables information dissemination to overcome geographic and temporal boundaries. The simplified and quicker flow of, for instance, governmental or journalistic information has been thought to enable Internet users to become better informed citizens, which is a prerequisite for a healthy democratic system (Bimber, 1998; Hacker & van Dijk, 2000). In addition to treating the Internet as a provider of citizen-related information, it has been proposed that Internet-based technologies facilitate political discussions among citizens as well as between citizens and the government (Dahlgren, 2005; Tsagarousianou, 1999).

On the other hand, the enthusiasm regarding the potential "digital democracy" or "cyberdemocracy," however, was somewhat tempered by skeptical viewpoints ("dystopian visions;" cf. Papacharissi, 2008). One critical approach was based on the idea of the digital divide (van Dijk, 2000; van Dijk & Hacker, 2003) pointing to inequalities in access to the Internet and the lack of knowledge and skills in Internet use, including the ability to reflect upon the quality of information and discourses therein. In this regard, it was suggested that the potential public deliberation on the Internet suffers from the fact that for some people this medium is not available (Norris, 2001; Wilhelm, 2000). This not only impedes democratic participation through Internet technologies but also provokes concerns about a growing gap between the information rich and poor within and between countries (Norris, 2000). Have to be aware of is, some regimes deliberately restrict access to the Internet or at least to some specific online platforms; similarly some governments censor content available on the Internet (Akgül & Kırıldoğ, 2015; Rød & Weidmann, 2015), the reason for the digital divide lies not only in technological

infrastructure and people's educational level and cultural background, but also in the political environment of a country (Neubaum, 2016).

Based on empirical evidence, scholars have also claimed that there are inequalities in discursive participation on the Internet (Hill & Hughes, 1998). Accordingly, discourses related to politics or citizenship are dominated by a few users, while the vast majority are composed of passive "lurkers" who only read but do not participate in the discussion. This has raised questions of how representative online discourses are and how ideologically homogeneous this active minority is (Davis, 1999).

However, more and more studies have pointed out that in the web 2.0 era, more and more "lurkers" have begun to speak out. The problems of polarization, fake news, and bots are serious. People are beginning to reflect on whether public opinions online represents the majority.

Chadwick(2020) believes that the time is ripe for research to focus attention on the intolerant and democratically dysfunctional aspects of digital media engagement. It is important to start redressing the imbalance created by the previous tendency to focus on optimistic, pro-democratic outcomes. The current perspective is that the unprecedentedly sophisticated political uses of the digital toolbox are disempowering citizens and subverting democracy (Elsihar-Malka& Ariel& Weimann, 2020).

Cyberbalkanization - Polarization and extreme discussion

Cyberbalkanization is thought as a mechanism through which an individual's preference towards certain information sources leads to reinforce one's skewed opinion, i.e., a user voluntarily selects like-minded peers for interactions and filters out, consciously or unconsciously, less-preferred contacts, which is an innate aspect of human communication long documented in the literature on selective exposure (Zillmann & Bryant, 1985). The term cyberbalkanization was first coined in Van Alstyne and Brynjolfsson's early article (1996) to describe the information technology-driven division of virtual space into special interest groups. It is later put into the political context as an online phenomenon in which "people

seek out only like-minded others and thereby close themselves off from ideological opposition, alternative understandings, and uncomfortable discussions” (Brainard, 2009, p. 598). Sunstein (2008, p. 94) also describes a similar online phenomenon, in which a group of bloggers living “in echo chambers of their own design” or “in information cocoon”.

Even though cyberbalkanization has been described as a general online phenomenon, whether it actually leads to the polarization of people's opinions in the society still needs further study. Opinion polarization is known as a state referring to “the extent to which opinions on an issue are opposed in relation to some theoretical maximum,” and polarization as a process that “refers to the increase in such opposition over time” (DiMaggio, Evans, & Bryson, 1996, p. 693).

Concerns about online echo chambers may be exaggerated, not least because the empirical evidence for these phenomena has always been mixed. Chadwick (2020) thinks that content that reinforces one's identity is more accessible than ever to those in society who are motivated to have their identity reinforced, even if that identity is based on democratically dysfunctional norms, such as the refusal – fuelled by misogyny, xenophobia or racism – to hear the other side.

According to Sunstein (2001), social fragmentation is a “breeding ground for polarization, and potentially dangerous for both democracy and social peace”. Considering the lack of challenging views, together with a homogeneous deliberation is thought to lead individuals to adopt more extreme views than they had before. This alarming depiction of Internet communication was accompanied by empirical works indicating that opinion extremism is associated with exposure to like-minded online discussion forums (see e.g. Wojcieszak, 2010). From a normative point of view, the formation of like-minded groups is not harmful for democracy per se (Neubaum, 2016), as the existence of these groups can foster the general establishment of opinion diversity in society leading to more considerate public debates (Dahlberg, 2007).

However, studies have shown that extreme discourse may prevent opponents from joining the discussion. As a further deliberative ideal, the civility of online discussions, defined as “collective politeness” (Papacharissi, 2004, p.

267), was also subject to empirical research. Pioneer studies on discursive deliberation on the Internet had already observed that the uninhibited nature of online exchanges of opinions also included socially deviant and inflammatory behaviors among discussants and those were encountered significantly more often in computer-mediated communication(CMC) compared with face-to-face communication (Dubrovsky et al., 1991; Schmitz et al., 1995; Siegel et al., 1986; Sproull & Kiesler, 1986). This phenomenon often referred to as “flaming” is thought to impede an egalitarian deliberation as observing an offensive discourse might intimidate people to join the discussion (Dahlberg, 2001b).

Experimental data suggests that online users prefer attitude-consistent over counter-attitudinal messages, which in turn strengthens the political self-concept through increased accessibility (Knobloch-Westerwick & Meng, 2011). Schulz (2012) conclude that Internet users who follow this pattern tend to select consistent information based on their personal interests, favors, and needs, while easily ignoring nonsuitable information (Bennett & Iyengar, 2008, p. 724; Sunstein, 2001). With regard to the SOS, the information selected online (coming from the mass media, as well as from the social environment) would thus always be consistent with the individual’s opinion; one could almost say that it leads to a life spent in a self-constructed information bubble—but a different one for every single individual.

Problematic aspects of digital media

Ituassu (2019) discusses the ways digital media have been affecting electoral campaigns and, in this sense, politics and democracy itself. Donald Trump’s victorious 2016 campaign and his digital communication strategies generated certain apprehension regarding the impact of the internet on electoral contexts and democracy in general. For instance, his campaign acted in a controversial way with respect to the quality of information circulating in the public sphere during the elections. Furthermore, the campaign was marked by the success of questionable forms of speech in the digital environment, the use of illegal data, and the possibility of external influence in Trump’s favor.

On the other hand, Cambridge Analytica closed its doors in 2018 after the *The Guardian* broke the news of the illegal leaking of information about 50 million American citizens stored by Facebook. Cambridge Analytica was a “strategic communication company” with the mission to “use data to modify audience behavior”. Moreover, those platforms used bots – automated social media accounts – intensely to boost posts artificially. According to a commentator, bots end up “fabricating consensus” by artificially increasing traffic flow around a candidate or topic (Ituassu, 2019).

Politicians such as Trump have learned to exploit channels of direct contact with citizens to influence them in far-reaching ways. In doing so, they have also propagated highly effective public de-legitimization of the news media (legacy as well as online) and have succeeded in significantly weakening their standing in the public arena (Elsihar-Malka& Ariel& Weimann, 2020).

One of the most discussed phenomena in the aftermath of the 2016 U.S. presidential election was the spread and possible influence of “fake news”—false or misleading content intentionally dressed up to look like news articles, often for the purpose of generating ad revenue. Guess(2019) finds that some of the earliest journalistic accounts of fake news highlighted its popularity on social media, especially Facebook. Visits to Facebook appear to be much more common than other platforms before visits to fake news articles in web consumption data, suggesting a powerful role for the social network (Guess, Nagler, Tucker, 2019).

Allcott and Gentzkow (2017) defined fake news to be ‘news articles that are intentionally and verifiably false and could mislead readers ’(213). Tandoc, Lim, and Ling (2018) suggest that rather than looking at fake news as mere instance of misinformation, studies have been operationalised fake news in relations to: satire, parody, fabrication, manipulation, propaganda, and advertising. According to a Pew Research survey (Barthel, Mitchell, Holcomb 2016), a third of U.S. adults indicated that they often been exposed to completely false political stories and half of U.S adults to somewhat inaccurate news. In addition, 23% have shared false stories with others either knowingly or not. Much of the content on the web is not created or produced by traditional mechanisms of information generation. Every web user is a potential content creator (Elsihar-Malka& Ariel& Weimann, 2020).

Recent studies have shown that the Internet has gradually become the center stage of political discussions, however, followed by such as leakage information, bots, and fake news generated certain apprehension regarding the impact of the internet on electoral contexts and democracy in general. These emerging problems have reduced public's trust in the Internet.

Self-censorship and uncivil comment

A study on China found that, when people express themselves online, they may be more concerned about normative expectations about “correct” political views within society than about potential repercussions by the Chinese state. Attempts to conform to social norms may be a more powerful mechanism leading to self-censorship among Chinese Internet users than is commonly believed (Stockmann, Luo, 2019). This shows that, in addition to specific topics, context of cultural and compliance with social regular will also be the cause of self-censorship by Internet users. And this self-censorship may affect the expression of opinions.

In social media environments such as Facebook, where both the individual and the audience are identifiable, Rössler and Schulz (2014) would also predict a strong adherence to the group's norm, as it is expected that on a platform such as Facebook the norm or the opinion of a salient ingroup (i.e., a group one identifies with) will affect the individual's behavior. In the context of Facebook, a survey study by Kwon and colleagues (2015) showed that users with a very diverse network (consisting of people from many different social backgrounds) are more prone to censor themselves when it comes to expressing their opinion on a controversial topic. However, the size of people's Facebook network has no effect on the willingness to self-censor. Nonetheless, Jang, Lee, and Park (2014) found that there is a negative correlation between the number of Facebook friends and people's willingness to talk about political issues on Facebook, which indicated that larger network reduce the individual's likelihood to initiate or enter political discussions.

Besides the characteristics of the particular platform, conversational attributes have been supposed to influence the mechanisms predicted in the Spiral of silence theory. As one characteristic of a functioning deliberative society, the

civility of online discussions and its effect on people's opinion expression behavior has been investigated. By means of an online experiment, Pang, Ho, Ko, Low, Zhang, and Tan (2015) tested the hypothesis that users who encounter a polite discussion will be more willing to participate in this conversation than those who are met with uncivil behavior. This showed that people faced with civil comments on Facebook were more willing to "like" particular comments than people faced with uncivil comments (Neubaum, 2016).

Certain social-psychological factors have been identified as being capable of influencing opinion expression, such as issue importance and attitude certainty. Importance refers to "the extent to which an individual cares deeply about and is personally vested in an attitude" (Krosnick, Boninger, Chuang, Berent, & Carnot, 1993, p. 1132). When an individual is concerned about an issue, he or she is more likely to act on it and communicate about it out of civic duty rather than fear or self-censor. Perceptions of issue importance have been found to be a significant predictor of one's willingness to speak out (Gearhart, Zhang, 2013).

Studies of Huang Yuexi (2018) have shown that the radical comments of Hong Kong netizens lead to effect of SOS: Putting opinions on the Internet that were contrary to mainstream political opinions will attract the attention and discussion of a lot of people. For example, some young people who are dissatisfied with the current government policies were pay more attention to "Hong Kong city-state theory"(a book which have a point that insist the separation of Hong Kong with Chinese mainland) and opposing system "one country, two governance". Some radical expressions of young people are more common on the Internet, which leads to the conflict between rational thinking and emotional expression. It is difficult to achieve reasonable expression under irrational verbal attacks. The virtual public sphere, which should have diversity and diversification. However, now is full of exclusive and irrational personal behaviors. There were some participants tend to be silent due to the lack of respect and rational response (Huang, 2018).

Since online communication today encompasses almost every segment of the population in modern societies and since both media content and media use have undergone significant changes in the course of the proliferation of online communication (Neuman, Park, & Panek, 2012), theoretical and empirical analyses

are needed to assess whether the media effects theories developed in an offline mass media environment can still be applied.

Studies examining the theory in the social media context remain limited, though researchers have found evidence of its relevance. (Gearhart and Zhang (2013) Boundaries between offline and online communication are increasingly blurred. In the contemporary media environment individuals often find themselves crossing back and forth the private and public spheres (Bimber, Flanagin, & Stohl, 2005).

With the advent of online communication, media content has vastly expanded. This particularly regards non-journalistic online content beyond the mass media. It is commonly assumed that this expansion also means an increase in diversity. Whereas mass media have to comply with journalistic selection and presentation criteria and journalists are known for their co-orientation within their profession, non-journalistic content follows the subjective preferences of its producers (Dylko & McCluskey, 2012), rather than common rules for processing the information. A high degree of consonance in the mass media is therefore commonly assumed (Peter, 2004, p. 150), while consonance in non-journalistic online content is much more unlikely. (Eilders & Porten-Che  , 2016).

At the same time, some other scholars believe that social media sites have evolved with several characteristics that shape (or are shaped by) interactions among people. For example, social networks on Facebook are often based on real-world relationships. The fear of not holding a popular opinion may still be a consideration by users in their participation of online discussions (Metzger, 2009). Studies on online ostracism have also presented evidence pointing to the negative effects felt by individuals that are similar to those being ostracized in real life (Kassner, Wesselmann, Law, & Williams, 2012), suggesting that the fear of isolation may also be highly relevant in the online context.

The influence of social media

Despite the relatively short development time of social media, its influence surpasses all traditional media. Luo Yongsheng once commented: "New media is

highly interactive and the possibility of mass participation is high." During the 2006, the Movement Star Ferry Pier in Hong Kong, it was possible to rely on the website to mobilize up to 200 people to participate in social movements, but through social media, at least ten times the number (Huang, 2018). As a result, the opinion of some netizens on the Internet has driven the atmosphere of the whole society, and a climate of opinion has been formed. In other words, online media not only has an impact on the political tendencies of Hong Kong youth, but it will also set off a wave of youth deliberations, which has had a profound impact on the entire society (Liu, 2016).

In Hong Kong's analysis, Liu Qiang's (2016) research found that the issue was brewed through online media, and the issue was further amplified by traditional media. The media debates triggered social movements, and social movements once again brought extensive coverage of traditional media. In-depth discussions, such round-trip, as a result, maximize the political and social effects of online media. Therefore, through the "social media connection" and "movement experience", the youth group is no longer a scattered group, they gradually condense and integrate, starting from the scattered individuals to condense into an emerging political force. Their political participation awareness and ability of participation has been greatly improved.

On a societal level, the informational use of social media has also been proposed as an instrument to stimulate extensive political change (Curtis, 2015; Howard & Parks, 2012). This was investigated in the context of the Arab Spring, in which citizens of the Arab world launched a wave of uprisings against the authoritarian regime. Based on interviews with Egyptian protesters, Tufekci and Wilson (2012) found that those who obtained information about the protests through social media were more likely to participate in demonstrations against the regime. A technical explanation for this enhanced information flow may lie in the improved information infrastructure in the sense of a greater global connectivity which is a consequence of the increasing international Internet bandwidth (Seo & Thorson, 2012). Due to technological improvements, it is now easier for people in developing countries to exchange information and formulate action strategies with people in other regions. (Neubaum, 2016)

Facebook and public opinion

Launched in 2004, Facebook today is the most popular online technology after the search engine Google (cf. Alexa, 2016). Meeting the definition criteria of social networking sites (cf. Ellison & boyd, 2013), Facebook is a web-based service providing a personal profile for every user which allows him/her to connect to and exchange content with other users. The three core elements of this platform are the users' personal profile, the user's list of network "friends," and the streams of user-generated content (cf. Ellison & Vitak, 2015). On their personal profiles, users are asked to disclose their names, date of birth, personal pictures, profession, interests, and hobbies, political affiliation and further personal information. The platform policies require users to register on Facebook with their real identity (i.e., real name), which seems to be widely followed by users (Taddicken, 2014; Zhao, Grasmuck, & Martin, 2008). One part of the profile is the list of connections people have on this platform. People's Facebook network mostly consists of people they know from offline communication in the sense of close friends, acquaintances, co-workers, and/or family members (Ellison & Vitak, 2015). With these people, users are able to exchange information via many different channels: (a) via messages including two or more people on a private channel; (b) in a closed group of people that is mostly devoted to a specific topic; (c) through postings on one's or someone else's "wall" which usually reaches a larger audience, for instance, one's whole network or even the general public (i.e., every Internet user). Once users become Facebook friends, they automatically subscribe to each other's channels (unless indicated otherwise), meaning that person A gets notified when person B posts a status update (messages on one's wall) (Neubaum, 2016), "reactions," comments on, or shares other people's messages. These notifications are integrated in a continuously updated stream called news feed which serves as a personal Facebook home page appearing after logging on to this platform. On this news feed, people not only receive interpersonal information about their Facebook connections but also notifications about updates on Facebook channels which users have subscribed to before (such as the Facebook channel of the New York Times; cf. Messing & Westwood, 2014).

In February 2016, Facebook extended the commonly known like button and added five more options (love, haha, wow, sad and angry). In April 2020, Facebook expanded the "care" option. Graphically, these options are an extension of most commonly used emojis used to express emotions (Tian et al., 2017). According to Smieško (2016), the reaction buttons are human behavior substitute in the digital world and it has been accepted as a modern form of speech by the United States Court of Appeals. The reaction button allows users to react to a particular post, comment, share etc. in order to express how one feels instead of just relying on the underspecified like as a wordless response (Pool et al., 2016). With literature pointing towards how the reaction button is a representation of feelings users are trying to convey digitally, it would be interesting to examine the effect of users' reactions on their sentiment intensity. The current study hypothesizes that sentiment intensity is enhanced when users' reactions are considered.

Facebook is a social networking service, mainly designed to promote interpersonal communication between friends and close user groups. Social media allows very subtle forms of discourse participation, such as "like" (by clicking the "reactions" button on Facebook and choose "like") a posting and / or corresponding comments, or joining political groups in order to undertaking a political activity that seem to only require a few clicks.

Based on the data from Statista (2019), Facebook is one of the most popular social media applications, with 2.32 billion active users in the world. Apart from status updates, Facebook allows users to reaction, comment or share a particular post. Although Facebook allows users to be wordier, it was found that posts tend to receive more like or share compared to longer comments (Pool & Nissim, 2016). Recognizing this form of communication has led Facebook EdgeRank algorithm to assign different weight valuation on like, comment, and share where a higher weightage is allocated for share and least for like (Kim & Yang, 2017). Recently, Facebook update the reaction feature consisting of six pre-defined emotions namely "love", "ha-ha", "wow", "care", "sad" and "angry" that permits users to articulate their feelings wordlessly (Smieško, 2016).

From a participatory democracy perspective, political actors' Facebook posts have a great potential to increase the interaction between political actors and

citizens and hence stimulate participation (Heiss, Schmuck, & Matthes, 2019). Literally, everyone can express opinions and the political actors can directly respond to citizens' input. Past research on political actors on social media, however, suggests that political actors predominantly use Facebook as a tool for one-way communication (e.g., Gerodimos & Justinussen, 2015) and the potential for real interaction with citizens is yet to be unfolded (also see Lilleker, 2016; Stromer-Galley, 2000).

At the same time, it should be noted that as an Internet platform, Facebook has some worrying problems. Facebook has conducted an internal study of those problem and determined that many forms of disinformation were operating in its networks of 2 billion users, making these problems both national and international in scope (Weedon et al., 2017). The Facebook report noted that the term fake news implies too narrow a view of the larger problems. Instead, the focus was placed on disinformation as the key problem, noting that disinformation is intentional, often strategic (targeting particular demographics) and may encompass both fake stories and coordinated efforts from both real and fake accounts to engage particular audiences.

In some countries, disinformation is far from a random or marginal problem, as it is linked to political funders, think tanks, heavily trafficked media, movements and parties (Bennett, Livingston, 2018). These contextual patterns are important to identify. In addition, foreign interventions into national affairs have become a clear danger to the integrity of political processes and the coherence of the communication that defines them (Bennett, Pfetsch, 2018).

2.2. The basic elements and rethinking of the Spiral of silence

The section reviews the formation of the Spiral of silence of related research in the 47 years since the theory emerge, and the improvement of the theory under the context of social media. The SOS is a common phenomenon in people's social and political life. In this regard, we need to analyze it, such as observation and research on changes in several variables, such as changes in the media, how the

public perceives the climate of opinion, and how the public reacts to being “isolated”.

Research on the SOS began in the German elections in 1965. The phenomena observed in 1965 and 1972 were the starting point of Neumann's Spiral of silence. Although the empirical work initially focused on the outcome of the elections, it later extended to broader political and social issues.

Neumann in his book “The Spiral of silence: Public Opinion— Our Social Skin“ describes the process of the Spiral of silence as follows: This very restraint made the view that was receiving vocal support appear to be stronger than it really was and the other view weaker. Observation made in one context spread to another and encouraged people either to proclaim their views or to swallow them and keep quiet until, in a spiraling process, the one view dominated the public scene and the other disappeared from public awareness as its adherents became mute (Noelle-Neumann, 1993, p5).

The theory of the SOS can be divided into three phases, each of which is related to a different influence in the spiral process: The first is the influence of the mass media into public opinion , and the generation of public opinion, which is, the formation of the "Climate of opinion"; the second is the public's perception of the "climate of opinion", and evaluate himself if is consistent with public opinion; the third is the impact of Climate of opinion on human behavior and attitudes. In general, the willingness to speak out is considered the key variable of the theory (Roessing, 2009; Scheufele & Moy, 2000).

Noelle-Neumann introduced several premises that have to be met if the mechanism is to start. First, the issue has to be a topical controversy with public opinion being about to shift, so there are opposing camps that still change in size involved in a controversial debate that is being observed by a wider audience (Noelle-Neumann, 2001, p. 366). Second, the issue has to be morally charged so people are likely to become involved. Another premise is a high degree of consonance in the media environment. Consonance is crucial for spiraling processes—as well as for most other media effects (Peter, 2004)—because unanimous media coverage may nourish the impression of a united majority sharing

the opinion expressed in the media. Individuals deviating from that opinion may fear isolation and fall silent (Noelle-Neumann, 1993, 2001).

Public Opinion

Despite its vitality and prominence in the social sciences, public opinion still remains one of the fuzziest terms in this research area (Donsbach & Traugott, 2008). In eighteenth-century Europe, public opinion was presumed to be formed during discussions in London's coffeehouses or Paris 'salons, where citizens openly exchanged ideas and arguments about societal problems (Price, 1992). Building on this model, scholars understood public opinion as "sentiment on any given subject which is entertained by the best informed, most intelligent, and most moral persons in the community" (Mackinnon, 1828, p. 15) or as "opinions on matters of concern to the nation freely and publicly expressed by men outside the governments who claim a right that their opinions should influence or determine the action, personnel, or structure of their government" (Speier, 1950, p. 376). These descriptions emphasize that public opinion may be the result of rational debates conducted by citizens and may ultimately have an impact on government policies (Neubaum, 2016).

This idea forms the basis for the normative view on public opinion. In this context, the philosopher Jürgen Habermas (1962, 1974) provided a comprehensive framework dealing with how public spheres should be structured and how public opinion should result from this structured system. According to Habermas, London's coffee houses and Paris 'salons are examples of public spheres, referring to areas that "mediate[s] between society and state" (1974, p. 50) to which all citizens should have access and where they are able to organize themselves. Here, citizens become informed and educated so that they – after holding openminded and diverse discourses – can or ought to form an opinion on matters of common concern (Habermas, 1962; see also Berelson, 1952). Public opinion formed as a result of an egalitarian and reasoned debate is supposed to serve as input that is given from the "bourgeois public sphere" (i.e., the citizens) to the "political public sphere" (i.e., government authorities) to make democratic decisions. To serve as an instrument for policy makers, public opinion started being conceptualized as the aggregation of individual preferences in the sense of how many people are in favor,

against, and indifferent about an idea (Allport, 1937; Converse, 1987; Gallup & Rae, 1940). Regarding public opinion as the result of representative surveys, the logical empirical counterpart to this practical definition, was met with criticism: Skeptics argued that poll results are based on evaluations of average citizens who are not well-informed and who do not have enough resources to form elaborated opinions on a myriad of public issues (Bourdieu, 1979; Bryce, 1888; see also Dewey, 1927; Lippmann, 1922, 1925).

Lippman emphasized the relationship between mass communication and the public in his book *Public Opinion* (1922). He think that people construct a pseudo-environment that is a subjective, biased, and necessarily abridged mental image of the world, and to a degree, everyone's pseudo-environment is a fiction. People "live in the same world, but they think and feel in different ones." By definition, pertinent facts are never provided completely and accurately; by necessity they are arranged to portray a certain, subjective interpretation of an event. Those who are most familiar with the greatest amount of facts regarding a certain environment, construct a pseudo-environment that aligns with their own 'stereotypes' and convey this to the public, knowingly or not, to suit their own private needs. As a consequence, the mass communication media, by their very nature as vehicles for informational transmission, are essentially vulnerable to manipulation.

Universally it is admitted that the press is the chief means of contact with the unseen environment. And practically everywhere it is assumed that the press should do spontaneously for us what primitive democracy imagined each of us could do spontaneously for himself, that every day and twice a day it will present us with a true picture of all the outer world in which we are interested. (Lippmann, 1922)

Like Lipman, Schudson agrees with the importance of mass media. His point is that today's democracy is better even if the majority of citizens do not embrace public life with fervor, engage in deliberative politics, or have limited civic knowledge. Rather than opting for do-it-yourself politics, citizens outsource many tasks to institutions: news to journalism, representation to politicians (Waisbord, 2017). He mentioned the concept of "monitorial citizenship" in *Good Citizens* (1998), which refers to a citizen who is in a governable position, "owns rights" and to "supervise". He believes that good citizens are not and should not be "informed"

citizens who participate in the democratic decision-making process, but citizens who know how to defend their rights. Schudson believe that public spheres do not naturally lead to social, legal, and political transformations. They may stimulate debate and give visibility to myriad voices, but democracies demand more than a vibrant public sphere. At a time of newfound interest in the politics of civic society, Schudson also reminds us about the importance of political institutions and the state.

Neumann definite the public opinion as “opinions on controversial issues that one can express in public without isolating oneself, for in the field of consolidated traditions, morals, and, above all, norms, the opinions and behaviors of public opinion are opinions and behaviors that one must express or adopt if one is not going to isolate oneself.” (Noelle-Neumann, 1993, p63).

In this study, we extend this definition to the Internet, that is, people express their opinions in public platform such like internet. The forms of expressing opinions have become diversified on the Internet, especially in the web 2.0 era. Individuals can comment, post videos, pictures, and articles just like they express themselves in the real world, and they can also "like" and "share" others opinions on social media. These actions constitute the atmosphere of opinions online which forms the public opinion online.

Neumann believes that public opinion has the characteristics of rationality and social control (Noelle-Neumann, 1993, p220). The concept of rationalized public opinion arises from sane, reasonable, eloquent, well-educated, and judgmental citizens. This notion arises from political life and political discussions, although All citizens may participate in the discussion, but in fact only a small number of well-informed and concerned citizens did participate. Under the concept of "social control", all members of society will be involved. Social control is effective. It exerts pressure on individuals, causing them to fear isolation, and it also exerts pressure on rulers, so that they can be isolated without the support of public opinion, and at some point subverted.

Power of the media

In his "Public Opinion", Walter Lippmann explained how people in fact develop their conceptions, how they snatch things from the messages transmitted to them, how they process them and pass them along. Under the tremendous influence of the First World War, he discovered the cornerstone of public opinion, the crystallization process of conceptions and of opinions, in emotionally loaded "stereotypes". (Noelle-Neumann, 1993, p147)

He believes that media has a great impact on the public: "Every newspaper when it reaches the reader is the result of a whole series of selections"(Lippmann, 1965) Lippmann concluded from his findings that choice determines the result, and what the public gets is a picture extracted from complex reality by means of selection. He thinks that people can only accept highly simplified things, because people have to focus on a relatively large number of issues. What is not reported is nonexistent, or more cautiously worded: their chances of becoming part of the reality perceived by people of this age are slim.(Noelle-Neumann, 1993, p149)

In his book "Public Opinion", Niklas Luhmann pointed out that "Selecting issues" is idea what public opinion achieves, that is, the function of public opinion is fulfilled when it brings an issue to the negotiating table (Luhmann, 1971) . American communication researchers have reached similar conclusions through research, and call it "agenda-setting function." The formation of "issues" in public opinion has made us clearly aware of the importance of mass media, and they have contributed to the formation of issues more effectively than any other authoritative organization.

Just as the media imprint stereotypes through innumerable repetitions, the media is also an important part of the "middle world" between humans and the external objective world. Media has a agenda-setting function: what is urgent? Which questions everyone must be concerned with? These are all decided by the media. Neumann saw from this how the media influences individual conceptions and how people influence what they say and do to avoid the danger of being isolated.

Spiral of Silence implies that individuals, propelled by their fear of isolation, permanently observe their environment to estimate the climate of opinion in society. Both mass media and social contacts serve as sources of information which are interpreted by the individual's quasi-statistical sense; however, the mass media, as Noelle-Neumann assumes, exert a substantial influence on the perception of the opinion climate—simply because individuals depend on media coverage when issues of public interest are at stake, as they can almost never witness relevant incidents firsthand. The reception of mass media coverage then leads to an overestimation of the opinions represented within coverage, which are then projected onto a diffuse societal opinion. Consequently, the perceived climate of opinion always appears to be biased in the direction of the opinion conveyed by mass media (Noelle-Neumann, 1993).

According to Weimann (2017), the 1960s and 1970s were a golden age for research into two-step flow communication and the central role played by opinion leaders across a wide range of topics in media studies and other research fields. Weimann pointed to the need to move to a more complex model of 'multi-stage flow'. This model is more compatible with the convergence of mass media and interpersonal communication that has taken place in new media (Elsihar-Malka, Ariel, Weimann, 2020).

Therefore, in the context of social media, the powerful effect of media on the public in traditional theories deserves our rethinking. Much of the content on the web is not created or produced by traditional mechanisms of information generation. Every web user is a potential content creator (Elsihar-Malka, Ariel, Weimann, 2020).

Challenging Public Opinion

In fact, there are some special cases. The SOS not only explains the emergence and strengthening of public opinion, but also takes into account changes in public opinion. The concept of the SOS preserves the possibility that this society can be changed by those who do not feel the fear of isolation or who can overcome it. A high degree of harmony and consensus is the source of happiness and security for most people, but it is a horrible stimulus to those pioneers. When we reflect on

the phenomena on the Internet, such as polarization, extremism, and the prevalence of populist discourses, this kind of firm stance minority is becoming stronger and stronger on the Internet.

In addition, Neumann also mentioned another special case in his theory, Neumann found in the 1976 and 1972 election polls in Germany that the climate of opinion and the dominant opinion of journalists were inconsistent. She called this phenomenon a dual climate of opinion (Noelle-Neumann, 1993, p167). This phenomenon means that because of the different uses of media, people perceive different climates of opinion. Estimates of climate of opinion are always different due to the use of different media, so it is worthwhile checking the hypothesis that the error in judgment was caused by the mass media. This point still applies today, we need to take into account the changes in nowadays media technology. A dual climate of opinion shows that under the influence of certain conditions, the opinions of the media do not necessarily dominate the public opinions. When this phenomenon is reflected on the Internet, we need to analyze specific cases.

2.3. The Spiral of silence on Facebook

In almost every Spiral of silence study in online realms, the silence hypothesis has been researched as a core assumption of the theory. The effects of the opinion climate on people's outspokenness were explored in two different ways: Firstly, in some studies the relationship between the perceptions of a general opinion climate in society, among Internet users or within one's personal network and people's opinion expression behavior online has been researched (Ho & McLeod, 2008; Chaudhry, Gruz, 2020; Hoffmann, Lutz, 2017; Chaudhry, Gruz, 2020; Neubaum, 2016). Whereas, secondly, it has been investigated whether an experimentally manipulated opinion climate (congruent or incongruent to the subject's opinion) in a virtual chat, online forum (Yun, Park, 2011), activist website or news website (Gearhart, Zhang, 2015) influences people's responses in this particular situation. Both investigation techniques yielded mixed empirical results, revealing an association between opinion climate and opinion expression (Ho, McLeod, 2008; Yun, Park, 2011).

The Spiral of silence originally sought to explain opinion expression in face-to-face settings (Gearhart, Zhang, 2013). As mass media traditionally disseminates information to the public, it is often regarded as the main platforms for individuals to assess opinion climate. Many studies carried out in traditional communication settings found that individuals with higher fear of isolation are less likely to express their viewpoint (Ho, Chen, Sim, 2012; Neubaum, 2016). A key issue in the development of SOS research is whether people are willing to comment on controversial topics in both online and offline environments. One line of reasoning was built on the equalization effect, stating that anonymity and the lack of social context cues in computer-mediated communication encourage people – regardless of their social status – to participate in discussions (Ho, McLeod, 2008; Yun, Park, 2011). It was proposed that the mediated nature of communication reduces people's fear of isolation, as the physical absence of others was supposed to lower the perceived likelihood of social sanctions (McDevitt et al., 2003). Therefore, scholars believe that individuals will not feel the same pressure when expressing opposition on the Internet compared with face-to-face communication.

An experiment by Ho and McLeod (2008) indicated that users may see the Internet as a place for egalitarian participation, because people are more willing to join a discussion with a hostile opinion climate in virtual chats than in a face-to-face setting (Neubaum, 2016). While a more recent study investigated people's willingness to express their opinion across different online and offline situations (Hampton et al., 2014). Results from a survey among U.S. Americans showed that more participants were “very” or “somewhat” willing to discuss the controversial topic of government surveillance programs at a family dinner (75%), at a restaurant with friends (71%), at a community meeting (68%), at work (66%) than posting messages about this topic on Facebook (43%) or on Twitter (41%; please note that the last two percentages only considered people who usually use this platform). In both online and offline communication, people were more willing to join a conversation about this topic when they felt that others might agree with them.

Chaudhry and Gruzd (2020) examined whether users who hold racist viewpoints (the vocal minority) are less likely to express views that go against the majority view for fear of social isolation. The analysis shows that on Facebook, a

predominantly nonanonymous and moderated platform, the vocal minority are comfortable expressing unpopular views, questioning the explanatory power of this popular theory in the online context. They believe that social media provides users with a platform where unpopular perspectives can be expressed online.

Nevertheless, there are many existing studies have found a phenomenon Spiral of Silence online. Gearhart and Zhang's (2015) results show that the Spiral of silence theory is alive and well in certain online environments such as Facebook given its social and quasi-public nature. Varying SNS uses and encountered opinion climates produce differential results. In other words, opinion expression in SNSs may exert dual silencing and liberating effects.

Yun and Park (2011) applied the Spiral of silence theory to both anonymous and non-anonymous online contexts. Consistent with the theory, results showed that participants were more willing to post a comment in the friendly condition compared to the hostile condition. However, no differences between the anonymous and non-anonymous conditions were found. Unfortunately, the stimulus differentiating the anonymous and non-anonymous opinion environments was troublesome because less than a quarter of participants were actually exposed to the manipulation. Regardless of this questionable finding, results of that study did provide support for the theory because people were found to be less willing to post comments in the face of opposition.

Neubaum's (2016) research on facebook shows that, the more people tend to fear isolation, the greater attention they allocated to comments, as they reported retrospectively. This self-report was consistent with the more objective measure of recall accuracy: The greater the fear of isolation, the more accurately subjects recalled the number of positive and negative comments that were shown. Although these relationships were quite weak, this pattern reveals that user-generated comments may serve as important cues for people who want to learn other users' opinions and, thereby, which viewpoint may be approved by others. Apparently, peer comments seem to be more informative than the number of people liking an opinionated message, as fear of isolation was associated neither with self-reported attention nor with recall accuracy regarding these numeric cues. The significance of comments was underlined by the finding that people with a higher fear of

isolation would have liked to see more comments related to the presented discussion.

Hoffmann and Lutz's (2017) research find that network heterogeneity increases the perception of the opinion climate as adverse, which, in turn leads to self-censorship. They confirms that the SNS context exerts both nourishing and inhibiting influences on young users' political engagement. On the one hand, SNS facilitate access to political information and discourses, the support the publication and sharing of political content. On the other hand, online ties on SNS tend to be embedded in diverse social contexts ("context collapse"). Managing online boundaries may therefore necessitate a restrictive tailoring of online messages to select audiences. A heterogeneous personal network on SNS may trigger political self-censorship and inhibit political engagement.

Chaudhry and Gruzds (2020) found that due to Facebook users often use their real names and profile pictures when participating in online discussions on the platform, it may heighten their fear of being verbally abused, harassed, or even socially isolated due to their viewpoints. This, in turn, makes Facebook an ideal environment to study the potential application of the Spiral of silence theory in a context where most participants cannot hide behind the anonymity that other social media platforms might promote or advertise as a key defining feature.

Framing analysis

Taking into account the background of Hong Kong and the previous theoretical analysis, the method of this research uses the framing analysis method.

As has been verified, the theory of framing is one of the most successful and most successful paradigms in communication research (Piñeiro-Naval, Mangana, 2019). Framing analysis shares with agenda-setting research a focus on the relationship between public policy issues in the news and the public perceptions of these issues. However, framing analysis "expands beyond agenda-setting research into what people talk or think about by examining how they think and talk about issues in the news" (Pan, Kosicki, 1993, p. 70, emphasis in the original). Although there is no single definition of news frame or framing, the many that have been

employed point up similar characteristics. News frames are “conceptual tools which media and individuals rely on to convey, interpret and evaluate information” (Neuman et al., 1992, p. 60).

Framing effects are “changes in judgment engendered by subtle alterations in the definition of judgment or choice of problems” (Iyengar, 1987, p. 816). Put another way, a framing effect is “one in which salient attributes of a message (its organization, selection of content, or thematic structure) render particular thoughts applicable, resulting in their activation and use in evaluations” (Price et al., 1997, p. 486). Experiments with question wording, for example, show that the framing of choices can have profound consequences for respondents’ perception of risk (Kahneman, 1984; Kahneman & Tversky, 1982). Frames have also been shown to shape public perceptions of political issues or institutions. A number of studies have identified the importance of certain frames in the news by focusing on their consequences for the public’s interpretation of events and issues (Semetko, Valkenburg, 2000).

Often when journalists communicate issues in the news, they breed a certain point of view or approach toward these issues in the audiences by selecting and emphasizing certain key aspects of the informative material (de Vreese, 2003, 2012; Entman, 1993; Matthes, 2012). Different points of view, thereby, emerge from the relationships between the key elements that constitute news frames; although they remain “latent” in the content of the news, they are crucial for its interpretation (Muñiz, Alvídrez, Téllez, 2015). According to Entman (1993), to frame is “to select some aspects of a perceived reality and make them more salient in a communication text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described” (Muñiz & Alvídrez & Téllez, 2015).

On the other hand, Valkenburg, Semetko, and de Vreese (1999) define the media frame as “a particular way in which journalists compose a news story to optimize audience accessibility” (p. 550). The use of these frames by journalists implies specific decisions about the elements or key words that are to be selected, highlighted, or excluded to build a discourse (Ryan, Carragee, & Meinhofer, 2001; Scheufele, 2006). With regard to this journalistic strategy for building messages,

Maher (2001) posits that “framing implies relationships among elements in a message, because those elements have been organized by a communicator” (Muñiz& Alvídrez& Téllez, 2015).

This section analyzes the Spiral of silence theory and the changes in some variables in the background of social media. Existing research has analyzed the problematic aspects of the Internet, such as fake news and bots, and extreme remarks by politicians, which have weakened the media's standing in the public arena. And that, some Internet users are influenced by state governance, or due to extreme comments, they have increased their self-censorship. The rapid introduction and dissemination of digital media has brought new challenges and new opportunities to political communication research. This paper uses the Hong Kong 2019 protests as a case study. In order to understand the case, the following analyzed the Hong Kong background.

3. Context of Hong Kong

This research is a qualitative and interpretive research, based on the Spiral of silence theory, and Hong Kong Anti-Extradition Law Amendment Bill movement, aiming to observe the opinions expressed by users on the Facebook. Starting from this broad concept, one question is raised: In the 2019 Hong Kong protests, existed a Spiral of silence phenomenon on social media? The case study achieves the purpose of research through the interpretation of Hong Kong's political, media, and public background. After the analyze of current theoretical, we need to understand the social background of Hong Kong and the internet circumstance in which Hong Kong citizens live.

Anti-Extradition Law Amendment Bill movement

On December 13 in 2018, the Taipei Local Public Prosecutor's Office formally wanted Hong Kong citizen Chen Tongjia, referring to his murdering his girlfriend Pan Xiaoying who was traveling in Taipei in February of the same year. However, because there is no extradition agreement between Hong Kong and Taiwan, it is impossible to apply to Hong Kong to extradite him for trial. In February 2019, members of the Legislative Council of the Hong Kong attended a press conference with the mother of the victim of the murder in Taiwan. The victim's mother said she hoped that Hong Kong could amend the law to plug the loophole. On February 13, the Hong Kong government officially announced that it would amend the "Fugitive Offenders Ordinance" and "Mutual Legal Assistance in Criminal Matters Ordinance", deleting the original provisions stipulating that the extradition legislation does not apply to the restrictions of Mainland China, Macau and Taiwan. The amendment has caused some opposition from Hong Kong. As the bill allows extradition of Hong Kong criminal suspects to mainland China for trial, opponents worry that Hong Kong's status as an independent jurisdiction under "one country, two systems" will be weakened.

On March 31, the Hong Kong public held its first parade. The organizer stated that 12,000 people participated in the parade. On June 9th, groups opposed to the proposed amendments launched the third parade. The organizer said that about 1.03 million people participated. And the Hong Kong police announced the

highest peak, 240,000 people were marching. These two figures are the highest number of marches in Hong Kong in recent years. After not receiving a response from the government to suspend amendments, on June 12, hundreds of demonstrators tried to attack the police line of defense outside the Legislative Council. Some demonstrators threw hard objects such as bricks at the police. The Hong Kong police used tear gas and rubber bullets to suppress the demonstrators. This triggered a conflict between the demonstrators and the police, and the demonstrations turned into violent conflicts. In a later demonstration, the demonstrators broke through the police siege, occupied the Legislative Council, and destroyed some facilities inside the building. During this period, some demonstrators displayed the flags of the British colonial era and the American flag. Some extremists demanded the independence of Hong Kong. The contradictions of the demonstrations expanded from “opposition to the amendment” to “against police law enforcement” and “dissatisfaction with the government”.

In the early days of the demonstration, the government did not withdraw the bill, but only responded to the concerns raised by the opposition earlier, amending some of the provisions in the bill and increasing the extradition conditions. The opposition and demonstrators disagreed with this response and continued to demand the withdrawal of the bill. In June, violent demonstrations escalated, and social conflicts gradually deepened. In September 2019, the government announced the withdrawal of the bill, but the demonstrators indicated that the march triggered violent law enforcement by the police, until now the government withdrawal of the bill, which they couldn't accept and called for continued protests, asking the government to agree to four demands. The four demands are: Retraction of the "riot" characterization; Release and exoneration of arrested protesters; Establishment of an independent commission of inquiry into police conduct and use of force during the protests; Resignation of Carrie Lam and the implementation of universal suffrage for Legislative Council elections and for the election of the Chief Executive.

Their four demands were not answered. Violent demonstrations in Hong Kong intensified in October and November, and are still going on. The movements has had a great impact on Hong Kong's society, politics and economy. In this case,

social media played a big role in the demonstrations. Hong Kong's Internet environment, citizens' political participation, and the influence of the media are all very typical and representative, which provides a suitable environment for the study of the SOS effect on the Internet. In order to begin experimental research, it is necessary to understand the unique cultural and political context of Hong Kong, which was introduced below.

Hong Kong's political system

"One country, two systems" is a constitutional principle describing the governance of Hong Kong and Macau since they became regions of China in 1997 and 1999, respectively. It was formulated in the early 1980s by Deng Xiaoping, the Paramount Leader of China (PRC), during negotiations with the United Kingdom over Hong Kong. He suggested that there would be only one China, but that these regions could retain their own economic and administrative systems, while the rest of Mainland China uses the socialism with Chinese characteristics system. Under the principle, each of the two regions could continue to have its own governmental system, legal, economic and financial affairs, including trade relations with foreign countries, all of which are independent from those of the Mainland. "One country, two systems", specific to Hong Kong, refers to the institutional arrangement and principle framework after the transfer of sovereignty; Deng Xiaoping said that it will remain unchanged for 50 years, that is, during this period Hong Kong retains the original capitalist economic system, political system, financial system, legal system and foreign relations; As a "Special Administrative Region", Hong Kong has its own "mini constitution"—"Hong Kong Basic Law".

"One country, two systems" emphasizes the core content of preventing Hong Kong from being called a "subversion base" that endangers the security of the country and the regime. From a dynamic point of view, Hong Kong and the mainland are constantly merging. In the process of integration, various contradictions and problems will inevitably arise (Huang, 2018). The "one country" of "one country, two systems" is "national sovereignty, security and development interests" which are the foundation of the existence of the Basic Law and the constitutional guarantee of Hong Kong's prosperity and stability (Liu, 2017).

Even though Hong Kong's sovereignty was returned to China in 1997, the city state still retains a relatively large degree of autonomy under China's "one country two systems" principle (Chan, 2016). As a former British colony, democratic elections only existed at the level of local consultative bodies before the 1980s. (lee2006—p300). However, the slow pace of democratic reform as well as institutional arrangements favoring the pro-government and pro-China political parties have led to grievances and contestation by pro-democracy parties, groups and activists who demand universal suffrage in the legislative and executive branches of government (Chan, 2016).

Media in Hong Kong

The return of Hong Kong in 1997 became the content most concerned by the Hong Kong media, and the political enthusiasm of the people in Hong Kong has since reached a new height (Cao, 2019). After that, the Hong Kong media shifted its political focus to the government of the Hong Kong Special Administrative Region, such as its position on major events inside and outside Hong Kong, its supervision of the government's work, its commitment to Hong Kong society, the election of the Chief Executive, and the election of the Legislative Council, those have become the focus of media coverage.

Due to the rapid development of network technology, social media has become diversified, and differentiated usage preferences have been formed in different regions. Europe and the United States are keen to use Facebook, Twitter, WhatsApp. The most commonly used Weibo, WeChat, and blogs in mainland China. In Hong Kong, Facebook, YouTube, Twitter, and Instagram are all popular with netizens, and political groups are particularly keen on Facebook and YouTube (Zhang, 2016). Facebook has a monopoly in the Hong Kong. Hong Kong media have set up Facebook pages, using Facebook as their main operating channel. Behind the social platform is not only business interests, but also the struggle for the right to speak in dialogue.

In terms of the media system, Hong Kong have a traditional press that tends to be conservative, but the online sphere is characterized by pluralism and

integration with civil society, and it provides platforms for alternative information, public discourse, and the coordination of collective actions (Yung & Leung, 2014).

Early conceptions of the 'digital divide' were focused on who had access to technology and who did not (Norris, 2001). However, technological infrastructures worldwide have much improved in the past two decades. In the case of Hong Kong, household broadband penetration has reached over 83% (OFCA, 2015). Hong Kong's technological development has almost overcome the "digital divide" problem, but considering the education level, age and other reasons, the differences in users on social media still exist, and the following will continue to analyze.

While the media system is relatively free and not subject to censorship, the traditional press tends to be pro-establishment with only one mass daily that is supportive of the cause for more democracy. The above conditions, together with Hong Kong's highly advanced telecommunications infrastructure (83% broadband and 239% mobile penetration, OFCA, 2015), have engendered a thriving online space for those with antiestablishment views and opinions. One characteristic of this online civil society is the prominence of "Internet social movement media" (Leung, Sze, & Yee, 2011) that has a heavy presence on Facebook. For example, the alternative news portal inmediahk has over 420,000 "Likes" as compared to the mainstream Democratic Party with just over 19,000 "Likes." Facebook is also embedded in the online editions of almost all the mass dailies, allowing readers to easily "share" news to others (Chan, 2016).

Chinese researchers believe that "citizen journalists" and social media lack the awareness of "roles accept normative constraints", the Hong Kong social media lacks supervision (Huang, 2018). Citizen journalists refer to, in the field of journalism, certain ordinary citizens spontaneously and independently report and disseminate related social events or persons through certain technologies and means out of a certain interest, motivation or need. Non-professional individual communicators with similar behavioral characteristics as journalists became "citizen journalists." (Huang, 2018). With the advent of the era where everyone can be a reporter, Hong Kong's "citizen journalists" has a greater platform.

The Hong Kong media maintains a high degree of autonomy and independence, and uses its own "fourth power" to supervise the government (Huang, 2018). According to the Hong Kong Journalist Association's website, applying for the Hong Kong Journalist Card requires joining the Hong Kong Journalists Association, bloggers who have published articles in the media, or students from the journalism department of Hong Kong colleges and universities can join it. This has provided firm support for the rise of "citizen journalist" and citizens have gained a bigger platform for expressing their political will. However, in the movements, the professionalism of journalists was also questioned. In the confrontation between the police and the demonstrators, some Hong Kong journalists acted as demonstrators. This also reflects the lack of public trust in the Hong Kong government. In recent years, the local social movement and citizenship in Hong Kong have begun to rise (Huang, 2018).

Political participation of Hong Kong

In political communication studies the most relevant measure is political participation since normative theories of democracy presuppose a citizenry actively engaged in the democratic process (Delli Carpini, 2004). In the context of Hong Kong, the act of protesting as a distinct behaviour is also important to consider. The lack of universal suffrage for the executive and legislative branches of government mean that mass mobilizations of street rallies and protests are often the means of expressing discontent with the government and exert influence on policy and public opinion (Lee & Chan, 2011). Massive political street gatherings are common occurrences, such as the bustling election rallies in Taiwan and the ritualistic vigils and protests held every year in Hong Kong on 4 June and 1 July (Lee & Chan, 2011).

As early as the last century, surveys have shown that Hong Kong people are very concerned about political issues. While the political participation of people in Hong Kong has been described as minimal (Lau 1984, Miners 1991), polls suggested that Hong Kong residents are quite concerned about politics, but do not express this concern openly. In a telephone poll conducted in September 1993, for example, 80 percent of the respondents nominated freedom and democracy as very important. However, the same survey also found that 67 percent of all respondents

would not openly express their true views on social and political issues to strangers (SCMP, October 13, 1993). A similar telephone survey of 605 respondents in October 1993 found that about 79 percent agreed with the statement that 'Hong Kong people needed to stand up for democracy'. However, only a slight majority (52 percent) said they were personally prepared to make a stand, with a further 16 percent content to leave it to others to do so (SCMP, October 9, 1993). Furthermore, willingness to talk about political opinions in the hypothetical dinner party setting is more pronounced among younger respondents, individuals with higher levels of education, and subjects who were born in China (Willnet, 1996).

In recent years, the frequency of social movements in Hong Kong has accelerated, and its operation and mobilization patterns are also very different from the past. In the past, approvals of movements were required, and the organizer had to contact the community leaders and political party teams, to initiate a social movement. Now, only need to set up an event page on the online platform, make a propaganda video, and post the information on the page to spread the message, tens of thousands of people were called to the streets (Zhang, 2016).

Social media's communication characteristics determine its strong social mobilization ability. In Hong Kong, anyone can criticize any government action and obtain legal immunity. Su Jiji, a professor at the academic of Journalism and Communications of the Chinese University of Hong Kong, surveyed the audience's exposure to new media during the Occupy Central/Umbrella Movement period (movements in Hong Kong in 2014), and divided the respondents' new media usage behavior into four categories: only social media (mainly Facebook), Both social media and online media, only online media, neither of them. The results of the survey suggest that people who use social media tend to support the "Occupy Central" protests, while those who do not use it do not support "Occupy Central". The role of new media in the "Occupy Central" case has changed from "sharing and dissemination" to "organization and action". The biggest variable affecting the "Occupy Central" protests is age, followed by political orientation, third is social media, and fourth education level (Zhang, 2016).

Facebook serves a variety of facilitating roles in Hong Kong's political and media system: as a carrier of information; a promotional channel; a mobilization

tool; and a meeting space for like-minded individuals (Yung & Leung, 2014). Examples of these affordances were amply demonstrated during the Occupy Central protests in 2014, which saw the unprecedented 79-day occupation of Hong Kong's main road arteries by protesters and activists as part of the pro-democracy movement (Chan, 2015). Protest organizers used their Facebook pages to articulate their agenda and disseminate mobilization information. For the approximately 100,000 people who were physically at the protests, the combination of mobile phones and Facebook allowed them to post messages, photos and footage from the ground for immediate sharing. The protests also gave rise to the iconic yellow umbrella symbol, which was then coopted by thousands of Facebook users as their profile picture so as to express their support for the protests (Chan, 2016).

Political parties in Hong Kong

Hong Kong political parties can be roughly divided into three categories: pro-Beijing camp, pro-democracy camp and localist groups. Various political party organizations currently active in the political arena of Hong Kong: (1) Representatives of the pro-Beijing camp: Business and Professionals Alliance for Hong Kong (BPA), Democratic Alliance for the Betterment and Progress of Hong Kong (DAB); (2) Representatives of the pro-democracy camp: Democratic Party (DP), Civic Party (CP) ; (3) Representatives of the localist groups : Civic Passion.

Regarding the government's policies, the opposition actively spoke out in real life and on the Internet, claiming to fight for citizens' interests. The voice from the government is weak because the majority of citizens who understand and support "one country, two systems" are silent political conservatives or older people who do not have much knowledge and use of the Internet. Most young people in Hong Kong use social media to understand Hong Kong's political development (Huang, 2018).

Rising power—Hong Kong's youth

Since 2008, the sentiment of Hong Kong youth towards the Hong Kong government and pro-Beijing camp has declined sharply. At that time, the rise of social media represented by the Chinese version of Facebook had a profound impact

on Hong Kong's online media. This change in the environment of public opinion has had a tremendous impact on Hong Kong's political dissemination, especially on the political tendencies of Hong Kong youth (Liu, 2016).

In the current Hong Kong network, huge part of the young generation is against Hong Kong's government and pro-Beijing politics. This fact is not only an objective product of the social structure and realistic situation faced by Hong Kong youths, but also a subjective result of the strong guidance of "opinion leaders" or "network celebrities". As far as practical's problems are concerned, after the return of Hong Kong, the financial real estate model has enabled Hong Kong's economy to develop rapidly. At the same time, the shortcomings of this model are becoming increasingly obvious, especially comes to the widening gap between the rich and the poor in Hong Kong and the increasingly rigid social structure. This makes young people face a very unfriendly development space (Liu, 2016).

Hong Kong youths generally reflect that high property prices and high rents not only affect the living needs of young people, but also hinder their development space and life planning, and bring insecurity to Hong Kong youths. In addition, Hong Kong's increasingly solid economic structure has also had a great impact on the employment environment of Hong Kong's youth. Feelings of insecurity, unreliability, and uncertainty have caused Hong Kong youths to have a general sense of anxiety. "Looking for politics" has become the common psychological orientation of Hong Kong youths (Liu, 2016).

Political participation is the voluntary participation of any citizen in a lawful or illegal manner with the purpose of influencing government actions. It is the vitality of Hong Kong's democratic society and the political liberty guaranteed by the Basic Law. In the past, the political participation of Hong Kong youths could be self-regulated within the legal scope. However, since 2012, the emergence of extreme localist views has begun to impact the authority of the Basic Law. The Occupy Central protests in 2014 and the 2016 Mong Kok civil challenged the legal line and tended to violent (Liu, 2016). In 2016, extreme Hong Kong youths candidates for election to the Hong Kong Legislative Council and insulted and provoked the Basic Law in their inauguration oaths, which have presented increasingly severe challenges to the authority of the Basic Law. On October 12 in

2016, members of the Legislative Council, You Huizhen and Liang Songheng displayed the slogan “HONG KONG IS NOT CHINA” at the oath ceremony of the new Legislative Council of Hong Kong.

4. Methods

Addressing these questions seems of particular relevance when considering that on social media platforms, mass media and interpersonal conversations – as the two principal sources of people's public opinion perceptions (Noelle-Neumann, 1983) – seem to converge: Here, users can view messages on topics of public interest (posted by news channels) along with aggregated representations of other users (such as Facebook reactions, comments, shares) and/or opinionated messages of other citizens in the form of user-generated comments (Walther, Carr, et al., 2010; Walther & Jang, 2012). Given that social media may serve users as a “window” (Messing & Westwood, 2014, p. 1058) to the public, it seems a pressing need for research to identify the mechanisms explaining the process of public opinion perception and reaction online. With reference to the experimental background of the SOS Theory, we look forward to finding whether this phenomenon exists in a group or community on Facebook.

The theory of the SOS can be divided into three phases, each of which is related to a different influence in the spiral process: The first is the influence of the mass media into public opinion, and the generation of public opinion, which is, the formation of the "Climate of opinion"; the second is the public's perception of the "climate of opinion", and evaluate himself if is consistent with public opinion; the third is the impact of Climate of opinion on human behavior and attitudes. In general, the willingness to speak out is considered the key variable of the theory (Roessing, 2009; Scheufele & Moy, 2000).

These steps based on the SOS theory: We need to choose a media page on facebook, which has enough power to effect the public opinion, and those Facebook users who are influenced by this climate, as the research object. Observe the changes of two variables in a period of time, aim to find the answer.

The goal of this chapter is to address this process by applying the SOS theory to the context of social networking sites. The study of this dissertation is guided by the questions: In the 2019 Hong Kong protests, is there came a Spiral of silence phenomenon on social media? The following sections will elaborate on these questions in greater detail.

4.1. Data Collection

In terms of data collection, we extracted data on the two variables mentioned above, the climates of opinion and users' participation. According to the steps mentioned above, first we studied the influence of mass media on public opinion, that is, the "climate of opinion" shaped by the media.

When researchers analyze reports about social movement, they often use framing methods (Li, 2020). According to Li's (2020) research, since the end of July, the Chinese and Hong Kong governments have always emphasized "stopping violence and suppressing chaos" when responding to the movements. Naturally, stopping violence and stopping chaos has become a common sentence for the pro-government media to report on the movements. "Ming Pao" and "Apple Daily" (pro-democratic media) put more emphasis on various misconducts of the police, including the use of unnecessary force and arrests of demonstrators without enough reason (Li, 2020).

The study try to understand the media's attitude towards reporting such cases during the movement. According to the research, in those movements, the main disputes in media content that have been observed are the following three aspects:

- 1 - Opposition To The Proposed Amendments and Support The Proposed Amendments
- 2 - Police Brutally and Support Police
- 3 - Protesters Persecuted Innocently and Protesters Have Violent Acts

In the theoretical part, we mentioned the background and timeline of the Hong Kong's movement. The protests began on March 31, and the Hong Kong Government announced on September 4 that it would withdraw its amendment. On June 12, demonstrators clashed with the police during the demonstration, and social criticism of police law enforcement began to appear. After June 12, the violent conflict became more and more serious. In October and November 2019, some demonstrators occupied colleges with homemade weapons, escalating the contradictions, and social problems began to shift.

Important events took place on June 12th and September 4th. For example, millions of people marched against the passage of the legislative amendment, the police began to use a lot of tear gas canisters, Hong Kong leader Carrie Lam announced the withdrawal of the legislative amendment and so on. During this period, the three disputes mentioned above were discussed most intensely. Observations of media posts on the Facebook show that after these events, generated a series of reports and social discussion were triggered.

Based on these three disputes, to allowed for a temporal comparison, our study includes two waves. We used two constructed weeks, the first wave from June 12 - 18, 2019, and the second wave from September 4 - 10, 2019. These periods were deliberately chosen in order to investigate the exact time frame across HongKong' movement, to enhance comparability, as well as to allow for the comparison of situational factors over time. Through the data research of the two waves, we can understand the changes in the context of the media and the public at different times, and thus observe The Spiral of silence on Facebook.

According to the number of followers on the facebook homepage, the Facebook page information of some representative medias in Hong Kong has been collected as follows (Table 1, data collected in 26 of May):

Table 1. Representative media of Hong Kong

	Medias' page in Facebook	Numbers of followers in Facebook	language
pro-democracy camp	Apple Daily	2.790.069	chinese
	Stand News	1.600.078	chinese
pro-Beijing camp	Wen Wei Po	7,183	chinese
	Ta Kung Pao	20.486	chinese
Neutral media	South China Morning Post	3.658.007	English
	Oriental Daily News	706.597	chinese

We find that Hong Kong's pro-Beijing media's performance on Facebook is relatively weak, the pro-democracy media is active. This two type of medias on Facebook cannot be effectively compared and analyzed. In this context, the "South China Morning Post" is chosen as our object to observe the one part of the "Climate of opinion".

"South China Morning Post (SCMP)" is a Hong Kong English-language newspaper founded in 1903. It is Hong Kong's newspaper of record, owned by Alibaba Group. The newspaper's circulation has been relatively stable for years—the average daily circulation stood at 100,000 in 2016. In a 2019 survey by the Chinese University of Hong Kong (CUHK), the SCMP was regarded as the most credible paid newspaper in Hong Kong. Upon having been acquired by Alibaba, the new owners announced that the paywall would be removed. The paywall was subsequently removed on the night of 4 April 2016. By doing so, SCMP wished to increase its readership globally and allow the global community to have access to its news of China.

The media selected is fulfilling the following criteria: (1) has a large reach among the audience and agenda-setting power for politicians and other media; (2) represents both up-market and mass-market journalism; and (3) includes different political leanings.

Table 2. Object of Methods

Variables	Climate of opinion (Media)	Participation of users
Case	Hong Kong 2019 protests	
Object	Facebook homepage of the media South China Morning Post (SCMP)	
Period	First wave (06.12-18. 2019)	Second wave (09.04-10. 2019)

The study manually analyze the content of posts within two period (Table 2). Then, accumulates and classify the responses of the posts of the SCMP in each period. Tracking and comparing the above those variables in two different periods can help to find the impact of the "opinion climate" on the user's behavior and attitude. All of this is aimed to look forward to finding some phenomenon in facebook, which may similar to the three phases in the traditional SOS theory, so as to judge whether this effect is established in the Hong Kong movement.

With the help of an application called Facepager , we collected 76 individual posts featuring different news stories published by SCMP. Since our study focused on how Facebook users expressed about Hong Kong movement discourse, we narrowed the initial sample of 76 posts to only those news stories that mentioned or referenced HongKong's movement in a general sense. Following this process, a total of 37 articles were identified as relevant for the focus of this study. To understand the context of the resulting data set, Table 3 lists the 2 top 5 "Engaging" news stories that had the most comments, shares, and reactions combined.

Among the top 5 news stories in the first wave, four of the news stories relate to demonstrations, and one relate to Police Brutally. Among the top 5 news stories in the second wave, two relate to demonstration violently, one relate to Police Brutally, one relate to demonstration.

Table 3. 2 Top 5 “Engaging” Stories (n = 37)

2 Top 5 “Engaging” news stories (Engaging = Comments + Shares + Reactions)	Total Engagement
12/06/2019 - 18/06/2019	
Live as Hong Kong's streets become a sea of black, as people protest the contentious suspended extradition bill.	32793
Watch live as police and protesters clash outside Hong Kong's legislature, after a fresh show of defiance against a controversial extradition bill.	11237
Watch as the massive street protest against a proposed extradition law in Hong Kong continues into the night.	8125
Undeterred by clashes with police the day before, protesters determined to halt the extradition bill return to Hong Kong's government complex area.	6666
LIVE - SCMP reporter Jeffie Lam is on the scene at the #extraditionbill protest as it makes its way through central Hong Kong	4566
04/09/2019 - 10/09/2019	
Protests on Sunday spiralled into chaos as police and demonstrators clashed in the heart of Hong Kong.	13120
More than 100 pupils took part in a protest outside a Hong Kong school after claims it would expel students and staff taking part in a class boycott.	4537
Hong Kong star drives his Lamborghini through a crowd of protesters.	2085
Woman who says she was beaten by police as MTR supports inquiry .	1792
Hong Kong leader unmoved by tycoon Li Ka-shing's call for 'mercy' on protesters.	1014

In addition, in order to analyze the react of Facebook users to the "climate of opinion" shaped by the media, it is need to collect users' comments and reactions. These two data can directly reflect the users' attitudes towards news stories. Recently, Facebook updated the commonly known reactions button with six more options (love, care, haha, wow, sad and angry). Graphically, these options are an extension of most commonly used emojis used to express emotions (Tian et al., 2017). According to Smieško (2016), the reaction buttons are human behavior substitute in the digital world and it has been accepted as a modern form of speech by the United States Court of Appeals. The reaction button allows users to react to a particular post, comment, share etc. in order to express how one feels instead of just relying on the underspecified like as a wordless response (Pool et al., 2016).

After collecting statistics on 37 related posts, this study selected 10 posts that ranked the top 5 in the number of comments in two waves as the object of analyzing users' opinions, and selected the top 2 "reactions" of each posts. Table 4 lists the two top 5 "comment" news stories with the most comments.

Among the first wave, the top 3 news stories are all live videos of peaceful demonstrations, users' attitudes towards these content are "like" and "love". One piece of news is related to the leader's speech, and the users' attitudes are "like" and "angry". One other piece of news is related to the confrontation between the police and the protesters, users' attitudes toward this content are "like" and "sad". Among the second wave, three news stories relate to statements of polices and leaders, the users' attitudes toward these content are "like" and "angry", one piece of news is related to violent demonstrations, and the users' attitudes are "like" and "sad". One is related to students' strikes, and users' attitudes are "like" and "sad".

Table 4. 2 Top 5 “Comments” Stories (n = 37)

2 Top 5 “comments” news stories	Total comments	Reactions related
12/06/2019 - 18/06/2019		
Live as Hong Kong's streets become a sea of black, as people protest the contentious suspended extradition bill.	5848	like + love
Watch live as police and protesters clash outside Hong Kong's legislature, after a fresh show of defiance against a controversial extradition bill.	2277	like + love
Watch as the massive street protest against a proposed extradition law in Hong Kong continues into the night.	1317	like + love
Hong Kong's leader speaks to the press after massive protests and controversy over a proposed change to the city's extradition laws.	951	like + angry
Watch live from Hong Kong's extradition bill protest, as police and protesters clash on the streets.	795	like + sad
04/09/2019 - 10/09/2019		
Protests on Sunday spiralled into chaos as police and demonstrators clashed in the heart of Hong Kong.	1754	like + sad
More than 100 pupils took part in a protest outside a Hong Kong school after claims it would expel students and staff taking part in class boycott.	722	like + sad
A woman says she needed stitches on her head after Hong Kong police beat her at Siu Hong MTR station and she now supports police into their use of force	663	like + angry
Hong Kong police dismiss accusations of excessive force at Prince Edward MTR station and obstructing press during bus protests in Kowloon Bay	406	like + angry
Hong Kong leader Carrie Lam unmoved by tycoon Li Ka-shing's call for 'mercy' on anti-government protesters	283	like + angry

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4.2. Data Analysis

After collecting news from the SCMP, we need to conduct content analysis. The analysis is divided into two phases. The first phase is to analyze the media's content, we used framing analysis. The second phase is to analyze the content of users' comments, and we used coding to classify. In the first phase, our purpose is to understand the media's views about disputes mentioned on the Hong Kong movement. We use the framing analysis method to get result. In the second phase, our purpose is to understand how the users express their opinions under media's circumstance.

First, the content of posts published by the SCMP were automatically extracted from the Facepager software. Through manual content analysis, we selected posts related to the Hong Kong movement from 76 post samples. The types of 76 post samples include photos, articles, videos. By judging and cognizing images, text, and titles, we manually screened out posts about the Hong Kong movement. Among them, the selection of photos and videos is relatively intuitive. We classify them according to whether there are content about Hong Kong movement in the screen. For posts involving articles, we need to conduct content analysis.

During the specified period, the following types of news posts published by the SCMP are more common: (1) Hong Kong movement live timeline (in text form) (2) interviewees' opinions toward Hong Kong movement, including politicians, police, protesters, experts, etc. (3) Sino-US relations (4) Mainland China news (5) News from other countries (6) Hong Kong news which are not related to movement. When filtering data, based on this classification experience, we filter out posts related to Hong Kong's movement from all the posts.

Through content analysis, during the first wave (06.12-18, 2019), we retrieved 44 posts via Facepager, of which 20 related to the Hong Kong movement. During the second wave (09.04-10, 2019), 32 posts were retrieved through Facepager, of which 17 were related to the Hong Kong movement.

In the next content analysis, we use frame analysis to classify the content of the news published by the SCMP. According to what has been mentioned above, in the Hong Kong's movement, the media and the public have the following three main controversies:

- 1 - Opposition To The Proposed Amendments and Support The Proposed Amendments
- 2 - Police Brutally and Support Police
- 3 - Protesters Persecuted Innocently and Protesters Have Violent Acts

Therefore, we classified posts according to the rules in Table 5. That is to say, there are three indicators for evaluating a post: (1) Attitude towards the

amendment. (2) Attitude towards the police. (3) Attitude towards behavior of protesters. If a post clearly expressed opposition to the amendment/support movement, the attribute of the amendment to this report is "-1". If a post clearly expressed the violence of police, then the post's attitude towards the police is "-1". If a post clearly mentions that the protesters are being persecuted innocently, then the post's attitude towards the protester is "-1". Otherwise, the corresponding attribute is "1". In addition, if a post mentions two standpoints at the same time, such as supporting police and police violence, fill in "*0" in the police field, if none mentioned neither, then fill "0".

According to this classification, the extreme views of the media that oppose the government can be: opposed to the amendment (-1), Police brutality (-1), and demonstrators persecuted (-1). In this case, all three codes are -1. The views of the media that support the government may be: support amendment (1), support the police (1), and the demonstrators have violent acts(1). In this case, all three codes are 1.

Table 5. Coding Categories of Posts

	-1	1	0	*0
the proposed amendments	withdraw amendments	support amendments	None mentioned	Both mentioned
Police	Police brutality	Support police	None mentioned	Both mentioned
Protesters	persecuted innocently	have violent acts	None mentioned	Both mentioned

Sample 1

For example, on June 13, the South China Morning Post published a post with the content "The pro-establishment camp seems to have had change of heart and is prepared to wait beyond July 1 to put the bill to a vote". This news report only quoted interviews with officials of the establishment (pro-Beijing). such as:

Organisers of Sunday's protest claimed 1.03 million Hongkongers took to the streets to oppose the bill while police put the figure at 240,000. But the pro-government side said the

views of those who supported the bill ought to be heard, pointing to more than 920,000 signatures collected by a pro-Beijing alliance, known as Safeguard Hong Kong. In Legco, pro-establishment legislators echoed Tam's assertion that the bill should not be shelved.

The report quoted the opinions of members from pro-Beijing party. The main discussion focused on the "the proposed amendments". It did not talk about the police or the demonstrators, and the opinions were single. They were all about supporting for the Hong Kong government to pass the amendments.

Organisers of Sunday's protest claimed 1.03 million Hongkongers took to withdrawing the bill would disappoint a lot of people," said New People's Party chairwoman Regina Ip Lau Suk-yee, who is also a Lam adviser in the Executive Council. Ip said offering further amendments to the bill or delaying its implementation would not satisfy the detractors, who simply wanted the legislation scrapped. "The only way to prove the bill will work is to enact it," she said Federation of Trade Unions legislator Kwok Wai-keung and Ann Chiang Lai-wan, of the Democratic Alliance for the Betterment and Progress of Hong Kong, also said there was no need for more concessions from the government. "Those who are willing to listen have already listened to the government's rationale," Kwok said. Chiang said: "It's not a matter of whether more concessions should be made but whether the government is doing the right thing [by] pushing ahead with the bill."

From the report, we can see that the interviewees of the article are pro-Beijing officials, and the positions the officials stated are almost in favor of the amendments, and they did not mention the behavior of the police and demonstrators. Therefore, for this post, our classification is as follows:

Table 6. Sample 1

Post	Type	Date	Proposed amendments	Police	Protesters
The pro-establishment camp seems to have had change of heart and is prepared to wait beyond July 1 to put the bill to a vote	Article	2019.06.13	1(support amendements)	0(no mention)	0(no mention)

Sample 2

In another example, on June 16, the South China Morning Post published a post with the content "Thank you to the one million fellow marchers for helping save Hong Kong from a disaster. And a big thank you to [my daughter] for nudging me to play my part." This post is a news link, the headline of the news is "Why I marched against the extradition bill alongside a million Hong Kong people". This is a piece of interview news in which interviewees introduced their reasons for opposing the amendments:

She said I had to take part because everyone knew I was pro-China and very supportive of the government and if they saw me there, perhaps they would stop and think again about going ahead with the amendments to Hong Kong's extradition arrangements. It was a nice thought, if somewhat overestimating the influence of someone retired for 10 years after 34 years in the public service.

In the article, the mother's point of view is only for the reasons for opposing the amendments, without mentioning the police and the protesters. Therefore, we classify this article as follows:

Table 7. Sample 2

Post	Type	Date	Proposed amendments	Police	Protesters
Thank you to the one million fellow marchers for helping save Hong Kong from a disaster. And a big thank you to [my daughter] for nudging me to play my part	Article	2019.06.16	-1(oppose amendments)	0(no mention)	0(no mention)

Sample 3

In the third example, on September 4, the South China Morning Post published a post that read "Police say they cordoned off the crime scene to protect the privacy of those arrested and preserve evidence." This post quoted Interviews

of demonstrators and police. At the little part of beginning, police interviews were quoted to explain the reasons for their use of weapons. A large part of the article described scenes of police use of tear gas, demonstrators being attacked, and interviews with demonstrators.

Chief Superintendent John Tse Chun-chung of the force's public relations branch said at a daily police briefing on Wednesday police had to make a number of considerations – such as the privacy of those arrested, the preservation of evidence and the chance of escape – when deciding to cordon off a crime scene. “We must take proactive measures to prevent suspects ruining evidence such as the offensive weapons they were carrying,” he said. “We must prevent suspects from tipping off other offenders through live streaming of the press. Some offenders might exploit the media to forewarn others about police arrest.” Police have arrested 1,183 people since the city's anti-government protest crisis began on June 9. On Tuesday night, police fired seven beanbag rounds at protesters who hurled eggs, bricks and glass bottles – and shot metal balls with slingshots – at officers in Mong Kok Police Station. At a separate press conference, two Hongkongers arrested at Prince Edward MTR station accused police of using excessive force on Saturday, alleging officers had indiscriminately attacked passengers while chasing protesters onto a train....But a young woman, who identified herself as Ms Lung, said on Wednesday that she saw a man who was not dressed in black – the colour of choice for protesters – foam at the mouth after being beaten up at a platform by members of the elite police squad known as Raptors. Lung said the man could not respond to officers' questions even after one tried to provide him some first aid. More than 10 minutes later, firefighters came to take him away... Another witness Kex Leung Yiu-ting, a leader of student union at the Education University of Hong Kong, said riot police had stopped him and other local residents from leaving via the escalator. He said officers pepper-sprayed a resident in the face, while riot police hit them with batons and stepped on them as they walked down from the top of the escalator.

Based on our understanding of the content, we believe that the main points of this article are: Police brutality (coded as -1), and protesters are persecuted (coded as -1). Therefore, our classification of this article is as follows:

Table 8. Sample 3

Post	Type	Date	Proposed amendments	Police	Protesters
Police say they cordoned off the crime scene to protect the privacy of those arrested and preserve evidence	Article	2019.09.04	0(no mention)	-1 (police brutality)	-1 (protestors persecuted)

Sample 4

The fourth example, on September 8, the South China Morning Post published a post with the content "Filmmaker Yonfan condemns protesters for turning the city "upside down", while thanking Hong Kong for giving him the freedom to create." , quoting a speech by a Hong Kong filmmaker, condemning the protesters for causing political unrest.

Hong Kong filmmaker Yonfan's riot-themed animation won best screenplay at the Venice Film Festival, with the director condemning protesters for the prolonged political unrest in the city. But he lamented the emergence of "another strange force" 52 years later, which "turned Hong Kong upside down" in the name of freedom, human rights and democracy. Now, we have lost even the freedom to walk on the streets and take public transport," he said. "It is like a Pandora's box has opened and all the evil has come out. Yonfan hoped the city would return to normal soon and its people would feel free again.

The content of this post emphasized the violence of the demonstrators and did not mention the police or the amendments. Therefore, our classification of this article is as follows:

Table 9. Sample 4

Post	Type	Date	Proposed amendments	Police	Protesters
Filmmaker Yonfan condemns protesters for turning the city "upside down"	Article	2019.09.08	0 (no mention)	0 (no mention)	1 (protestors have violent acts)

Sample 5

In the fifth example, on September 8, the South China Morning Post published a post with the content "The group is supporting protesters in demanding an independent inquiry to investigate alleged police brutality." The interview mainly discussed the controversy of police behavior. The article contains both a critique of police violence and interviews who defend the police.

Li, who is in her 40s and one of about 20 core members of the group, said she understood how the protesters felt as she had taken part in the anti-extradition bill protests herself and experienced having tear gas fired at her. What she went through during the protests which began in June led to conflict with her husband, who has been a police officer for a decade. "I could not help asking why police did this and that, and he would get irritated and impatient," she recalled.

"Let's say hundreds among the 30,000-strong police force made mistakes, on top of those in management who made poor strategic plans," Li said. "But tens of thousands of staff would be stigmatised, and the reputation of the force built up over 175 years would suffer. She felt that if police officers were free to state their preferences, more than half would support having an inquiry as that would provide an opportunity to clear their names. As one of the signs held up at the Sunday rally said: "No oppression against the good guys. No tolerance for the bad guys."

The content of this post did not mention the views on the amendments and the views on the demonstrators (coded as 0). Respondents did not agree on the behavior of the police. There were opposition and support (coded as *0). Therefore, for this article, our classification is as follows:

Table 10. Sample 5

Post	Type	Date	Proposed amendments	Police	Protesters
The group is supporting protesters in demanding an independent inquiry to investigate alleged police brutality.	Article	2019.09.08	0 (no mention)	*0 (both mentioned)	0 (no mention)

In addition to text-type posts, the South China Morning Post also published live videos, videos and pictures.

Sample 6

On June 12, 16, and 18, the SCMP conducted 7 live broadcasts and had a lot of views. The contents of the live broadcast are more objective than other reports. They are only a recording of the event site, most of which only have a long-range lens and no edited video, as shown in Figures 1, 2, 3, and 4. Therefore, the encoding of these live content is “0”.



Figures 1. Protestors in a live video of the SCMP on June 12, 2019

Figures 2. The demonstration scene in a live video of the SCMP on June 12, 2019



Figures 3. The police in a live video of the SCMP, June 12, 2019



Figures 4. Hong Kong's leader Carrie Lam's press conference, June 18, 2019



Therefore, for these live video posts, our classification is as follows:

Table 11. Sample 6

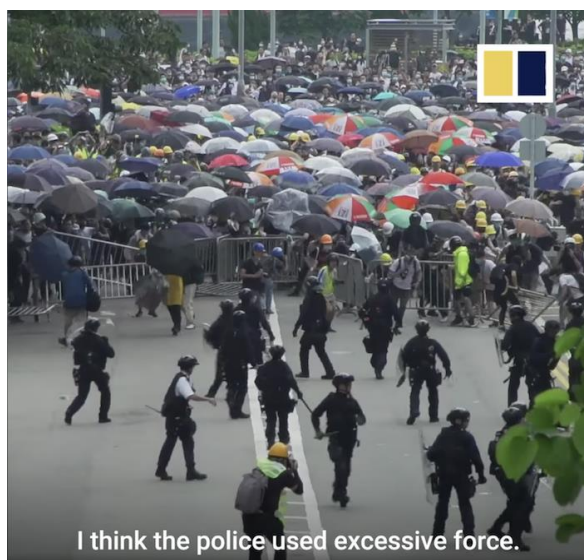
Posts	Type	Date	proposed amendments	Police	Protesters
Watch live as police and protesters clash outside Hong Kong's legislature, after a fresh show of defiance against a controversial extradition bill.	Live	2019.06.12	0	0	0
LIVE - SCMP reporter Jeffie Lam is on the scene at the #extraditionbill protest as it makes its way through central Hong Kong	Live	2019.06.16	0	0	0

Hong Kong's leader speaks to the press after massive protests and controversy over a proposed change to the city's extradition laws.	Live	2019.06.18	0	0	0
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Sample 7

However, some edited video posts published by the South China Morning Post contained the opinions of the creators. For example, in the video released on June 13, 2019, the police threw tear gas cans, the protesters were injured, and multiple interviewees expressed negative opinions about the government. As shown in Figure 5, this video emphasized the people's opposition to the amendments (coded as -1) from the interview, and the scene emphasized the use of violence by the police (coded as -1) and the persecution of demonstrators (coded as -1). Therefore, the codes of this video are “-1”.

Figures 5. Screenshots from the SCMP video post on June 13, 2019



Therefore, for these video posts, our classification is as follows:

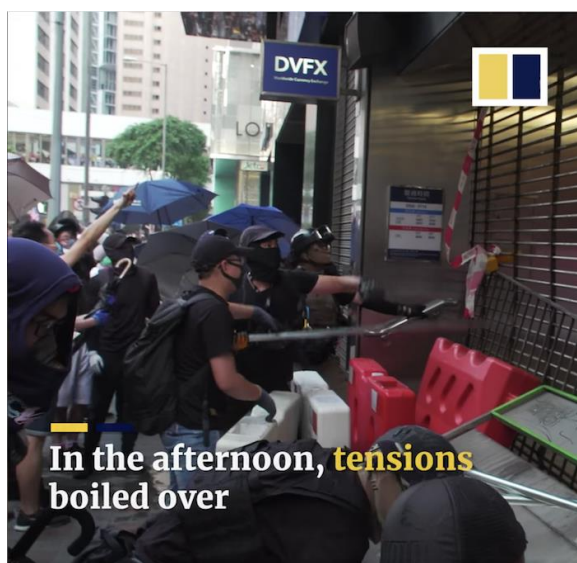
Table 12. Sample 7

Post	Type	Data	proposed amendments	Police	Protesters
Undeterred by clashes with police the day before, protesters determined to halt the extradition bill return to Hong Kong's government complex area.	Video	2019.06.13	-1	-1	-1

Sample 8

On September 8, 2019, the South China Morning Post released a video in which there were chaotic images of demonstrators and police, as shown in Figure 6. This video shows the police using tear gas and shooting, and the demonstrators vandalizing public property, behaving like riot. In the scene they have a fierce conflict. According to this, this video reflects police brutality (coded as -1) and protesters have violent acts (coded as 1). Therefore, our classification of these live video posts is as follows:

Figures 6. Screenshots from the video post of the SCMP on June 13, 2019



Therefore, for these video posts, our classification is as follows:

Table 13. Sample 8

Post	Type	Data	proposed amendments	Police	Protesters
Protests on Sunday spiralled into chaos as police and demonstrators clashed in the heart of Hong Kong.	Video	2019.09.08	0	-1	1

According to the above framing analysis, after analyzing the content of the 37 posts collected, we obtained the following data (Table 14, Table 15).

Table 14. Posts Analysis - first wave

Posts	Type	Date	Proposed amendments	Police	Protesters
As it happened: Hong Kong police and extradition protesters renew clashes as tear gas flies	article (timeline)	2019.06.12	*0	*0	*0
Watch live as police and protesters clash outside Hong Kong's legislature, after a fresh show of defiance against a controversial extradition bill.	live	2019.06.12	0	0	0
Protests against the controversial extradition bill brought parts of Hong Kong to a standstill on Wednesday.	photos	2019.06.12	0	0	0
Watch live from Hong Kong's extradition bill protest, as police and protesters clash on the streets.	live	2019.06.12	0	0	0
Hong Kong Chief Executive Carrie Lam accuses anti-extradition bill protesters of 'organising a riot'	article	2019.06.12	1	0	1
Through tears, Carrie Lam says that she did not sell out Hong Kong and that she believes the government has been doing the right thing all along.	video	2019.06.12	0	0	0

The pro-establishment camp seems to have had change of heart and is prepared to wait beyond July 1 to put the bill to a vote.	article	2019.06.13	1	0	0
Undeterred by clashes with police the day before, protesters determined to halt the extradition bill return to Hong Kong's government complex area.	video	2019.06.13	-1	-1	-1
Hong Kong protest organisers vow to press ahead with Sunday march despite government backing down on extradition bill – but Monday's strike is off	article	2019.06.15	*0	0	0
As it happened: A historic day in Hong Kong concludes peacefully as organisers claim almost 2 million people came out in protest against the fugitive bill	article (timeline)	2019.06.16	-1	0	0
LIVE - SCMP reporter Jeffie Lam is on the scene at the #extraditionbill protest as it makes its way through central Hong Kong	live	2019.06.16	0	0	0
LIVE - SCMP reporter Jeffie Lam on the scene at Admiralty as thousands take to the streets to protest police violence and the #extraditionlaw in Hong Kong	live	2019.06.16	0	0	0
Live as Hong Kong's streets become a sea of black, as people protest the contentious suspended extradition bill.	live	2019.06.16	0	0	0
"Thank you to the one million fellow marchers for helping save Hong Kong from a disaster. And a big thank you to [my daughter] for nudging me to play my part."	article	2019.06.16	-1	0	0
Watch as the massive street protest against a proposed extradition law in Hong Kong continues into the night.	live	2019.06.16	0	0	0
When suspending Hong Kong's extradition bill versus withdrawing it has a different meaning politically and legally but the same outcome: death of the legislation	article	2019.06.16	*0	0	0
Donald Trump to raise Hong Kong extradition protests with Xi Jinping at G20, Mike Pompeo says	article	2019.06.16	-1	0	0
The US could make Hong Kong – and China – pay an economic price for the extradition bill	article	2019.06.17	-1	0	0
Calls for an apology and a resignation: what can Carrie Lam do to soothe an angry Hong Kong public?	article	2019.06.17	-1	*0	0
Hong Kong's leader speaks to the press after massive protests and controversy over a proposed change to the city's extradition laws.	live	2019.06.18	0	0	0

Table 15. Posts Analysis - second wave

Posts	Typee	Date	proposed amendm ents	Police	Protesters
More than 100 pupils took part in a protest outside a Hong Kong school after claims it would expel students and staff taking part in a class boycott.	video	2019.09.04	-1	0	0
Hong Kong police dismiss accusations of excessive force at Prince Edward MTR station and obstructing press during bus arrests in Kowloon Bay	article	2019.09.04	0	-1	-1
Government insiders reveal why it took Hong Kong leader Carrie Lam three months to withdraw hated extradition bill	article	2019.09.04	-1	-1	0
Independent panel to investigate Hong Kong protest crisis won't solve public's deep distrust of government, critics say	article	2019.09.04	-1	0	0
What Hong Kong leadership can learn from 1922 seamen's strike	article	2019.09.05	-1	0	0
At long last, Carrie Lam has heeded one call from Hong Kong protesters: it's not much, but it's a start	article	2019.09.05	*0	-1	1
Woman says she needed stitches on her head after Hong Kong police beat her at Siu Hong MTR station and she now supports probe into their use of force	article	2019.09.06	0	-1	-1
i cuts Hong Kong GDP growth forecast for fourth time this year, says retail and tourism could take months to recover	article	2019.09.06	0	0	0
Prince Edward MTR station shut down as handful of protesters gather, while Hong Kong airport operator warns to leave at bus station to leave, citing court order	article	2019.09.07	-1	-1	0
careful, Hong Kong protesters – as demonstrations escalate, so do Beijing's military exercises and 'colour revolution' talk	article	2019.09.07	*0	0	0
Hong Kong protests: group of police relatives comes forward to end animosity between force members and demonstrators	article	2019.09.08	0	*0	0
Hong Kong filmmaker Yonfan wins best screenplay award at Venice Film Festival and condemns 'disruptive' protesters during acceptance speech	article	2019.09.08	0	0	1
Protests on Sunday spiralled into chaos as police and demonstrators clashed in the heart of Hong Kong.	video	2019.09.08	0	-1	1
Hong Kong star Aaron Kwok drives his Lamborghini through a crowd of protesters	article	2019.09.09	0	0	1
We tested a messaging app used by Hong Kong protesters that works without an internet connection	article	2019.09.09	0	0	1
Hong Kong leader Carrie Lam unmoved by tycoon Li Ka-shing's call for 'mercy' on anti-government protesters	article	2019.09.10	0	*0	1
Hong Kong anti-government protests could 'negatively impact' city's declining suicide rate, local expert warns	article	2019.09.10	0	0	0

The second phase of analysis requires observing the opinions of Facebook users. We filter out the top 5 posts which have the most comments in the two selected waves, as shown in Table 2. Conduct content analysis on the comments of those ten posts. We use Facepager software to automatically extract these 10 post comments. And manually analyze the first 200 comments of each post, reading through two thousands comments, to analyze users' opinions toward the Hong Kong's movement.

By observing 2,000 comments on 10 posts from two waves, this study classified the content of comments as follows:

- 1 - Oppose the amendment/ Support the movement, or think that the movement Inspires people
- 2 - Blaming Government/ Leader
- 3 - Bless Hong Kong, or express love for Hong Kong
- 4 - The neutral point of view such as descriptions of the movement or vague stances
- 5 - Criticize police violence
- 6 - Criticize Violent Demonstrations/Student Demonstrations
- 7 - Support amendments/oppose movements
- 8 - Support the government/Leader/ police (No voice supporting the Hong Kong police appeared in the posts in the first wave)
- 9 - Criticism of Fake News
- 10 - Other content, including irrelevant comments, unreadable content, etc.

Sample 1 - comments

For example, on June 16, the South China Morning Post published a post with the content "Live as Hong Kong's streets become a sea of black, as people protest the contentious suspended extradition bill." We use Facepager to select automatically 200 comments and then analyze the content.

The content of the comments expressing "Oppose the amendment/support the movement, or think that the movement inspires people " (category 1) is as follows:

"So impressive people Hongkongers support each other and unite for fighting for thier rights.. God Bless you all and praying for your all safety, I ♥ HK 🙏🙏"

"figth hongkong we will pray for your victory.....we are on your side ...may the god guide you all"

"Amazing people of hong kong praying for all the unity and peace"

"Peace and unity reign for Hongkong.God bless po .Lord Help them to have their own freedom in their own country.I love Hongkong."

"God bless Hongkong people, we pray for peace and victory..."

"God blessed hk people We pray the victory win amen"

"Bless HKers for your resilience, great courage and brevity to stand up for your rights."

The content of the comments expressing "Blaming Hong Kong's Government/Chinese Government/Leader " (category 2) is as follows:

"The world is watching, great people of Hong Kong HK Thanks for standing up against China's despotic government."

"Our support and love to all of you from PHPHPH China is bully!!!! "

"HK ppl showing courage and love for this city that this cowardly government is incapable of. 🙏🙏🙏"

"China please STOP ruining Hong Kong!! STOP destroying this beautiful city!!! "

The content of the comments expressing "Bless Hong Kong, or express passion for Hong Kong" (category 3) is as follows:

"My respect for the entire country and its people. I love you Hong kong"

"I'm a srilankan ... but my loving peaceful home is hkg"

"God bless hongkong n hongkong people's..we love hongkong
♥♥♥ "

"So touched to see such solidarity. Take care. God bless. Love from Singapore♥ "

"Lived there from 1996 to 1999, love the people, love the place, you are pure inspiration. "

"Hongkong is a part of my life... God bless HK.. "

"I love Hong Kong. 😊 Hongkong people in general are peaceful (i see that from my neighbors and workmates) and not troublemakers. "

The content of the comments expressing "The neutral point of view such as descriptions of the movement or vague stances" (category 4) is as follows:

"May the god continue calm down the situation guide them "
 "OMG still a lot of people on rally in hongkong"
 "2 million people protest! Is that big enough to get the government step down in Italy!?" "
 "I just travelled great HongKong 香港HK I'd like to know HK more..... "
 "I hope there is an amicable solution reached between HK and Beijing. Stay calm. "
 "Reality is, HK is part of China. The sooner HK people realise this, the better for themselves. Stop dreaming that HK can be a catalyst to democratize China. "
 "It has been only 20 years out of 50 years of 1 country 2 system. "

Among the 200 comments, there were no comments "Criticize police violence" (category 5), nor "Criticize Violent Demonstrations/Student Demonstrations" (category 6), and 1 comment that "Support amendments/oppose movements" (category 7):

"It's sad because HK is never a country , without China , HK will be useless to western countries and the people who suffer are the ordinary citizen."

There were no comments on "Support the government/Leader/ police" (category 8) nor "Criticism of Fake News" (category 9). There were 5 comments on "Other content" (category 10), including 1 push news comment published by the South China Morning Post, and the other 4 are as follows:

irrelevant comments - "Lucky Singapore is not like this... We are blessed "
 "Replying to Michael Digos,don't compare Digong to hk,Digong love china as well he only hate Canada 🇵🇭🇵🇭🇵🇭 "
 unreadable content - "Dapat e withdraw ung extradition bill s hk...as long nan jan pa yan at naka postponed lang anytime pwede yan permahan... "
 "Hong Kong is most likely an independent country. "

This post broadcasted a demonstration that day. From the comments, we found that many users from other countries watched and participated in the live broadcast. Among them, there are 142 (71%) comments "support the movement"(category 1). There are 40 (20%) comments on "Bless Hong Kong" (category 3).

Sample 2 - comments

The second example is a post on the night of June 16th, which reads "Watch as the massive street protest against a proposed extradition law in Hong Kong continues into the night." On the same day, after Hong Kong leader Carrie Lam apologized to the public and announced the suspension of the amendments, after that, the public held another demonstration. Our analysis of the content of the comments is as follows:

The content of the comments expressing "Oppose the amendment/support the movement, or think that the movement inspires people " (category 1) is as follows:

"Peace and freedom for Hong Kong! God bless these marchers and their righteous cause!"
 "My deepest hope and prayers to people in Hong Kong to attain absolute Victory! ♥♥♥"
 "Have peace and love for all hongkongers... Fight4theright..."
 "Peace and freedom for Hong Kong! God bless these marchers and their righteous cause!"
 "Praying for HK. Pure admiration for their courage in sustaining protest for their rights"
 "GOD BLESS YOU ALL HONGKONGERS ..🙏 im happy to see this all d ppol of hk are united. ve strong keep safe."
 "From Malaysia, we admire your determination and fighting spirit"

The content of the comments expressing "Blaming Hong Kong's Government/Chinese Government/Leader " (category 2) is as follows:

"If she does not resign, then she does not wish Hong Kong well."
 "林鄭月娥 Carrie Lam Step Down! The People's Voice is now so Visible! God Bless HK"
 "If there is bloodshed, it is chinese who will bleed. If there is consequential political or economical instability and vulnerability, it is chinese who shall pay the price! "
 "Well is this is what's going to happen I don't see the deal being renewed around 2050, they may have already proved it a failure"
 "Congratulations in getting some response from a stiff necked puppet! "

The content of the comments expressing “Bless Hong Kong, or express passion for Hong Kong” (category 3) is as follows:

“Pray for hongkong 🙏 keep safe everyone ”
 “God bless Hongkong people we pray for peace and safety for everyone”
 “Taken care peoples of Hong Kong. Stay save . Will pray for Hong Kong and the people’s. God save Hong Kong ”
 “God bless all of you and peacefully for all of youngsters.be patients tomorrow we’ll be faithfully. ”
 “Let there be Peace in Hongkong 🙏 May GOD Keep Us Safe Always and Hope Everything Will be Settled ”
 “Taken care peoples of Hong Kong. Stay save . Will pray for Hong Kong and the people’s. God save Hong Kong”
 “I pray fo HK keep safe all involved people”

The content of the comments expressing “The neutral point of view such as descriptions of the movement or vague stances” (category 4) is as follows:

“Massive but peaceful. This is the kind of protest the world should follow. Voice your views in orderly manner. Kudos”
 “I’m very worried about what future in Hong Kong”
 “It s almost 10 n people are still beginning or joining in the middle. ”
 “What does this bill actually mean can someone explain to me. ”
 “Omg it’s already night la pls go home now and rest tomorrow is working week again. ”
 “These are the Lost Souls of Hongkong. Please go home and sleep for tomorrow is another working day. ”
 “How will HK react when China fully takeover in 2047? ”

Among the 200 comments, there was 1 comment “Criticize police violence” (category 5), nor “Criticize Violent Demonstrations/Student Demonstrations” (category 6), there were 2 comments “Oppose movements” (category 7):

“Keep safe hkong. Last week is very bad police using tear gas and rubber bullet 😞😞😞 many people injured 👍👍👍😞😞😞 ”
 “That guy who killed his girlfriend in Taiwan must've felt so happy now. Seeing, so many people standing up for him from getting extradited to face justice in Taiwan.”
 “Go home and sleep,,let the authority do their job”

There were no comments on “Support the government/Leader/ police” (category 8) nor “Criticism of Fake News” (category 9). The comments on “Other content” (category 10) are as follows:

“Help the family of the one who died for Hong Kong”
 “Here got real people, no more opposite guys in this channel ”
 “Wish there is a big TYPHOON to flattern all these....!!! ”
 “I hope China will not take millitary action”
 “Anyone here.. can tell me.. why I cannot post any photo on WeChat? I'm not Chinese.. why I cannot post any photo of this activity on wechat? ”
 “I did not yell at them! I said it calmly that they hurt us. You emerge there! I never yelled. ”
 “Taga tabuk nak madamak buy buyaen dytuy ”

This post broadcasted a demonstration that day. From the comments, we counted 103 comments (51.5%) "Support the movement" (category 1). There are 39 comments (19.5%) on "Bless Hong Kong" (category 3).

Sample 3 - comments

The third example is a post on June 18, with the content of "Hong Kong's leader speaks to the press after massive protests and controversy over a proposed change to the city's extradition laws." The content is about a live of press conference of Carrie Lam. Our analysis of the content of the comments is as follows:

The content of the comments expressing “Oppose the amendment/support the movement, or think that the movement inspires people ” (category 1) is as follows:

“Suspension is not enough: massive march to demand Hong Kong government fully withdraw extradition bill ”
 “Withdraw the bill and this all mess would end no used of telling people repeatedly and repeatedly , simply withdraw the bill or it's time for you to “ STEP DOWN “”
 “plrase dont aks about last police action n protes..right point is please with drow the bell that is important.”
 “Withdraw extradition bill to China, n secondly she has to step down.”
 “If you intend for the bill to expire since there is no time table - might as well withdraw it and restore confidence in the people of Hong Kong!”
 “hongkong loves hongkong, why u cant understand, how many people still need to got hurt, or die for u to withdraw the bill.”
 “We appreciate your apology but that's not important. We demanded and are still demanding the full withdrawal of Extradition Bill and release of all the young people who were arrested due to their protest on 12 June. A promise not to sue them!”

The content of the comments expressing "Blaming Hong Kong's Government/Chinese Government/Leader " (category 2) is as follows:

"Makes no difference if she steps down or not. There will be another non-elected puppet chosen who will be identical. "

"She is not stepping down, all hk people r do disappointed "

"There is no accountability in the HK government - everyone take care of one another "

"You want another chance?!!! So you ignoring people's voice? Which part exactly you are listening, Carrie Lam??"

"Why doesn't she want to resign? Already lost ppl's confidence! "

"Is she seriously just wittering...not action, no resignation, no charges against the police???"

"In order to be a good leader in this city of Hongkong u should know how to listen your fellowmen country here in Hongkong."

The content of the comments expressing "Bless Hong Kong, or express passion for Hong Kong" (category 3) is as follows:

"GOD BLESS HongKong and everyones heart. "

"God bless hong kong"

"Peacefully pls... god Blessed to all "

"Have PEACE Hongkong...God bless..."

"Stay strong safe Hongkong💖HK I'm from Philippines PH"

"As a black African from Liberia LR living in Hong Kong HK is a great opportunity for me, I will never forget this great place called Hong Kong HK, I am highly Respected in Hong Kong HK as a black African. I Love 💖 you Hong Kong HK 100%, Peace 🙏"

"God bless hongkong people 🙏🙏🙏🙏🙏"

The content of the comments expressing "The neutral point of view such as descriptions of the movement or vague stances" (category 4) is as follows:

"Lovely hong kong, don't ruin the said nation "

"Remember to register as voters before July 2nd. That's what Carrie is remind us to do. "

"China Daily is reporting that the march on Sunday was in support of the bill. Does she agree? Does she think there are many Hong Kongers in support of her bill?"

"Te Merly Terne Bunda ari nako listening since beginning i never heard widraw the bill. "

"Extradition is normal. Don't make it sound nefarious "

"Will you give up your and your entire family British citizenships???"

"Why should she withdraw. Action taken is for HK not for herself. Think."

The comments expressing “Criticize police violence” (category 5) are as follows:

“Who defines ‘violence’??? Police decide who was ‘peaceful’ and who wasn’t. How can we trust their decision on who to prosecute?”
 “No it doesn’t - can’t complain if you can’t identify the officers who did not have their badges on! ”
 “Does everyone know how you make a complaint against the police??? By filing a complaint with the police 😊”
 “Why don't the Government form a Judicial Probe Commission for investigating the allegations against the police and the so called 'riot' in its entirety for the sake of pursuing the process of justice?”
 “Can someone ask about repercussions for the police that beat up unarmed protestors and pepper sprayed press from behind?”
 “Will the police who used excessive force be extradited to China ? Maybe a good trial. ”

The comments expressing “Criticize Violent Demonstrations” (category 6) are as follows:

“If there is only me left, i would still say 12jun was a riot”
 “12jun was absolutely a riot, didn't people see?? ”

The comments expressing “Support amendments” (category 7) are as follows:

“Eventually the bill has to be passed whether it is now or 1 year or 3, 5 years, for the good of HK. The bill is for the extradition of criminals. Why protect criminals?”
 “No extradition bill meaning we are allowing criminals as our neighbors”

The comments expressing “Support the government/Leader/ police ” (category 8) are as follows:

“God bless You madam Lam, we know that this situation for you it's to much Risk,, we hope that God will give you a heavenly wisdom.. GOD IS SOVEREIGN...”
 “No one is perfect no one here in this chat even got the qualification of acting HKCE esp. those asking you to step down so Keep it up Carrie Cherie Lam!! Support YOU ”
 “Let mainland take over Hong Kong for eternal peace”
 “Great leader”
 “Thank you very much too Carrie Lam ”
 “Thank you We move ahead for economic progress now”

Among the 200 comments, there were no comments “Criticism of Fake News” (category 9). There were 26 comments “Other content” (category 10), most of which were unrelated to the press conference or movements, as follows:

“Good afternoon to all everyone watching from taipie ”
 “The background is so soothing. I feel relaxed just looking at it. ”
 “Looks to me this is start of HK’s downfall. How to compete with Singapore? ”
 “o oh..those translator..Plzz your accent is so tense...I hardly understand whatever tht is interpreted by you..I prefer the original cantonese Verson.. ”
 “Anyone identified in the protest will have their social credit score reduced ”
 “Why China denied autonomy to Tibet as Hong Kong and Taiwan enjoy greater freedom. ”
 “RIGHT side of headphones is English”

This post broadcasted a press conference. From the comments, we counted that the most comments were "Blaming Hong Kong's Government" (category 2), with 55 comments (27.5%), followed by "The neutral point of view such as descriptions of the movement or vague stances" (category 4) ,with 42 comments(21%). There have 35 comments (17.5%) expressed "Oppose the amendment"(category 1).

Sample 4 - comments

The fourth example is a post on September 4, with the content "More than 100 pupils took part in a protest outside a Hong Kong school after claims it would expel students and staff taking part in a class boycott.". In this video, students from a school in Hong Kong went on strike to join a demonstration. Our analysis of the content of the comments is as follows:

The content of the comments expressing “Oppose the amendment/support the movement, or think that the movement inspires people ” (category 1) is as follows:

“One hopes their demands will be met soon God Bless HK”
 “Even the secondary student know to think about good or bad about the country ”
 “Proud of you”

“i like your bravery♡”
 “five demands, not one less ”
 “support”
 “If peoples want to fredom lets give to fredom so that for peace ”

The content of the comments expressing “Blaming Hong Kong's Government/Chinese Government/Leader ” (category 2) is as follows:

“I think those in authority are really stupid. This is not the time to threaten them. So what if they don't turn up for class? It is not the school that is losing. Just keep quiet and things will quiet down. ”
 “China CCP can't change students opinions by force.”
 “The sad part is the Chinese government will make their lives a living hell, hard labor for years, then when they are allowed to get a job again it will be manual labor, ”
 “China stop Communistic regime. Act as humanbeeing not like robots ”

Among the 200 comments, there is no comment content that “Bless Hong Kong, or express passion for Hong Kong” (category 3). The content of the comments expressing “The neutral point of view such as descriptions of the movement or vague stances” (category 4) is as follows:

“Student vandise in the school is suprising they learn in their school thaunh by their teacher”
 “Trying not to be expelled, by striking? ”
 “Really hv to salute them . Best way no to attend school . ”
 “to show off to china goverment ”
 “I didn't know haze from Indonesia was blown over to HK and affected them so badly. ”
 “Yes let's punish children for expressing a point of view. What kind of existence do we live in where a child cannot make one mistake or face dire consequences? Kids are supposed to make mistakes in order to learn. Ruining a human beings life because of one thing they did when they were young is a disgusting and immoral thing to suggest. ”
 “Please provide a security in every school so they will not corrupt the mind of our child”
 “Why they wanted to be free yet covering their face, their face cannot even show, what type of freedom they wanted to have. ”

Among the 200 comments, there are no comments “Criticize police violence” (category 5), but those “Criticize Student Demonstrations” (category 6) are as follows:

“You guys tasted sour glory. Its time for classes. #HongKong future lies in your hands. Not by protest but by sheer determination to succeed in life. ”

“The Parents and the School are 100% Responsible for the Education of the Children ~ Education had already Failed due the almost 155 years of the so-called "Legal Occupation of HK by the British Empire" ~ this Lost Generation had lost their Nationality Identity with their MotherLand PRC. ”

“Morons. Your priority as a student should study! Protest what? What do you even know about the law? Mindless people put their priority at the wrong area ”

“Goodexpelled them since they want to boycott school. ”

“The students parents are too blame for their behaviours ”

“This is getting offhand and is the beginning of the end by teaching the young to revolt against the government. In future the government will have to give in to what unreasonable demands they demand ”

“The govt has to look into the structure of educational system and the competency of an educators. If any tom, dick and hairy can interfere and instigate the pupils to participate in the protest or rioting, the future generations will not be good for HK China future development. ”

“How can the government allow the secondary students to protest? What is the role that the principal play? The students should be bared from politic. ”

There are no comments “Support amendments” (category 7), the comments expressing “Support the government/Leader/ police ” (category 8) are as follows:

“Why the Hong Kong coverment no stop it ? If no stop it will be like protesters day a day bigger ? This is no rule??must learn mainland China CN. Everything under control. To sad . Carrie Lam .!!! 😞😞”

“When Freedom & Democracy is Monster in disguise <https://www.linkedin.com/pulse/when-freedom-democracy-monster-disguise-andrew-wong/?published=t> ”

“There is 1 important history lesson that is needed to be taught to all HK students. It is about British shipping opium into China to earn money at the expense of the lives of Chinese. Then how they bullied China into surrendering HK to Britain for a specific numbers of years and how they reaped profits at the expense of HK and China. And that HK belongs to China. ”

Among the 200 comments, there were no comments that “Criticism of Fake News” (category 9). Most of the comments on “Other content” (category 10) were unrelated to the demonstration, as follows:

“Xi's China in crisis 2019! ”

“Hong Kong will eventually become a military base for Westerners to cause devastation in East Asia. ”

“Hong Kong should declare independence from China and become a separate country”

“Its obvious that hk has no future ”

“👍CN👍CN👍👍👍👍👍👍👍 ”

“Yeaaaa..... You been identified. Your future is finish. ”

“I pray for hongkong peoples someday i hope it would success to be one independent country ”

This post records the strikes of students. From the comments, we have counted that the most comments are “Criticize Student Demonstrations” (category 6), with 96 comments (48%), followed by “Other content” (category 10), with 39 comments (19.5%).

Sample 5 - comments

The fifth example is a post on September 6, which reads "She was on her way home and has never joined any of the protests, but says she ended up needing stitches to her head after riot police used batons on her and others". In the article, the interviewee told the story of being beaten innocently by the police. Our analysis of the content of the comments is as follows:

The content of the comments expressing “Oppose the amendment/support the movement, or think that the movement inspires people ” (category 1) is as follows:

“#FightThePower”

“Malay/singa Chinese bs against!!!! Tell us 5 demands before talk shits around!!!!!! ”

The content of the comments expressing “Blaming Hong Kong's Government/Chinese Government/Leader ” (category 2) is as follows:

“Typical CCP Zombie ChiNazi cops, in America if you don't control your dogs then the people will. This is one of the reasons why we have the 2nd Amendment! ”

“If the ccp dictator and his pet dogs bark and whine it is true it others say it they say it is fake ”

“Xi has failed China 2019! ”

“He took the country & people to near ruin,pity he didn't die years ago.Dictator! ”

“Disgusting comments from pro CCP trolls. No woman should be beaten like this. This could be your mother or your sister or

your daughter. Notice that the pro CCP comments are always the most disgusting, violent and offensive.”

There is no content of the comments expressing “Bless Hong Kong, or express passion for Hong Kong” (category 3), the content of the comments expressing “The neutral point of view such as descriptions of the movement or vague stances” (category 4) is as follows:

“Why went to join the group who were hurling expletives at the police... Strange. ”

“At the wrong place & wrong timing. Do you believe in “KARMA” ”

“Its true the police might have been a little heavy handed recently but you must be kinda stupid to wear black in hongkong right now if your not protesting. Asking for trouble”

“How come the riots, vandalism and sabotage of the economy was not given a priority report? Bias or bought over? ”

“by the way SCMP ramp up the press work and stir up more fire everywhere???what is your agenda SCMP?? ”

““Out of curiosity and concern, she said, she stayed on a staircase that led to Siu Hong Court to see what was going on.” She was nosey and wanted to stick around in the middle of a riot. It’s unfortunate that she was mistaken as a rioter and got beaten but she should also be responsible for her own safety. Just as how you wouldn’t hang around in a middle of an armed robbery. ”

“According to her, she was at the station at 10:30 and at 11:45 she got beaten. So she must be a slower walker or she was pretty involved in the protest against the police at the station. Why will somebody not involved in the protest remains in the station for over an hour when the situation there is clearly so volatile? ”

The comments expressing “Criticize police violence” (category 5) are as follows:

“It does shows and confirm HKG police extrem violence to anybody Terrible... like dictatorship society Terrible to see that in 2019 ”

“This is the standard of Pol when you get trained in China. Soon here is gonna be same like motherland. ”

“Terrible....where is the "protect & serve" ..indiscriminate attacks..shame on HKPF if it's true ”

“Eventually Police was thinking.... She is having black hairs... she must be a protester ;) The worth is, Police believe they must beat the protesters...! Where are the human right, the freedom of thinking and speech....!!! And freedom to protest if you do not agree with your government decisions... ”

“It's amazing how there are so many comments claiming this to be fake news when there's has been a lot of evidence showing that innocent people have been attacked by the police. Simply put, if the police believe crimes were committed and that justified

the use of force, why weren't these people then also arrested after being beaten by the police? ”

“they are not hk police anymore . they are just mafia and terrorist holding with police license. Setup HK Police Corruption Committee to clean up police force !!! ”

“HONGKONG POLICE BRUTALITY, CRUELTY, S DESPICABLE AND PATHETIC!! let there b a UN INITIATED INVESTIGATION ON HONGKONG POLICE.. HEADS SHOULD ROLL!!!!. THOSE WHO HAVE A HAND IN D SHAMEFUL BRUTALITY SHOULD BE MADE TO PAY FOR THEIR CRIMES!!!! ”

The comments expressing “Criticize Violent Demonstrations” (category 6) are as follows:

“You joined a riot! What did you expect? ”

“HK protestors are the most pampered kind instead of baton on the head for rioting they expect police to pat them on their head tenderly & approvingly.. 😊”

“Condemn the rioters first. They are the cause of every problem. ”

“They're not protestors they're terrorist pretending to be innocent”

“Don't blame them blame the protester..why they are protesting in the area which is many people.. ”

“If chaos like that continue No one can guarantee that your innocent person will not be hurt. If that s the freedom protestors want , all hkers will have to pay the cost ”

“When arrested, will always say just passed by ”

There are no comments “Support amendments” (category 7), the comments expressing “Support the government/Leader/ police ” (category 8) are as follows:

“Support HK police”

“I believe lying to discredit Hong Kong policemen 🏠♂ the world number one in patience and tolerance If you among the violent rioters you deserve to die miserable and your corpse thrown into sea to feed sharks ”

“No police will take action on innocent, trouble makers and criminal when caught they will always said they did not do so. Lock her up. ”

“Policies will not blindly hit people, they are so busy, if they busy on you, u must be have serious problem. ”

“Another bashing of hk police with false accusations despicable and disgusting to the core !!! ”

“These HKers keep saying that Mainland is not fulfilling one country 2 systems. Initially, I rooted for these HKers and was hoping that China sees that its much better to let go of HK in the long scheme of things. BUT now? I have become extremely irritated by the chants of “democracy” “freedom” blah blah. These people HAVE NO CLUE whatsoever what they are talking about! They are asking for something they already have. I think it's okay for Mainland to now show them what one country one system really is. They're already telling the world

that's how it is now. So what's the difference if Mainland actually make it true? Do it! Enough of this unruly behavior! ”
 “With my experience hongkong police are good 👍”

The comments of “Criticism of Fake News” (category 9) are as follows:

“As a teacher she is really not street wise...if you know the protestors dressed in black you should dress in other colours....but again her story is full of flaws....white woman speaks with forked tongue ”
 “If she said she was treated like this at her home, then I wll support investigating the police, now I support investigating her instead ”
 “Funny how with all the press around they never catch these stories. People make bogus claims all the time. This may or may not be true but writing a whole story on something you can't verify is bad journalism. ”
 “So this is so-called journalism from SCMP?? ”
 “Look like, all are innocents.... Only the police are to be blamed. Please stop all these idiotic acts.... Especially the reporters. Biased reporting won't help at all... It will only make it worse ”
 “Make up story”
 “Shame on you SCMP. You down grade to standard of Apple. ”

The comments of “Other content” (category 10) are mostly unrelated to the event, as follows:

“Collateral damage”
 “Looks like a mans head! ”
 “What will happen if Trump beats Xi to 5g? ”
 “She was wearing black hair 😊 ”
 “Tonya Bruce you'll love this! ”
 “Da kena hantam alrды baru cakap not protesters ”
 “Watch all the CCP apologists work their magic now. ”
 “Can Scmp report more newsworthy story than this one which attracts no sympathy from the netizens? ”

From the comments on this post, we counted that the most comments were “The neutral point of view such as descriptions of the movement or vague stances” (category 4) , there are 88 comments(44%), followed by those that “Criticism of Fake News” (category 9), with 33 comments(16.5%). Many users question the authenticity of this news. There are many doubts about fake news in the second wave.

Sample 6 - comments

The sixth example is a post on September 8 with the content "Protests on Sunday spiralled into chaos as police and demonstrators clashed in the heart of Hong Kong." The video recorded the conflict between the police and the demonstrators, the police shot and demonstrators vandalize public property. The two sides engaged in armed confrontation. There were lot of scenes of fire and destruction. Our analysis of the content of the comments is as follows:

The content of the comments expressing "Oppose the amendment/support the movement, or think that the movement inspires people " (category 1) is as follows:

"Fire of democracy and freedom"
 "Fire for hope"
 "五大訴求, 缺一不可!" (Five demands, not one less)
 "Free Hongkong... burn prochina 😞😞😞😞😞"
 "Hear the people. Vox populi.!!!"
 "#freedomforhongkong - True Canadians CA Stand With You
 🇨🇦🇨🇦🇨🇦🇨🇦"
 "Hong Kong protestor ADD OIL !!!! DON'T GIVE UP UNTIL
 YOU ACHIEVE WHAT YOU WANT !!!!! KEEP FIGHTING
 !!!"

The content of the comments expressing "Blaming Hong Kong's Government/Chinese Government/Leader " (category 2) is as follows:

"Carrie Lam cannot handle this, she will need to resign"
 "China in crisis under the leadership Xi 2019! "
 "Pro government thugs or disguised Police trying to prevent
 Protesters 'fluid' ability to relocate."

The content of the comments expressing "Bless Hong Kong, or express passion for Hong Kong" (category 3) is as follows:

"Pray for Hong Kong... Peace country 😊. "
 "Unbelievable and prayers to you-all will bring peace"
 "#SAVE #HongKong"
 "🙏🙏🙏"

The content of the comments expressing "The neutral point of view such as descriptions of the movement or vague stances" (category 4) is as follows:

“When will this end 🙄🙄🙄. So sad 🙄🙄”
 “Why? Madame Carrie Lam can't handle this situation
 🙄🙄🙄so sad Hong Kong not safe anymore”
 “Anyone out there believe that people and rioters in HK are
 destroying the city out of freedom and democracy?”
 “Incredibly sad and shocking...my heart is bleeding for Hong
 Kong....🙄”
 “Burn up whole of HK, especially Banks and destroy HK
 International financial hub status... See who will suffer”
 “Who 100% sure is protesters did it ,maybe is the undercover
 police 🙄♀”
 “A well-planned script by the undercover police ? Or otherwise,
 just wanna say : Don't let hatred engulf you ! ”

The comments expressing “Criticize police violence” (category 5) are as follows:

“The undercover cops set the station on fire! ”
 “Need to watch that live to see police just blindingly shoot tear gas
 to disperse shoppers on the street. Their sense have dropped to
 that level, Basically anyone on the street when they are around is
 defined as a RIOTER.”
 “Looking at it, the riot police officers are all from China citizens
 therefore they have no compassion towards the protesters in
 the HK nation ”
 “from this picture, chaos=police ”
 “The police are abusing their violence!! What a shame! ”
 “SCMP is biased. Where are the stories and graphic pictures of
 police attacking the free press? Hong Kong is now a police
 terrorist state. Get all your investments out asap. ”

The comments expressing “Criticize Violent Demonstrations” (category 6) are as follows:

“Please don't destroy your city, learn how to give and take
 through a constructive dialogue for a brighter result 🙄 ”
 “Hongkongers don't allow other people to destroy your country
 express your feeling but don't do this.at the end of the day all of
 you will be affected ”
 “They want to destroy the whole of Hong
 Kong 🙄♂🙄♀🙄♂🙄🙄🙄”
 “Police should just let them destroy whatever they wish to. Then,
 MTR and workers should not repair or clean up the mess and all
 the damages overnight for tomorrow's commuters. Let everyone
 experience the damages and the inconvenience these rioters have
 created. Let the damages and wreckage accumulate too. Then
 we can see a brand new Hong Kong. ”
 “Why bother cleaning up and pretending that all is OK ? Cops
 should take the weekend off and road/MTR cleaners should
 leave all the destruction untouched let residents and
 commuters enjoy the reality of the situation . Seriously”

“Protesters claimed they love HK and thus they protest. If u love HK then why r u destroying everything? ”
 “I’M FULLY RESPECT WHEN THEY DEMONSTRATION...WITH ATTITUDE..... WHEN THEY START ANARCHIST....AND DESTROY PUBLIC FACILITY , THEY DESTROY THEY OWN COUNTRY..... IDIOT ! ”

There are no comments “Support amendments” (category 7), the comments expressing “Support the government/Leader/ police ” (category 8) are as follows:

“Bunch of terrorist protesters destroying beauty Hong Kong in de name of democracy!! It's time China start acting aggressively !!”
 “Send in PLA, use tougher force and maintain law and order ”
 “Enough of the hooliganism. Time to kick butt. I hope Beijing acts. These rioters are American lackeys.”
 “Mainland must take control. Zero tolerance policy. Those r not patriots are vandals ”
 “我支持立法，支持香港警察！香港警察加油！👍” (I support legislation and support the Hong Kong police! Hong Kong police come on! 👍)

There have 1 comments of “Criticism of Fake News” (category 9):

“Fake Press finally got caught!!! ”

Comments on “Other content” (category 10) are as follows:

“Mint Ng ”
 “Peyen Seah Nelly Dianne”
 “Is HK MTR own by Govt or Private entities ... just asking though ??? ”
 “MTR you deserve it ”
 “SCMP is anti China all along. Most western media are haters, corrupts and spreading fake news claiming purely for justice and democracy. ”
 “Will Xi be able to feed China in 2020? ”
 “This is not even news in America. Nor will trump help ”

From the comments on this post, we counted that the most comments were “Criticize Violent Demonstrations” (category 6), with 69 comments (34.5%), followed by “The neutral point of view such as descriptions of the movement or vague stances” (category 4), with 50 comments (25%).

With the change of the theme of the report, the users' commentary have also changed accordingly. For example, in the post of a demonstrations live on June 12, a large number of users uttered "support ... Hong Kong". However in a live of the

press conference of leader Carrie Lam, which was published on June 18, those who disagree usually commented "opposing ... amendment". The meaning between the two is the same, so they are classified into one category. In addition, on September 4, the SCMP released a video of students' strike. Many netizens criticized that students should not strike and demonstrate, and should focus on study. In other posts, users often criticize protesters for illegal and violent behavior. In the coding of this research, we classify these two type of comments into one category.

4.3 Climate of opinions

Based on the collection and analysis of the content published by the SCMP on Facebook, 37 (48.6%) of the 76 posts published are related to the Hong Kong's Movement. Of the 44 posts in the first wave, 20 (45.5%) were related to the Hong Kong Movement. Of the 32 posts in the second wave, 17 (53.1%) related content. In related posts, 18 (48.6%) posts discussed Hong Kong's amendments and demonstrations, 11 (29.7%) posts talked about the police, and 11 (29.7%) posts talked about protesters. Some news stories talked about two or three topics at the same time.

According to the number of comments on the 37 related posts, we selected the top 5 most discussed posts in each wave, that is a total of 10 (27%) posts. From each of these 10 posts, 200 comments were selected to analyze users' opinions. The selected posts are shown in Table 2. Among them, the posts from the first wave (June 12-18) included three live of the Hong Kong demonstrations, and one live of the Hong Kong leader Carrie Lam's press conference, and another one posts reflected clashing between the police and protesters. Among the posts from the second wave (September 4-10), there was one video reflecting violent conflict, one video of pupils 'strike and demonstration, one post showed the interviewee's accusations of police violence, one other post expressed the police's defense of themselves, the last one post contains an interview with leader Carrie Lam. After analyzing the comments of these posts, categorizing the comments, the data is shown in Table 6. We can see from this that among the comments selected on the first wave, the main comments are Support the Movement (42.3%), Bless Hong

Kong (21%), and The Neutral Point of View (15.9%). Among the comments selected on the second wave, the most important ones were The Neutral Point of View (30%) and Criticize Violent Demonstrations (21.8%).

For the remainder of this section, we focus on the discussion on our research questions, drawing on the results based on both the automated and manual content analyses presented above.

What's the opinion of media towards the Hong Kong's movement?

According to the established coding rules, as shown in Table 3, we analyzed 37 posts. Add up the values coded in each wave and divide by the total number of posts published by the SCMP during this period, to quantify the attitude of the media during this period. For example, when analyzing the media's opinion about the "proposed amendments", we add up the coding values of all content from June 12 to 18 (refer to Tables 5 for the values), that is to say, in the first wave of 20 related posts, add the corresponding value of each one, $a(\text{amendments1}) = a_1 + a_2 + a_3 + \dots + a_{20}$. Then the value obtained is $a(\text{amendments1}) = -4$. Finally, divide by the total number of posts published during this period which is 20, and finally get "-0.2", that means, in the first wave, the media's attitude towards the amendments is "-0.2". The coding rules stipulate that "-1" is totally opposed to the amendment, "1" is totally to support the amendment, and "0" is a neutral attitude. Therefore, during this period, the media's opinion towards the amendment is tend to oppose the amendment.

In the same way, we obtained other data. During the first wave, the media's opinion towards the police was quantified to "-0.176". The rules of police coding stipulate that "-1" means that the police brutality, "1" means support police, and "0" means a neutral attitude. Therefore, the value for the police is "-0.176", that is, the media tends to think that the police are violent. During this period, the media's opinion towards demonstrations is "0". Regarding the rules for the coding of demonstrators, "-1" means that the demonstrators are persecuted, "1" means that the demonstrators have violent acts, "0" means a neutral attitude, here is "0", which means it is neutral attitude.

During the second wave, the media's opinion towards the amendment was "-0.294", which is more inclined to oppose the amendment than in June. They also believed that the police had violent behavior, with a value of "-0.353". As for the protesters, the media tended to report more on the violent behavior of the demonstrators, with a value of "0.235".

Table 16 Media's opinion about Hong Kong's movement

	<i>proposed amendments</i>	<i>Police</i>	<i>Demonstrators</i>
06.12-06.18 (N=20)	-0.2 (n=11)	-0.176 (n=3)	0 (n=3)
09.04-09.10 (N=17)	-0.294 (n=7)	-0.353 (n=8)	0.235 (n=8)

"N" is the total number of posts related to the Hong Kong movement published by the media during the specified period, and "n" is the total number of posts published by the media on related topics during the specified period.

According to the data in Table 16, the media's opinion towards the anti-amendment has become more firm. Although there became fewer posts discussing related topics, there is no more voice in support the amendment. During the first wave, there were two news stories supporting the amendment. The interviewees were all pro-Beijing officials of the Hong Kong government. During the second period, there was no post expressing support the amendment. Though there was an interview from insiders of the government, the attitude of the post was Opposition to the amendment.

In addition, after analyzing the content that supports and opposes the amendment, we found that in the content of the media's interviews, the voices that support the amendment came from the government, and the voices that oppose the amendment came from the public and foreign government. The neutral content that objectively analyzed the situation of both sides are almost the articles written by experts and live videos.

The media's debate on the police has a clear upward trend. In the second period, for example, the Protesters' theme transcended the issue of The amendment, became the main hot topic. The media reported more frequently on the content of police violent. In the first period, there was one post about the use of violence by

the police, and two posts about the neutral point of view. During the second period, there were 6 posts describing police violence and 2 neutral views. The overall attitude is consistent. As time goes by, the SCMP has more discussions on police, and all of them tend to show that the police use violence.

The media's opinions about the protesters are more diverse. In the first wave, there was one post highlighting the violent treatment of the protesters, another one post emphasizing the illegal sabotage of the demonstrators, and one neutral post mentioning the movement. In the second wave, of the 8 posts mentioning protesters, only two posts emphasized the victimization of innocent demonstrators, and 6 posts emphasized the violence of demonstrators.

In general, through observation and analysis of media's posts. We can infer that after nearly three months of changes, the trend of the Hong Kong media against the amendments has become stronger, and the voice from the government has weakened. In the first wave, apart from the opinions within Hong Kong, there were also opposition from other country - US. With the progress of the demonstration, the focus of the media's discussion in Hong Kong has gradually shifted from the amendment to the relationship between the police and the demonstrators. The opinions of police violence and demonstrator violence have also been discussed more and more along with the movement. Among them, the media's attitude towards the police is relatively consistent, with only a few neutral content defending for the police. Attitudes towards the protesters have changed greatly, and opinions have become more extreme, but there are always had some posts emphasizing the victimization of innocent demonstrators. It can be seen that the media's attitudes towards the amendment and the police have gradually become consistent, and their opinions on the protesters have become diversified. It can be understood that this is related to the increasingly obvious conflict between the police and the demonstrators in the Hong Kong movement.

Observe the opinions of users in the climate of media

After analyzing 37 posts of the SCMP, we selected and analyzed the comments on the 10 posts with the most comments in the two periods (Table 4).

The first 200 comments of each post are extracted through Facepager, and these comments are classified and counted.

Table 4. 2 Top 5“ Comments” Stories (n = 37)

2 Top 5 “comments” news stories	Total comments	Reactions related
12/06/2019 - 18/06/2019		
Live as Hong Kong's streets become a sea of black, as people protest the contentious suspended extradition bill.	5848	like + love
Watch live as police and protesters clash outside Hong Kong's legislature, after a fresh show of defiance against a controversial extradition bill.	2277	like + love
Watch as the massive street protest against a proposed extradition law in Hong Kong continues into the night.	1317	like + love
Hong Kong's leader speaks to the press after massive protests and controversy over a proposed change to the city's extradition law.	951	like + angry
Watch live from Hong Kong's extradition bill protest, as police and protesters clash on the streets.	795	like + sad
09/09/2019 - 10/09/2019		
Protests on Sunday spiralled into chaos as police and demonstrators clashed in the heart of Hong Kong.	1754	like + sad
More than 100 pupils took part in a protest outside a Hong Kong school after claims it would expel students and staff taking part in class boycott.	722	like + sad
A woman says she needed stitches on her head after Hong Kong police beat her at Siu Hong MTR station and she now supports probe into their use of force	663	like + angry
Hong Kong police dismiss accusations of excessive force at Prince Edward MTR station and obstructing press during bus arrests in Kowloon Bay	406	like + angry
Hong Kong leader Carrie Lam unmoved by tycoon Li Ka-shing's call for 'mercy' on anti-government protesters	283	like + angry

Among the content on the first wave (June 12-18, 2019), the posts that received the most comments were live posts. Among them, four were live broadcasts of the Hong Kong parade on June 12 and June 16, and one live was on June 18 which is about leader Carrie Lam's press conference.

Table 17 Analysis of comments on the top 5 posts on June 12-18 (in order of total comments number)

	1-Live as Hong Kong's streets become a sea of black, as people protest the contentious suspended extradition bill.	2-Watch live as police and protesters clash outside Hong Kong's legislature, after a fresh show of defiance against a controversial extradition bill.	3-Watch as the massive street protest against a proposed extradition law in Hong Kong continues into the night.	4-Hong Kong's leader speaks to the press after massive protests and controversy over a proposed change to the city's extradition laws.	5-Watch live from Hong Kong's extradition bill protest, as police and protesters clash on the streets.	total (N=1000)
Reactions related	like + love	like + love	like + love	like + angry	like + sad	N
Oppose the amendment/ Support the movement, or think that the movement inspires people	142	106	87	35	53	423
Criticize Government/ leader	4	12	8	55	14	93
Bless Hong Kong, or express love for Hong Kong	40	39	65	18	48	210
The neutral point of view	8	21	28	42	60	159
Criticize police violence	0	0	0	6	7	13
Criticize Violent Demonstrations/Student Demonstrations	0	0	0	3	0	3
Support the government/Leader/ police	1	5	2	15	2	25
Criticism of Fake News	0	0	0	0	0	0
Other content	5	17	10	26	16	74

The top three live broadcasts showed the scenes of the demonstrations. Many people were demonstrating on the street, nonetheless there was no scene of conflict between the police and the demonstrators. The main reactions of these posts are "like" and "love", and the main content in the comments is also "support ... movement" and "Bless... Hong Kong" (Table 17). The fourth post is about the press conference of Carrie Lam. She apologized for causing the disturbance in Hong Kong's amendments and said that the amendments would be suspended. In the comments on this post, the voices supporting the movement have been greatly reduced, and the comments supporting the government have increased. The main reactions of this post are "like" and "angry", and the main content of the comments are Criticism of the government and Neutral comments. The fifth-ranked post was about a live broadcast of the demonstration, with a number of scenes of police confronting the demonstrators. Although there is no picture of violent conflict, unlike the previous three live posts, the main reactions of this post are "like" and "sad", and the main content of the comment are Neutrality and Opposition to the amendment. We also found that among the comments of 4 posts on the live parade, many users from other countries watched and left messages to Support and Encourage the Hong Kong's movement, mainly in the categories 'of Express Love for Hong Kong (21%).

By observing the content of the comments in the first period, we found that the live broadcast of peaceful demonstrations was supported by users and received the most participation. During this period, users who opposed the amendment and supported the movement (42.3%) were in the majority. When there were scenes of confrontation between police and demonstrators, users' attitudes changed, with more Neutral views and fewer views Supporting the movement. Many users are dissatisfied with the government's actions, but under the posts about the statements of government, there are more voices supporting the government. When the posts are about the government or police and protesters, people's expressions tend to be neutral, and there are fewer comments with clear attitudes.

Table 18 Analysis of comments on the top 5 posts on September 4-10 (in order of total comments number)

	1-Protests on Sunday spiralled into chaos as police and demonstrators clashed in the heart of Hong Kong.	2-More than 100 pupils took part in a protest outside a Hong Kong school after claims it would expel students and staff taking part in a class boycott.	3-Woman says she needed stitches on her head after Hong Kong police beat her at Siu Hong MTR station and she now supports probe into their use of force	4-Hong Kong police dismiss accusations of excessive force at Prince Edward MTR station and obstructing press during bus arrests in Kowloon Bay	5-Hong Kong leader Carrie Lam unmoved by tycoon Li Ka-shing's call for 'mercy' on anti-government protesters	total (N=1000)
Reactions related	like + sad	like + sad	like + angry	like + angry	like + angry	N
Oppose the amendment/ Support the movement, or think that the amendment is unreasonable	15	21	4	4	2	46
Criticize government/leader	3	4	10	12	37	66
Love Hong Kong, or less love Hong Kong	4	0	2	0	0	6
Neutral point of view	50	36	88	51	75	300
Criticize police violence	9	0	17	45	5	76
Criticize Violent Demonstrations/Student Demonstrations	69	96	12	11	30	218
Support the government/Leader/ police	7	4	14	32	28	85
Criticism of Fake News	1	0	33	11	0	45
Other content	42	39	20	34	23	158

In the content of September 4-10, the most commented post was related to the conflict between police and protesters. This video post showed that a large number of communal facilities were destroyed, demonstrators vandalized public property, and the conflict between police and demonstrators. The main reactions of this post are "like" and "sad", and the main content of the comments is to Oppose Violent Demonstrations and Neutral commentary. On September 4, the SCMP published a video post of pupil's strike, showing students wearing masks on demonstration. The main reactions of this post are "like" and "sad", and the main content of the comments is Oppose student demonstrations and Neutral comments. On September 6th, the SCMP published a piece of news that "an innocent woman was assaulted by the police". The news described the police's use of violence, but it was questioned by users. Some users doubted the authenticity of the news, and some users suspected that the interviewee was lying. The main reactions of this post are "like" and "angry", but the main content of the comment is Neutral and Critical of Fake News.

In the comments on posts in September (Table 18), users no longer supported the amendment, they switched to supporting the government and police. In the post of students' strike on September 4, what users opposed is the students' demonstrations, not the violent demonstrations like in other posts. There are two posts about the statements of the police and Carrie Lam. The main reactions of these two posts are also "like" and "angry". The main content of the comments is Neutral Comments, Criticism of Police Violence and Accuse Government.

By observing the content of the comments in the second period, we found that when comes posts referred to the statements of the police and government, users always expressed dissatisfaction reactions like "angry", but there comes more comments of supporting for the government and the police, so did the comments about Neutral Comments. When the posts were related to the protesters, users' showed "sad" emotions, and the comments Against Violent Demonstrations were particularly prominent.

By categorizing the content of comments, we get data from two thousands comments, as shown in Table 19.

Table 19 categorization of comments

	12-18 /06/2019 (n=1000)		04- 10/09/2019 (n=1000)	
Oppose the amendment/support the movement, or think that the movement inspires people	423	42,3%	46	4,6%
Blaming Hong Kong's Government/Chinese Government/Leader	93	9,3%	66	6,6%
Bless Hong Kong, or express passion for Hong Kong	210	21%	6	0,6%
The neutral point of view such as descriptions of the movement or vague stances	159	15,9%	300	30%
Criticize police violence	13	1,3%	76	7,6%
Criticize Violent Demonstrations/Student Demonstrations	3	0,3%	218	21,8%
Support amendments/oppose movements	8	0,8%	0	0%
Support the government/Leader / police	17	1,7%	85	8,5%
Criticism of Fake News	0	0%	45	4,5%
Other content	74	7,4%	158	15,8%

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The Changes of Climate of Opinion

Compared with the first wave, the media released 7 live posts on demonstrations in June, which received a lot of participation (include view,

reactions and comments). There were no live posts in the second wave, and the content turned into opinion-based posts, including violent demonstrations, conflicts between protesters and police, which topic were most concerned by users. The attitude towards the amendment became more negative. There were no more posts supporting the amendment during the second period, and the attitude towards the amendment fell from -0.2 to -0.294. The accusation of police use of violence has been shown in posts since June 13, but there are fewer related posts in the first wave, and more posts in the second wave. Except

for two Neutral-view posts that defend the police, the others are all about criticism of the police, the attitudes' toward the police dropped from -0.176 to -0.353. On June 13, Carrie Lam's interview post accused the demonstrators of violent behavior. In the first wave, the media discussed little about the protesters, but views of two sides are presented. In the second wave, as the discussion on the demonstrators increased, posts on violent demonstrations gradually gained the upper hand, and the attitude towards the demonstrators rose from 0 to 0.235. Based on the 3 indicators of disputes, the media's opinions about disputes became extreme (Chart1).

Chart 1 Climate of Opinion on Hong Kong's Movement - Media SCMP

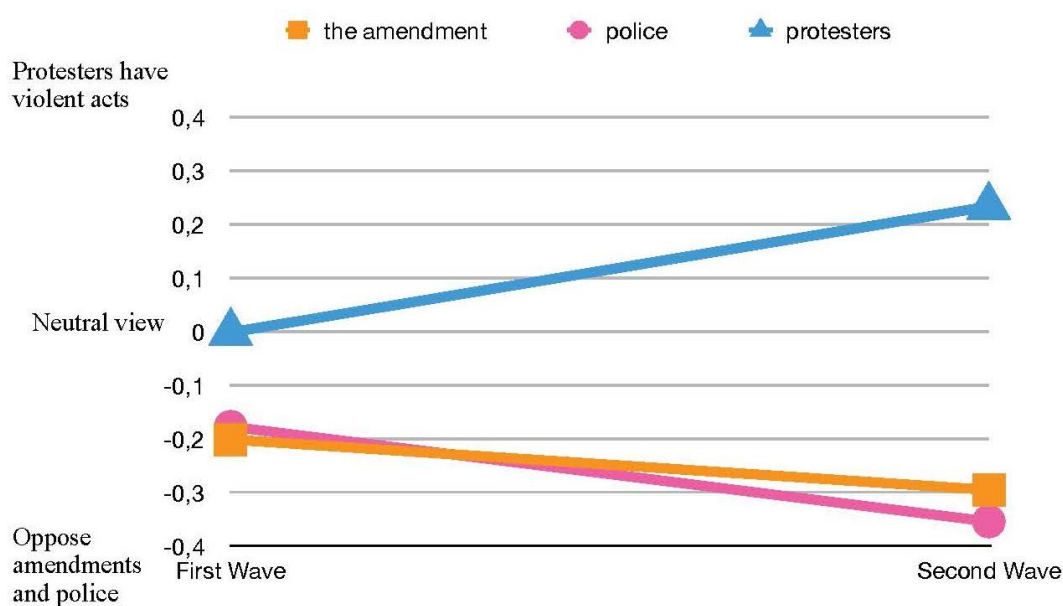
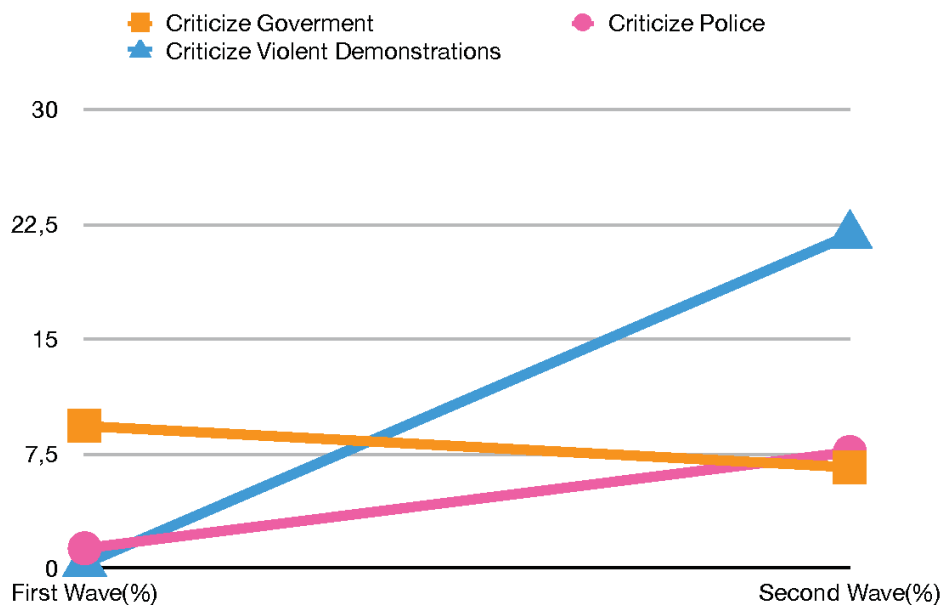


Chart 2 Climate of Opinion on Hong Kong's Movement - Users' Comments



Analyzing and comparing the content of comments (Chart2), we found that users' opinions have become diversified and scattered. The main types of comments in the first wave are: Opposition to the Amendment, Bless Hong Kong, and Neutral comments. These three categories accounted for 79.2% of the comment samples. The main types of comments in the second wave are: Neutral comments, Opposition of violent demonstrations, and other comments. These three types account for 64.6% of the comment sample. A few people began to express their opinion. The support rate for the government rose from 2.5% to 8.5%, and the criticism of the government fell from 9.3% to 6.6%. In the second wave, the number of comments Supporting the movement has decreased significantly, from 42.3% to 4.6%. Comments Against Violent Demonstrations increased significantly, from 0.3% to 21.8%. Comments Criticizing Police Violence rose from 1.3% to 7.6%. The comments with Neutral opinions increased, from 15.9% to 30%.

From the analysis of the content of media posts (Chart 1), we conclude that the content of media reports is tend to: Opposing the Government's Amendments, Criticizing the Police of Violence, and Criticizing the Violent Behavior of Protesters. From categories of comments (Chart 2), we extract the corresponding comments. Among them, there is a clear upward trend in comments Against Violent

Demonstrations, while attitudes toward the Government have slightly improved in a good way, and there have been slightly increasing comment to Criticize the Police.

4.4. Other Findings

Another issue that clearly contrasts between the two periods is the comments on Fake News. From the second wave, opinions questioning fake news in the comments began to appear. On September 6, the SCMP published a post in which a Hong Kong citizen stated that he was innocently injured by the police. Lots of comments on this post questioned the authenticity of the news. On September 4, the SCMP published a posts "Hong Kong police dismiss accusations of excessive force at Prince Edward MTR station and obstructing press during bus arrests in Kowloon Bay", in which the police defended their actions. Some netizens questioned the authenticity of the police statement. Those content showed that, as users 'opinions diversify, users 'trust in posts decreases.

Moreover, there are many comments from foreign users below the first wave of the live broadcast posts. The Hong Kong's Movement occurred under the tension of the Sino-US trade war and quickly became a global sensation. It received attention from media and politicians of other country. In the first period, the SCMP published two posts about American politicians 'views on Hong Kong's amendments. In the video post released, images of foreign demonstrators participating in demonstrations were also found (Figure 7). Among the live broadcast comments, the comments classified as "Bless Hong Kong" gathered comments from users' from many countries (Figure 8). This also shows that the demonstrations of Hong Kong have received widespread attention, and under the platform of Facebook, hot topics can attract distant followers. But in the second wave, when the issues discussed in the media tended to be social issues and more in-depth views expressed, the number of foreign followers decreased significantly.

Figure 7 Screenshot of Video footage released by SCMP



The Other category of comments in the comments increased from 7.4% in the first period to 15.8% in the second period. Some Other and Neutral comments reflected social and international issues, such as Sino-US relations and Hong Kong's wealth gap. In the theoretical part, this research mentioned the pressure and social status quo encountered by Hong Kong youth. Similar questions were expressed in comments on a post "Hong Kong leader Carrie Lam unmoved by tycoon Li Ka-shing's call for 'mercy' on anti-government protesters". Through these comments, we can see some users' in-depth views on these issues. As the protest movement progressed, the media's position on the main contradictions became more firm and extreme, but the users' views became more diverse and the discussions deepened. When a controversial topic lasts longer, people's views on the issue became more deeply, even became less influenced by the media. People's initial understanding of things is shaped by the media. As their understanding of events becomes more comprehensive, their thoughts become more independent and the influence of the media decreases.

In short, the views of media coverage have a great impact on users. The SCMP's early live coverage of protests movements received support and attention from users. Although there were no opinion output, the live coverage of the event itself is a way to support the rights for people to peacefully demonstrate. Thus, the media's content has attracted the attention of a large number of local and global

users. At the same time, findings showed that the media presenting multiple views of society would help users understand the facts and express their opinions. By observing the types of posts in the SCMP, the study found that the more controversial and more related to users' interests a post have, the more discussions it will cause. Conversely, posts that are less caring or opinion-less to users will trigger fewer discussions. On the whole, the content of SCMP's posts has changed from neutrality to diversified opinions, and the type of posts has changed from live demonstrations to analysis of social issues. There have been fewer users' participation (of some foreign users), but the content of comments tends to be diversified, and minority voices have increased. The diverse expression of the media will provide more space for democratic discussions. From a critical point of view, although new technologies, such as live broadcasts, allow more people to participate in the discussion, however if there is no output of opinions on events, which are likely to aggravate the pressure of online public opinion. When majority opinions become stronger, a few people are reluctant to speak up.

5. Result and Discussion

To test the the Spiral of silence effect in Facebook, this study intended to explore when and how people participate in discussions through the social network, and the possible impact of the media environment to users. For this purpose, a quantitative research was conducted to observe the potential opinion cues (media content and user-generated comments) and explore how recipients can issue views, opinions, and actions under these cues.

By observing the climate of opinions, through the case study, the present findings showed that the greater the perceived opinion congruence with Facebook users, the more willing were subjects to participate in this discussion. This can be seen from the ratio of users 'reactions and engagements to posts and comment types. When users have more angry emotions about a piece of news (usually are those reports about police or government), and the news also caused lot of criticism in comments; when users showed more sad emotions about one post (usually are those reports about protesters or riot scenes), more neutral comments and doubts appear in the comments; when a post has more love emotions (usually are live video on movements), there have more supportive voices appear in the comments. In other words, when subjects perceived that the prevailing norm or opinion deviated from their own, they were more inclined to keep silent and to not contribute to the discussion (Noelle-Neumann, 1974).

However, as the event developed, the expression of minority's opinion is accompanied by the climate of opinion leaded by media. When the public and media have more in-depth political discussions, as the importance of issues and the knowledge of public about issues became more in-depth, the few people who insist on their opinions are more willing to express themselves. This can be seen from the changes in comments. After analyzing the comments in the two waves, the comments supporting the police and the government are always a small part. However, in the second wave, the comments supporting the police have increased significantly. On the contrary, in the first wave, the comments supporting the movements and opposing the amendment (majority) accounted for 42.3% of the total sample. In the second wave, it dropped significantly to 4.6%. This change is not consistent with the climate of opinions created by the media. In the second

wave, the media's opposition to the amendments is more clear, and also pointed more frequently about the violence of police. The tendencies of climates between media and followers are different. This can explain that in the context of South China Morning Post's page, the vocal minority still feels comfortable in expressing discourse refer to Hong Kong's movement. Even though this finding goes against what the Spiral of silence theory would predict, there are some previous studies that may explain such result. The concept of the Spiral of silence reserves the possibility of changing society to those who either know no fear of isolation or have overcome it.

In addition, the non-electoral political issues, users participating in discussions online are affected by the globalization, many issues (such as the Hong Kong movement) have attracted the participation of many non-local netizens. For example, in first wave, there have lots of posts about live video on demonstrations. Among the comments on these posts, a large number of comments about supporting movements and Hong Kong, those were commented from other countries. The comments that supporting movements were majority. However, in the comments on posts that are not about the demonstrations, the comments of foreign users have been greatly reduced. At the same time, other types of comments have increased, the types of comments have become diversified, and the minority opinions have also been expressed more. In this context, we found that the degree of participation does not completely indicate the degree of democratization of political discussions. When the discussion environment become more diverse and in-depth, the more the public understands issues, and the more they are willing to speak up.

This is similar to the view of Chadwick (2020), he thought it is a challenge that research on digital media and politics has tended to employ the engagement gaze. By the 'engagement gaze' he means that much research on digital media has assumed that more engagement unproblematically creates more democratic goods for the media system and the polity, which is worth rethinking, which is worth rethinking nowadays.

This result also shows that people are paying more and more attention to their own opinions on social media, they are more willing to maintain their opinions, and have less trust in the media and politics. From the case of SCMP, we

can see that in the second wave, there have more users questioned the authenticity of the news. Users began to question whether the news is fake, due to the problem of disinformation in recent years. In a sense, however, such questioning is an expression to defense of one's views. On the other hand, such comments generated require digital media to be more objective and transparent.

Based on this result, we propose a reflection - When a controversial topic lasts longer, people's views on the issue became more deeply, less influenced by the media. People's initial understanding of things is generally shaped by the media. As their understanding of events becomes more comprehensive, their thoughts become more independent and the influence of the media decreases.

Limitation and Future

Further more, this section acknowledges overarching limitations of the present line of research. One important limitation of the current studies pertains to their fixation with the social networking platform Facebook, as a major part of the empirical evidence at hand referred to this particular technology. This approach was selected because Facebook is worldwide the most popular social media technology (Alexa, 2016) and because using the same platform across different studies allows a certain comparability among these.

Still, it is logical to ask to what extent the observed mechanisms are applicable to other social networking services such as Twitter, Instagram, Whatsapp, or Sina Weibo. Following the above line of reasoning that situational circumstances intervene in silencing processes, the question of generalizability should be treated with appropriate caution and launch a discussion about commonalities and differences between these platforms. Social networking services such as Twitter, Instagram, or Sina Weibo may be similar to Facebook with regard to the networked, albeit not always visible, audience including strong and weak ties and a dynamic stream of real-time messages generated by users (comprising proprietor content or comments; cf. Walther & Jang, 2012). There are, however, differences between the platforms' features: On Facebook and Sina Weibo, numeric user representations are expressed through the Reactions button, while Twitter and Instagram offers a "heart" button. Messages are restricted to 140 characters on

Twitter, while Facebook and Instagram allow longer texts to be written. These technological differences could challenge the effects observed here, for instance, asking whether hearts on Twitter are interpreted differently from reactions on Facebook when it comes to estimating the public agreement on a particular issue (Neubaum, 2016). In addition to technical differences, there are other differences that cannot be ignored: the way people usually use these platforms. First of all, the fact that Facebook is the most popular among these SNSs may lead to the conclusion that the platform implies the greatest non anonymity openness (Neubaum_Diss, p264). It seems conceivable that Facebook or Twitter, which are increasingly used for politically and civically relevant purposes (Gil de Zúñiga & Shahin, 2015; Vaccari et al., 2015), are perceived as more appropriate spaces to express one's opinion on a controversial public issue than the social networking service Instagram, which is commonly used to display one's creativity in the form of pictures and videos (Sheldon & Bryant, 2016).

The second limitation lies in the objects selected, which is also a choice guided by the characteristics of the facebook and the Hong Kong media environment. The experimental objects of the traditional SOS theory are voters of a country, that is, citizens of their own country who have the right to vote. These individuals have the same cultural background, are in the same real society. The difference is, social media platforms have weakened geographical distances, making long-distance interaction possible. And as an online phenomenon (cyberbalkanization 2), people seek out only like-minded others and thereby close themselves off from ideological opposition (p12). In this context, the facebook platform includes multiple online societies. Hong Kong's pro-Beijing media's performance on Facebook is relatively weak, the pro-democracy media is active. This two type of medias cannot be effectively compared and analyzed. Therefore, the media environment selected in this study has certain limitations. However, considering that this study uses qualitative research methods to explore whether traditional theoretical phenomena is effective on social networks, the purpose is to discover the development of non-election political discussions on social networks, and to study in what kind of climate of opinion, people are more willing to participate in discussions. Did not focus on the macroscopic quantitative research,

so it is not the objective of this research to estimate the overall situation on SNS of the theory.

The third general limitation lies in the macro view of the process of monitoring and expressing opinions on social networking sites, which is at the same time the advantages and disadvantages of this work. On the one hand, this method helps to clarify how users are influenced by suggestions. On the other hand, this work can only observe how group users react in the macro social dynamics. It observes the changes of opinion clues over a period of time, and evaluates how opinions on the interaction of climate of opinion factors affect people's outspoken, and finally form a new climate for opinions. Without focusing on the psychological mechanism, it is impossible to determine the reason for the silence. In order to evaluate the user's reaction and attitude to the opinion climate on SNS, further investigations can be conducted in the future to evaluate the root cause of silence.

Due to the limitations of this work, a variety of development directions have been provided for future research. This section also introduce the directions worthy of follow-up research.

Environmental factors pertaining to a technology could influence the third phase, that is, the process of people's opinion expression. Nonetheless, it also seems conceivable that environmental factors such as the publicness of a communication channel can also be influential in the second stage, that is, people's perceptions of the opinion climate. Do people allocate more attention to user-generated comments when they know that these messages have been or will be met with great public attention? Do highly public user-generated comments shape people's inferences about public opinion to a greater extent than comments written in less public environments? According to the idea of the third-person effect, namely, that people tend to assume that others are more influenced by media coverage with wide public attention than themselves, one could argue that people presume that also user comments generating wide attention will affect other people's opinions, aligning their perception of the opinion trend accordingly (cf. Gunther, 2014).

Beside the media, the influence of Internet celebrities, major mobilizers of social movements, and other new opinion leaders who rely on social networks are

gradually expanding. For example, the Brazilian influencer Felipe Neto has more than 39.3 million followers on YouTube, and Hong Kong youth Joshua Wong has more than 500,000 Facebook followers, they even have more followers than some traditional media. The influence of these opinion leaders' participation in political discussions on individuals may be greater than comments generated by strangers encountered in SNS. In terms of contextual variables affecting the monitoring process, the relationship to the originator of opinion cues may deserve further scholarly attention. Drawing on the claim that for people the opinion climate among reference groups may be more important than the opinion distribution among unknown others (Salmon & Kline, 1985), it is possible that people's fear of isolation is a stronger predictor for the attention they allocate to opinion cues generated by strong ties than to those generated by strangers (Neubaum, 2016).

Future research can analyze the reasons for silence from the psychological level through direct communication with users, as well as the individual's assessment and reaction to the opinions of other users, using qualitative methods such as questionnaires or interviews to deeply explore the reason that people's participation in discussions or refusal to discuss. Furthermore, big data analysis can also be used. These technologies can enhance insights into behavioral data and allow observation of opinions over a longer period of time, thereby providing more comprehensive clues to the spiral process. Whereas the current findings indicate that people's outspokenness under the influence of the media is indeed influenced by public opinion, but it also depends on the degree to which people believe in the correctness of their views and are fully committed to this issue. Members of minorities who may consistently and confidently present their viewpoint are able to penetrate the public scene through social networking platforms (cf. Moscovici, 1976).

6. Conclusion

This political communication research analyzed the impact of digital media on public opinion. The survey aims to analyze the opinions and expressions surrounding the proposed theme, using case study as a research strategy, and adopting methods such as frame methods and qualitative content analysis. Starting from this concept, question are raised: In the 2019 Hong Kong protests, is there came a Spiral of silence phenomenon on social media? In order to understand these issue, based on the Spiral of silence hypothesis, this study manually analyzed 76 posts on the Facebook website of the South China Morning Post and 2,000 public comments. The development of the theory Spiral of silence (Noelle-Neumann, 1974) pointed out that people retain their opinions when they think that the climate of opinion is contrary to their own opinions, and this silence will increase over time. The background of the research is the Hong Kong Anti-Extradition Law Amendment Bill movement. This special background has innovative significance, enriching empirical research on Eastern countries, and providing new ideas for non-campaigns political participation research.

This is a qualitative and interpretive study that observes how users participate in political. By testing the traditional theory of the Spiral of silence on Facebook, we observed the climate of opinions in the homepage of the neutral media South China Morning Post, and reflected on new problematics in the Internet. And to explore under what climate of opinions, users 'political participation is more democratic? This study used the method of framing analysis and coding, observing the climate of opinions through manual analysis. This kind of interpretative and qualitative research can have an in-depth observations of Hong Kong cases and facilitate the interpretation of the public opinion online.

Existing researches have provided some explanations for the Spiral of silence phenomenon on the Internet. An experiment by Ho and McLeod (2008) indicated that users may see the Internet as a place for egalitarian participation, because people are more willing to join a discussion with a hostile opinion climate in virtual chats than in a face-to-face setting (Neubaum, 2016). Chaudhry and Gruzdz (2019) 's analysis shows that on Facebook, a predominantly nonanonymous and moderated platform, the vocal minority are comfortable expressing unpopular

views, questioning the explanatory power of this popular theory in the online context. They believe that social media provides users with a platform where unpopular perspectives can be expressed online.

Nevertheless, there are many existing studies have found a phenomenon Spiral of Silence online. Gearhart and Zhang's (2015) results show that the Spiral of silence theory is alive and well in certain online environments such as Facebook given its social and quasi-public nature. Varying SNS uses and encountered opinion climates produce differential results. In other words, opinion expression in SNSs may exert dual silencing and liberating effects.

Yun and Park (2011) applied the Spiral of silence theory to both anonymous and non-anonymous online contexts. Consistent with the theory, results showed that participants were more willing to post a comment in the friendly condition compared to the hostile condition. Neubaum's(2016) research on facebook shows that, the more people tend to fear isolation, the greater attention they allocated to comments, as they reported retrospectively.

Hoffmann and Lutz's (2017) research find that network heterogeneity increases the perception of the opinion climate as adverse, which, in turn leads to self-censorship. They confirms that the SNS context exerts both nourishing and inhibiting influences on young users 'political engagement. On the one hand, SNS facilitate access to political information and discourses, the support the publication and sharing of political content. On the other hand, online ties on SNS tend to be embedded in diverse social contexts ("context collapse"). Managing online boundaries may therefore necessitate a restrictive tailoring of online messages to select audiences. A heterogeneous personal network on SNS may trigger political self-censorship and inhibit political engagement. Chaudhry and Gruz'd's (2020) found that due to Facebook users often use their real names and profile pictures when participating in online discussions on the platform, it may heighten their fear of being verbally abused, harassed, or even socially isolated due to their viewpoints. This, in turn, makes Facebook an ideal environment to study the potential application of the Spiral of silence theory in a context where most participants cannot hide behind the anonymity that other social media platforms might promote or advertise as a key defining feature.

These existing studies show that although more and more people in the Internet are willing to speak up, the Spiral of silence exists online. People like to express their opinions in a friendly environment. And due to the characteristics of social media, it is easier for people to monitor the climate of opinions. Therefore, people could be silent because of self-censorship.

In this case study, the Hong Kong Movements mobilized more than 1 million people in Hong Kong to participate. These activities are closely related to the political participation, work and life of Hongkongers. On February 13, 2019, the Hong Kong government officially announced that it would amend the "Fugitive Offenders Ordinance" and "Mutual Legal Assistance in Criminal Matters Ordinance", deleting the original provisions stipulating that the extradition legislation does not apply to the restrictions of Mainland China, Macau and Taiwan. The amendment has caused some opposition from Hong Kong. As the bill allows extradition of Hong Kong criminal suspects to mainland China for trial, opponents worry that Hong Kong's status as an independent jurisdiction under "one country, two systems" will be weakened. Large-scale demonstrations continued for several months. While the demonstrations gradually turned into violent conflicts, at the same time, the contradictions also expanded from "opposition to the amendment" to "against police law enforcement" and "dissatisfaction with the government".

In the political life of Hong Kong, even though it's sovereignty was returned to China in 1997, the city state still retains a relatively large degree of autonomy under China's "one country two systems" principle (Chan, 2016). The lack of universal suffrage for the executive and legislative branches of government means that mass mobilizations of street rallies and protests are often the means of expressing discontent with the government and exerting influence on policy and public opinion (Lee & Chan, 2011). Hong Kong political parties can be roughly divided into three categories: pro-Beijing camp, pro-democracy camp and localist groups. Regarding the government's policies, the opposition actively spoke out in real life and on the Internet, claiming to fight for citizens' interests. The voice from the government is weak because the majority of citizens who understand and support "one country, two systems" are silent political conservatives or older people who do not have much knowledge and use of the Internet. Most young people in

Hong Kong use social media to understand Hong Kong's political development (Huang & Cai, 2018). In the current Hong Kong network, huge part of the young generation is against Hong Kong's government and pro-Beijing politics. As far as practical's problems are concerned, Hong Kong youths generally believe that high property prices and rents not only affect the living needs of young people, but also hinder their development space and life planning, and bring insecurity to Hong Kong youths (Liu, 2016). Hong Kong's Internet environment, citizens' political participation, and the influence of the media provides a suitable environment for the study of the SOS effect on the Internet.

The study of the Hong Kong case can contribute to the research of the democratic movement on social network. Based on Hong Kong's political system, residents and the media can freely express their support for different parties, and citizens' political participation has been increasing since Hong Kong's return. According to the Press Freedom Index published annually by Reporters Without Borders, Hong Kong stood at 73rd in 2019, by comparison, Brazil stood at 105th in 2019, and the United States stood at 48th. Therefore, the case of Hong Kong is representative and comparable, which can be compared with the communication studies of other democratic countries.

As a case study, we chose the Facebook page of the South China Morning Post, a traditional Hong Kong media. This is a newspaper with a neutral view. It is Hong Kong's newspaper of record, owned by Alibaba Group. The newspaper's circulation has been relatively stable for years—the average daily circulation stood at 100,000 in 2016. In a 2019 survey by the Chinese University of Hong Kong, the SCMP was regarded as the most credible paid newspaper in Hong Kong. Upon having been acquired by Alibaba, the new owners announced that the paywall would be removed. The paywall was subsequently removed on the night of 4 April 2016. By doing so, SCMP wished to increase its readership globally and allow the global community to have access to its news of China. The media selected is fulfilling the following criteria: (1) has a large reach among the audience and agenda-setting power for politicians and other media; (2) represents both up-market and mass-market journalism; and (3) includes different political leanings.

We collected public Facebook comments posted in response to news stories published by SCMP on their official Facebook page (www.Facebook.com/scmp). During the data collection period (in May), the South China Morning Post page received about 2,383mil likes and 3,658,007 followers (May 26). During the period of Hong Kong movements, it provided multi-angle reports including pictures, videos, and news. Another reason for choosing facebook is that it provides users with "various spaces of participation" (van Es, van Geenen, & Boeschoten, p. 9), allowing users to participate in controversial topics.

With the help of an application called Facepager, we collected 76 individual posts featuring different news stories published by SCMP. Since our study focused on how Facebook users expressed about Hongkong moviment discourse, we narrowed the initial sample of 76 posts to only those news stories that mentioned or referenced HongKong's moviment in a general sense. Following this process, a total of 37 articles were identified as relevant for the focus of this study. The study manual analyze the content of posts within two period. Then, accumulates and classify the responses of the posts of the SCMP in each period. Tracking and comparing the above those variables in two different periods can help to find the impact of the "opinion climate" on the user's behavior and attitude.

According to the data and analysis of the research, our finding is that under the homepage of the South China Morning Post, posts with media opinions can easily guide the trend of public opinion. The users who agree more with media, the more willing they have to participate in this discussion. In other words, when the individual believes that the general norms or public opinions deviate from their own opinions, they are more inclined to remain silent and not make any contribution to the discussion.

However, as the event developed, the expression of minority's opinion is accompanied by the climate of opinion leaded by media. When the public and media have more in-depth political discussions, as the importance of issues and the knowledge of public about issues became more in-depth, the few people who insist on their opinions are more willing to express themselves. This can explain that in the context of South China Morning Post's social media, the vocal minority still feels comfortable in expressing discourse refer to Hong Kong's movement. Even

though this finding goes against what the Spiral of silence theory would predict, there are some previous studies that may explain such result. The concept of the Spiral of silence reserves the possibility of changing society to those who either know no fear of isolation or have overcome it.

In addition, the non-electoral political issues, users participating in discussions online are affected by the globalization, many issues (such as the Hong Kong movement) have attracted the participation of many non-local netizens. In this context, we found that the degree of participation does not completely indicate the degree of democratization of political discussions. When the discussion environment becomes more diverse and in-depth, the more the public understands issues, and the more they are willing to speak up.

This result also shows that people are paying more and more attention to their own opinions on social media, they are more willing to maintain their opinions, and have less trust in the media and politics. Users began to question whether the news is fake, due to the problem of disinformation in recent years. In a sense, however, such questioning is an expression to defend one's views. On the other hand, such comments generated require digital media to be more objective and transparent.

Based on this result, we propose a reflection - When a controversial topic lasts longer, people's views on the issue become more deeply, less influenced by the media. People's initial understanding of things is generally shaped by the media. As their understanding of events becomes more comprehensive, their thoughts become more independent and the influence of the media decreases.

In terms of contextual variables affecting the monitoring process, the relationship to the originator of opinion cues may deserve further scholarly attention. Drawing on the claim that for people the opinion climate among reference groups may be more important than the opinion distribution among unknown others (Salmon & Kline, 1985), it is possible that people's fear of isolation is a stronger predictor for the attention they allocate to opinion cues generated by strong ties than to those generated by strangers (Neubamn, 2016).

Except for the media, the influence of Internet celebrities, major mobilizers of social movements, and other new opinion leaders who rely on social networks are gradually expanding. For example, the Brazilian influencer Felipe Neto has more than 39.3 million followers on YouTube, and Hong Kong youth Joshua Wong has more than 500,000 Facebook followers, they even have more followers than some traditional media. The influence of these opinion leaders' participation in political discussions on individuals may be greater than comments generated by strangers encountered in SNS.

We acknowledge overarching limitations of the present line of research, this work can only observe how group users react in the macro social dynamics. It observes the changes of opinion clues over a period of time, and evaluates how opinions on the interaction of climate of opinion factors affect people's outspokenness, and finally form a new climate for opinions. Without focusing on the psychological mechanism, it is impossible to determine the reason for the silence. In order to evaluate the user's reaction and attitude to the opinion climate on SNS, further investigations can be conducted in the future to evaluate the root cause of silence.

Future research can analyze the reasons for silence from the psychological level through direct communication with users, as well as the individual's assessment and reaction to the opinions of other users, using qualitative methods such as questionnaires or interviews to deeply explore the reason that people's participation in discussions or refusal to discuss. Furthermore, big data analysis can also be used. These technologies can enhance insights into behavioral data and allow observation of opinions over a longer period of time, thereby providing more comprehensive clues to the spiral process.

7. References

- Akgül, M., & Kırıldoğ, M. (2015). Internet censorship in Turkey. *Internet Policy Review*, 4(2). doi:10.14763/2015.2.366.
- Alexa (2016). *The top 500 sites on the web*. Retrieved from <http://www.alexa.com/topsites>.
- Allcott, H., M. Gentzkow. (2017). Social Media and Fake News in the 2016 Election. *Journal of Economic Perspectives*, 31 (2): 211–236. doi:10.1257/jep.31.2.211.
- Allport, F. H. (1937). Toward a science of public opinion. *Public Opinion Quarterly*, 1, 7–23. doi:10.1086/265034.
- Barnhurst, K.G. (2011). The New "Media Affect" and the Crisis of Representation for Political Communication. *International Journal of Press/Politics*, 16(4), 573–593. DOI: 10.1177/1940161211415666.
- Barthel, M., A. Mitchell, and J. Holcomb. 2016. "Many Americans believe that fake news is sowing confusion." *Pew Research Center*, December 15, 2016.
- Bennett, W. L., & Iyengar, S. (2008). A new era of minimal effects? The changing foundations of political communication. *Journal of Communication*, 58, 707 – 731.
- Bennett, W. L., Livingston, S. (2018). The disinformation order: Disruptive communication and the decline of democratic institutions. *European Journal of Communication*, Vol. 33(2) 122–139. doi:10.1177/0267323118760317.
- Bennett, W. L., Pfetsch, B. (2018). Rethinking Political Communication in a Time of Disrupted Public Spheres. Oxford University Press, *Journal of Communication*, 68 (2018) 243–253. Revisited from: <https://academic.oup.com/joc/article-abstract/68/2/243/4958957>.
- Berelson, B. (1952). Democratic theory and public opinion. *Public Opinion Quarterly*, 16, 313–330. doi:10.1086/266397.
- Bimber, B. (1998). The Internet and political transformation: Populism, community, and accelerated pluralism. *Polity*, 31, 133–160. doi:10.2307/3235370.
- Bimber, B., Flanagin, A. J., & Stohl, C. (2005). Reconceptualizing collective action in the contemporary media environment. *Communication Theory*, 15(4), 365e388.
- Blumler, J.G. (2016). The fourth age of political communication. *Politiques de Communication*, 6(1): 19–30.

Bode, L., Vraga, E. K., Borah, P., & Shah, D. V. (2014). A new space for political behavior: Political social networking and its democratic consequences. *Journal of Computer-Mediated Communication*, 19, 414–429. doi:10.1111/jcc4.12048.

Bodor, T. (2012). The issue of timing and opinion congruity in spiral of silence research: Why does research suggest limited empirical support for the theory? *International Journal of Public Opinion Research*, 24(3), 269–286. doi:10.1093/ijpor/eds016.

Bourdieu, P. (1979). Public opinion does not exist. In A. Mattelart & S. Siegelau (Eds.), *Communication and class struggle* (pp. 124–130). New York, NY: International General.

Brainard, L.A. (2009). Cyber-communities. In H.K. Anheier & S. Toepler (Eds.), *International encyclopedia of civil society*. (pp. 587–600) New York, NY: Springer Science & Business Media.

Bryce, J. (1888). *The American Commonwealth*. London, UK: Macmillan.

Cao, W., Ding, R. (2019). Hong Kong media in integration and transformation is very cautious. *China Press, Publication, Radio and Television*. 22/01/2019, edition, 006.

Chadwick, A. (2020). Four challenges for the future of digital politics research. Revisited From: <https://www.e-elgar.com/shop/gbp/a-research-agenda-for-digital-politics-9781789903089.html>.

Chan, C., F. K. (2017). The Relationship Between Cyberbalkanization and Opinion Polarization: Time-Series Analysis on Facebook Pages and Opinion Polls During the Hong Kong Occupy Movement and the Associated Debate on Political Reform. *Journal of Computer-Mediated Communication*. doi:10.1111/jcc4.12192.

Chan, M. (2016). Social Network Sites and Political Engagement: Exploring the Impact of Facebook Connections and uses on Political Protest and Participation. *New York University*. <http://dx.doi.org/10.1080/15205436.2016.1161803>.

Chaudhry, I., Gruz, A. (2020) Expressing and Challenging Racist Discourse on Facebook: How Social Media Weaken the “Spiral of Silence” Theory. *Policy Studies Organization*. doi: 10.1002/poi3.197.

Chen, H., Chan, M., & Lee, F. (2016). Social media use and democratic engagement: a comparative study of Hong Kong, Taiwan, and China. *Chinese Journal of Communication*. doi: 10.1080/17544750.2016.1210182.

Coleman, S.; Blumler, J. G. (2010). The Internet and Democratic Citizenship: Theory, Practice and Policy. *Cambridge: Cambridge University Press*.

Converse, P. E. (1987). Changing conceptions of public opinion in the political process. *Public Opinion Quarterly*, 51, 12–24. doi:10.1093/poq/51.4_PART_2.S12.

Curtis, A. R. (2015). From Arab Spring to Shahbag: The role of social media in terms of national crisis. *Journal of Mass Communication & Journalism*, 5(2), 241. doi:10.4172/21657912.1000241.

Dahlberg, L. (2001a). The Internet and democratic discourse: Exploring the prospects of online. Deliberative forums extending the public sphere. *Information, Communication & Society*, 4, 615–633. doi:10.1080/13691180110097030.

Dahlberg, L. (2001b). Computer-mediated communication and the public sphere: a critical analysis. *Journal of Computer-Mediated Communication*, 7, Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/j.10836101.2001.tb00137.x/full>.

Dahlberg, L. (2007). Rethinking the fragmentation of the cyberpublic: from consensus to contestation. *New Media & Society*, 9, 827–847. doi:10.1177/1461444807081228.

Dahlgren, P. The Internet, Public Spheres, and Political Communication: Dispersion and Deliberation. *Political Communication*, vol. 22, n.2, p.147-162, 2005.

Davis, R. (1999). The web of politics: The Internet's impact on the American political system. New York, NY: Oxford University Press.

De Vreese, C. H., & Boomgaarden, H. (2003). Valenced news frames and public support for the EU. *Communications*, 28, 361–381. doi:10.1515/comm.2003.024.

Denzin, N.K.; Lincoln, Y.S. (2018). The Sage Handbook of Qualitative Research. Fifth Edition. *Los Angeles: Sage*.

Dewey, J. (1927). The public and its problems. New York, NY: Holt, Rinehart & Winston.

DiMaggio, P., Evans, J., & Bryson, B. (1996). Have American's social attitudes become more polarized? *American Journal of Sociology*, 690–755. <https://doi.org/10.1086/230995>.

Donsbach, W., & Traugott, M. W. (2008). Introduction. In W. Donsbach & M. W. Traugott (Eds.), *The SAGE handbook of public opinion research* (pp. 1–5). London, UK: SAGE.

Dubrovsky, V. J., Kiesler, S., & Sethna, B. N. (1991). The equalization phenomenon: Status effects in computer-mediated and face-to-face decision making groups. *Human-Computer Interaction*, 6, 119–146. doi:10.1207/s15327051hci0602_2.

Dylko, I., & McCluskey, M. (2012). Media effects in an era of rapid technological transformation: A case of user-generated content and political participation. *Communication Theory*, 22(3), 250–278. doi:10.1111/j.1468–2885.2012.01409.x.

Eilders, C., & Porten-Cheé, P.(2016). Political Communication in the Online World. *Taylor & Francis*, 93.

Ellison, N. B., & boyd, d. (2013). Sociality through social network sites. In Dutton, W. H. (Ed.), *The Oxford handbook of Internet studies* (pp. 151–172). Oxford, UK: Oxford University Press.

Ellison, N. B., & Vitak, J. (2015). Social network site affordances and their relationship to social capital processes. In S. S. Sundar, (Ed.), *The handbook of the psychology of communication technology* (pp. 205–227). Malden, MA: Wiley-Blackwell.

Elsihar-Malka, V., Ariel, Y, Weimann, G. (2020). Rethinking political communication in the digital sphere. *The Journal of International Communication*. DOI: 10.1080/13216597.2020.1771397.

Entman, R. M. (1993). Framing: Towards clarification of a fractured paradigm. *Journal of Communication*, 43(4), 51–58. doi:10.1111/j.1460-2466.1993.tb01304.x.

Esser, F. (2019). Comparative international studies of election campaign communication: What should happen next? *Journalism*, 1-15.

Farkas, J., Schou, J., Neumayer, C. (2018). “Cloaked Facebook Pages: Exploring Fake Islamist Propaganda in Social Media.” *New Media & Society*, 20 (5): 1850–67. <https://doi.org/10.1177/1461444817707759>.

Fu, K. W., Chan, C. H. (2015). Networked Collective Action in the 2014 Hong Kong Occupy Movement: Analysing a Facebook sharing network. *Journalism and Media Studies Centre*. <http://hub.hku.hk/handle/10722/211040>.

Gallup, G., Rae, S. (1940). The pulse of democracy: The public opinion poll and how it works. New York, NY: Simon and Shuster.

Gearhart, S., Zhang, W. (2013). Gay bullying and online opinion expression: Testing spiral of silence in the social media environment. *Social Science Computer Review*. doi: 10.1177/0894439313504261.

Gearhart, S., Zhang, W. (2015). “Was It Something I Said?” “No, It Was Something You Posted!” A Study of the Spiral of Silence Theory in Social Media Contexts. *Cyberpsychology, Behavior, And Social Networking*, Volume 18, Number 4. doi: 10.1089/cyber.2014.0443.

Gerodimos, R., Justinussen, J. (2015). Obama’s 2012 Facebook campaign: Political communication in the age of the like button. *Journal of Information Technology & Politics*, 12(2), 113–132. doi:10.1080/19331681.2014.982266.

Guess, A., Nagler, G., Tucker, J. (2019). Less than you think: Prevalence and predictors of fake news dissemination on Facebook. Revisited From: <http://advances.sciencemag.org>.

Habermas, J. (1962). *Strukturwandel der Öffentlichkeit: Untersuchungen zu einer Kategorie der bürgerlichen Gesellschaft* [The structural transformation of the public sphere. An inquiry into a category of bourgeois society]. Neuwied, Germany: Luchterhand.

Hacker, K. L., van Dijk, J. (2000). What is digital democracy? In K. L. Hacker & J. van Dijk (Eds.), *Digital democracy: Issues of theory and practice* (pp. 1–9). Thousand Oaks, CA: SAGE.

Hampton, K.N., H. Rainie, W. Lu, M. Dwyer, I. Shin, and K. Purcell. 2014. *Social Media and the 'Spiral of Silence'*. Washington, DC: Pew Research Center.

Heiss, R., Schmuck, D., Matthes, J. (2019). What drives interaction in political actors' Facebook posts? Profile and content predictors of user engagement and political actors' reactions. Profile and content predictors of user engagement and political actors' reactions, *Information, Communication & Society*, 22:10, 1497-1513, DOI: 10.1080/1369118X.2018.1445273.

Hill, K. A., Hughes, J. E. (1998). *Cyberpolitics: Citizen activism in the age of the Internet*. Lanham, MD: Rowman & Littlefield.

Ho, S. S., Chen, V. H. H., Sim, C. (2012). The spiral of silence: Examining how cultural predispositions, news attention, and opinion congruency relate to opinion expression. *Asian Journal of Communication*, 23(2), 113e134.

Ho, S. S., McLeod, D. M. (2008). Social-psychological influences on opinion expression in face-to-face and computer-mediated communication. *Communication Research*, 35, 190–207. doi:10.1177/0093650207313159.

Hoffmann, C. P., Lutz, C. (2017). Spiral of Silence 2.0: Political Self-Censorship among Young Facebook Users. *Association for Computing Machinery*. <http://dx.doi.org/10.1145/3097286.3097296>.

Howard, P. N. (2006). *New Media Campaigns and the Managed Citizen*. Cambridge: Cambridge University Press.

Howard, P. N., Parks, M. R. (2012). Social media and political change: Capacity, constraint, and consequence. *Journal of Communication*, 62, 359–362. doi:10.1111/j.1460-2466.2012.01626.x.

Huang, Y., Cai, G. (2018). The Influence of "Citizen Journalists" and Social Media on Hong Kong Youth's Political Trends and Countermeasures. doi: 1009-5446(2018)01-0045-06.

Ituassu, A. (2019). *Digital media and public opinion in Brazil after Trump 2016*. London: openDemocracy. Retrieved from: <https://www.opendemocracy.net/en/democraciaabierta/public-opinion-in-brazil-afterthe-campaigns-of-trump-and-bolsonaro/>.

Ituassu, A., Capone, L., Murta, F., La Rovere, R., Mannheimer, V. (2016). Digital Responsiveness: The Internet and Democratic Representation. In: C. Muñiz; A.R. Saldierna; F. de J. Maraño; L. Maldonado (Orgs.) *Estudios sobre Comunicación Política en Latinoamérica*. Monterrey, Fontamara, 277-300.

Iyengar, S. (1987). Television news and citizens' explanations of national affairs. *American Political Science Review*, 81, 815–831.

Iyengar, S., Kinder, D. R. (1987). *News that matters*. Chicago: University of Chicago Press.

Jang, S. M., Lee, H., Park, Y. J. (2014). The more friends, the less political talks? Predictors of Facebook discussion among college students. *Cyberpsychology, Behavior, and Social Networking*, 17, 271–275. doi:10.1089/cyber.2013.0477.

Jeffres, L. W., Neuendorf, K. A., Atkin, D. (1999). Spirals of silence: Expressing opinions when the climate of opinion is unambiguous. *Political Communication*, 16(2), 115e131.

Karlsson, M. (2013). Representation as interactive communication. *Information, Communication & Society*, 16, 1201-1222. doi: 10.1080/1369118X.2012.757633.

Kassner, M. P., Wesselmann, E. D., Law, A. T., Williams, K. D. (2012). Virtually Ostracized: Studying ostracism in immersive virtual environments. *Cyberpsychology, Behavior, and Social Networking*, 15(8), 399e403.

Kim, C., Yang, S.-U. (2017). Like, comment, and share on Facebook: How each behavior differs from the other. *Public Relations Review*, 43(2), 441-449.

Knobloch-Westerwick, S., Meng, J. (2011). Reinforcement of the political self through selective exposure to political messages. *Journal of Communication*, 61, 349 – 368.

Krosnick, J. A., Boninger, D. S., Chuang, J. C., Berent, M. K., Carnot, C. G. (1993). Attitude strength: One construct or many related constructs? *Journal of Personality and Social Psychology*, 65, 1132–1151.

Kwon, K. H., Moon, S. I., Stefanone, M. A. (2015). Unspeaking on Facebook? Testing network exposure effects on self-censorship of political expressions in social network sites. *Quality and Quantity*, 49, 1417–1435. doi:10.1007/s11135-014-0078-8.

Kwon, K. H., Moon, S. I., Stefanone, M. A. (2015). Unspeaking on Facebook? Testing network exposure effects on self-censorship of political expressions in social network sites. *Quality and Quantity*, 49, 1417–1435. doi:10.1007/s11135-014-0078-8.

Lau, S. K (1984): *Society and politics in Hong Kong*, Hong Kong, The Chinese University Press.

Lee, F. (2005). Collective Efficacy, Support for Democratization, and Political Participation in Hong Kong. *Oxford University Press on behalf of The World Association*. doi:10.1093/ijpor/edh105.

Li, F. (2020). Social Movements, Media, and Information Politics in the Post-truth Era: The Experience of Hong Kong's Anti-Regulation Movement. *Chinese Communication Society*. DOI: 10.3966/172635812020060037001.

Lilleker, D. G. (2016). Comparing online campaigning: The evolution of interactive campaigning from Royal to Obama to Hollande. *French Politics*, 14(2), 234–253. doi:10.1057/fp.2016.5.

Lippmann, W. (1922). *Public opinion*. New York, NY: Harcourt Brace Jovanovich.

Lippmann, W. (1925). *The phantom public*. New York, NY: Harcourt Brace Jovanovich..

Lippmann, Walter. [1922, 1954]1965. *Public Opinion*. New York: Macmillan—Paperback edition 1965, New York: Free Press.

Liu, Q. (2016). Internet Media and Research on the Political Tendency of Hong Kong Youth. doi: 10.13583/j.cnki.issn 1004-3780.2016.04.015.

Liu, Q. (2017). The "Localization" Trend of Hong Kong Youth Political Participation and Its Response. *Chinese Youth Social Science*. doi: 10.16034/j.cnki.10-1318/c.2017.02.007.

Luhmann, Niklas. (1971). "Öffentliche Meinung." In *Politische Planung: Aufsätze zur Soziologie von Politik und Verwaltung*, 9-34. Opladen: Westdeutscher Verlag. First published in 1970 in *Polotische Vierteljahresschrift* 11, no. 1:2-28; reprinted 1974 in *Zur Theorie der politischen Kommunikation*, ed. Wolfgang R. Langenbucher, 27-54, 311-17; Munich: R. Piper & Co.; and 1979 in *Politik und Kommunikation: Über die öffentliche Meinungsbildung*, ed. Wolfgang R. Langenbucher, 29-61. Munich and Zurich: R. Piper & Co.

Mackinnon, W. A. (1828). *On the rise, progress, and present state of public opinion: In Great Britain, and other parts of the world*. London, UK: Saunders and Otley.

Maher, T. M. (2001). Framing: An emerging paradigm or a phase of agenda setting? In S. D. Reese, O. H.

Maier, M.A. (2017). Content Analysis: Advantages and Disadvantages. In: Mike Allen. *The SAGE Encyclopedia of Communication Research Methods*. Thousand Oaks: SAGE.

Matthes, J. (2012). Framing politics: An integrative approach. *American Behavioral Scientist*, 56, 247259. doi:10.1177/0002764211426324.

McDevitt, M., Kioussis, S., Wahl-Jorgensen, K. (2003). Spiral of moderation: Opinion expression in computer-mediated discussion. *International Journal of Public Opinion Research*, 15, 454–470. doi:10.1093/ijpor/15.4.454.

Messing, S., Westwood, S. J. (2014). Selective exposure in the age of social media: Endorsements trump partisan source affiliation when selecting news online. *Communication Research*, 41, 1042–1063. doi:10.1177/0093650212466406.

Metzger, M. J. (2009). The study of media effects in the era of Internet communication. In R. L. Nabi, & M. B. Oliver (Eds.), *The Sage handbook of media processes and effects* (pp. 561e576). Los Angeles, CA: Sage.

Miners, N. (1991): The government and politics of Hong Kong, Hong Kong, Oxford University Press.

Müller, J.M. Democracy and a Changing Public Sphere. No prelo, s/d.

Muñiz, C., Alvidrez, S., Téllez, N. (2015). Shaping the Online Public Debate: The Relationship Between the News Framing of the Expropriation of YPF and Readers ' Comments. *International Journal of Communication*, 3245–3263. Revisited From: <http://ijoc.org>.

Neubaum, G. (2016). Monitoring and Expressing Opinions on Social Networking Sites Empirical Investigations based on the Spiral of Silence Theory. *Universitätsbibliothek Duisburg-Essen*. Duisburg, Essen. https://duepublico2.unidue.de/servlets/MCRFileNodeServlet/duepublico_derivate_00042707/Neubaum_Diss.pdf.

Neuman, W. R., Just, M. R., Crigler, A. N. (1992). Common knowledge. Chicago: University of Chicago Press.

Neuman, W. R., Park, Y. J., Panek, E. (2012). Tracking the flow of information into the home: An empirical assessment of the digital revolution in the U.S. from 1960–2005. *International Journal of Communication*, 6, 1022–1041.

Noelle-Neumann, E. (1974). The spiral of silence: A theory of public opinion. *Journal of Communication*, 24(2), 43–51.

Noelle-Neumann, E. (1993). The spiral of silence: *Public opinion—Our social skin*. Chicago, IL: Chicago University Press.

Noelle-Neumann, E. (2001). Die Schweigespirale. *Öffentliche Meinung—Unsere soziale Haut*. München, Germany: Langen Müller.

Norris, P. (2000). Editorial: Information poverty and the wired world. *The Harvard International Journal of Press/Politics*, 5(3), 1–6. doi:10.1177/1081180X00005003001.

Norris, P. (2001). Digital divide: Civic engagement, information poverty, and the Internet worldwide. Cambridge, UK: Cambridge University Press.

Pan, Z., Kosicki, G. M. (1993). Framing analysis: An approach to news discourse. *Political Communication*, 10, 59–79.

Pang, N., Ho, S. S., Zhang, A. M. R., Ko, J., Low, W. X., Tan, K. (2016). Can spiral of silence and civility predict click speech on Facebook? *Computers in Human Behavior*. <http://dx.doi.org/10.1016/j.chb.2016.07.066>.

Papacharissi, Z. (2004). Democracy online: Civility, politeness, and the democratic potential of online political discussion groups. *New Media & Society*, 6, 259–283. doi:10.1177/1461444804041444.

Papacharissi, Z. (2008). The virtual sphere 2.0: The Internet, the public sphere and beyond. In A. Chadwick (Ed.), *Handbook of Internet politics* (pp. 230–245). London, UK: Routledge.

Peräkylä, A., Ruusuvuori, J. (2018). Analyzing Talk and Text. In: N.K Denzin; Y.S. Lincoln. The Sage Handbook of Qualitative Research. Fifth Edition. *Los Angeles: Sage*.

Peter, J. (2004). Our long “return to the concept of powerful mass media” A cross-national comparative investigation of the effects of consonant media coverage. *International Journal of Public Opinion Research*, 16(2), 144–168.

Piñeiro-Naval, V., Mangana, R. (2019). La presencia del framing en los artículos publicados en revistas hispanoamericanas de comunicación indexadas en Scopus. *Palabra Clave*, 22(1), e2216. doi: 10.5294/pacla.2019.22.1.6.

Pool, C., Nissim, M. (2016). Distant supervision for emotion detection using Facebook reactions. arXiv preprint arXiv:1611.02988.

Price, V. (1992). Public opinion. Newbury Park, CA: SAGE.

Rød, E. G., Weidmann, N. B. (2015). Empowering activists or autocrats? The Internet in authoritarian regimes. *Journal of Peace Research*, 52, 338–351. doi:10.1177/0022343314555782.

Roessing, T. (2009). *Öffentliche Meinung—Die Erforschung der Schweigespirale*. Baden-Baden, Germany: Nomos.

Rössler, P., Schulz, A. (2014). Public opinion expression in online environments. In W. Donsbach, C. T. Salmon, & Y. Tsfati (Eds.), *The spiral of silence: New perspectives on communication and public opinion* (pp. 101–118). New York, NY: Routledge.

Ryan, C., Carragee, K. M., Meinhofer, W. (2001). Theory into practice: Framing, the news media, and collective action. *Journal of Broadcasting and Electronic Media*, 45, 175–182. doi:10.1207/s15506878jobem4501_11.

Salgado, S., Stanyer, J. (2019). Perceptions of Populism and the Media: A Qualitative Comparative Approach to Studying the Views of Journalists and Politicians. In: Carsten Reinemann; James Stanyer; Toril Aalberg; Frank Esser; Claes H. de Vreese. *Communicating Populism: Comparing Actor Perceptions, Media Coverage, and Effects on Citizens in Europe*. New York, *Routledge*.

Scherer, H., Tiele, A., Naab, T. (2006). Die Theorie der Schweigespirale: Methodische Herausforderungen und empirische Forschungspraxis. In W. Wirth, A. Fahr, & E. Lauf (Eds.), *Forschungslogik und-design in der Kommunikationswissenschaft* (pp. 107–138). Köln, Germany: Herbert von Halem.

Scheufele, B. (2006). Frames, schemata, and news reporting. *Communications*, 31, 65–83. doi:10.1515/commun.2006.005.

Scheufele, D. A., Moy, P. (2000). Twenty-five years of the spiral of silence: A conceptual review and empirical outlook. *Journal of Public Opinion Research*, 12(1), 3–28.

Schmitz, J., Rogers, E. M., Phillips, K., Paschal, D. (1995). The Public Electronic Network (PEN) and the homeless in Santa Monica. *Journal of Applied Communication Research*, 23, 26–43. doi:10.1080/00909889509365412.

Schulz, A., Roessler, P. (2012). The spiral of silence and the Internet: Selection of online content and the perception of the public opinion climate in computer-mediated communication environments. *International Journal of Public Opinion Research*, 24(3), 346–367. doi:10.1093/ijpor/eds022.

Schwandt, Gates, 2018 (estudo de caso).

Semetko, H. A., Valkenburg, P. M. (2000). Framing European Politics: A Content Analysis of Press and Television News. *Journal of Communication*.

SEMETKO, H.; TWORZECKI, H. (2018). Campaign strategies, media and voters: The fourth era of political communication. In: Fisher J, Fieldhouse E, Franklin M, et al. (eds) *The Routledge Handbook of Elections, Voting Behavior and Public Opinion*. New York: Routledge, 293–303.

Seo, H., Thorson, S. J. (2012). Networks of networks: Changing patterns in country bandwidth and centrality in global information infrastructure, 2002–2010. *Journal of Communication*, 62, 345358. doi:10.1111/j.1460-2466.2012.01631.x.

Siegel, J., Dubrovsky, V., Kiesler, S., McGuire, T. W. (1986). Group processes in computer-mediated communication. *Organizational Behavior and Human Decision Processes*, 37, 157187. doi:10.1016/0749-5978(86)90050-6.

Smieško, I. (2016). Criminal Liability of Facebook Reaction Buttons in Environment of the Slovak Republic as a Form of Hate Speech. *Societas et Iurisprudentia*, 4, 213.

Speier, H. (1950). Historical development of public opinion. *American Journal of Sociology*, 55, 376-388. doi:10.1086/220561.

Sproull, L., Kiesler, S. (1986). Reducing social context cues: Electronic mail in organizational communication. *Management Science*, 32, 1492-1512. doi:10.1287/mnsc.32.11.1492.

Stokmann, D., Luo, T. (2019). Digital Media and Democratic Futures. *University of Pennsylvania Press*, 174-196.

Stoycheff, E. (2016). Under Surveillance: Examining Facebook's Spiral of Silence Effects in the Wake of NSA Internet Monitoring. *Journalism & Mass Communication Quarterly*. doi: 10.1177/1077699016630255.

Stromer-Galley, J. (2000). Online interaction and why candidates avoid it. *Journal of Communication*, 50(4), 111-132. doi:10.1111/j.1460-2466.2000.tb02865.x.

Sunstein, C. R. (2001). *Republic.com*. Princeton, NJ: Princeton University Press.

Sunstein, C. R. (2008). Neither Hayek nor Habermas. *Public Choice*, 134, 87-95. doi:10.1007/s11127007-9202-9.

Taddicken, M. (2014). The 'privacy paradox' in the social web: The impact of privacy concerns, individual characteristics, and the perceived social relevance on different forms of self-disclosure. *Journal of Computer-Mediated Communication*, 19, 248-273. doi:10.1111/jcc4.12052.

Tandoc Jr, E. C., Lim, Z. W., Ling, R. (2018). "Defining "Fake News": A Typology of Scholarly Definitions." *Digital Journalism*, 6 (2): 137-153. doi:10.1080/21670811.2017.1360143.

Tian, Y., Galery, T., Dulcinati, G., Molimpakis, E., Sun, C. (2017). Facebook Sentiment: Reactions and Emojis. *SocialNLP 2017*, 11.

Tufekci, Z., Wilson, C. (2012). Social media and the decision to participate in political protest: Observations from Tahrir Square. *Journal of Communication*, 62, 363-379. doi:10.1111/j.14602466.2012.01629.x.

Valkenburg, P. M., Semetko, H. A., De Vreese, C. H. (1999). The effects of news frames on readers' thoughts and recall. *Communication Research*, 26, 550-569. doi:10.1177/009365099026005002.

Van Alstyne, M., Brynjolfsson, E. (1996). Electronic Communities: Global Villages or Cyberbalkanization? (Best Theme Paper). ICIS 1996 Proceedings, 5.

Van Dijk, J. (2000). Widening information gaps and policies of prevention. In Hacker, K., & van Dijk, J. (Eds.), *Digital democracy: Issues of theory and practice* (pp. 166-183). London, UK: SAGE.

Van Dijk, J., Hacker, K. (2003). The digital divide as a complex and dynamic phenomenon. *The Information Society*, 19, 315–326. doi:10.1080/01972240390227895.

Vargo, C. J., Guo, L., McCombs, M.E., Shaw, D. (2014). Network Issue Agendas on Twitter During the 2012 U.S. Presidential Election. *Journal of Communication*, 64(2), 296-316. DOI: 10.1111/jcom.12089.

Waisbord, S. (2017). Michael Schudson's contributions to political communication research. An Argument for Contrarian Thinking. *Journalism Studies*. doi: 10.1080/1461670X.2017.1338150.

Walther, J. B., Jang, J.-W. (2012). Communication processes in participatory websites. *Journal of Computer-Mediated Communication*, 18, 2–15. doi:10.1111/j.1083-6101.2012.01592.x.

Weedon, J., Nuland, W., Stamos, A. (2017). Information operations and Facebook. Facebook, 27 April. Available at: <https://fbnewsroomus.files.wordpress.com/2017/04/facebook-and-information-operations-v1.pdf>.

Weimann, G. (2017). “Multistep Flow of Communication: Evolution of the Paradigm.” In *The International Encyclopedia of Media Effects*. Chichester, UK: John Wiley & Sons. doi:10.1002/9781118783764.wbieme0055.

Wilhelm, A.G. (2000). *Democracy in the digital age: Challenges to political life in cyberspace*. London, UK: Routledge.

Willnat, L. (1996). Mass media and political outspokenness in Hong Kong: linking the third-person effect and the spiral of silence. *International Journal of Public Opinion Research*. Vol. 8 No. 2.

Wojcieszak, M. (2010). ‘Don't talk to me’: effects of ideologically homogeneous online groups and politically dissimilar offline ties on extremism. *New Media & Society*, 12, 637–655. doi:10.1177/1461444809342775.

Yun, G. W., Park, S.-Y. (2011). Selective posting willingness to post a message online. *Journal of Computer-Mediated Communication*, 16, 201–227.

Zhang, H. (2016). The political power of social media in Hong Kong. China: *Journal of Liaoning Socialist College*. doi: 1672-4496(2016)03-111-06.

Zhao, S., Grasmuck, S., Martin, J. (2008). Identity construction on Facebook: Digital empowerment in anchored relationships. *Computers in Human Behavior*, 24, 1816–1836. doi:10.1016/j.chb.2008.02.012.

Zillmann D., Bryant, J. (Eds.). (1985). *Selective exposure to communication*. Hillsdale, NJ: Lawrence Erlbaum Associates.