How Facebook Functions in a Social Movement: An Examination

Using the Web Mining Approach

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Abstract

Social media is becoming more and more important in social movements. This study, adopting the web mining approach, attempts to investigate how social media, Facebook in particular, functioned in the "May 25 Protest" and the "May 27 Protest", two movements which broke out in Macao on 25 and 27 May 2014, respectively, against the Retirement Package Bill. In the two protests, Macao residents deployed Facebook to share information and motivated people's participation. Twelve events (181,106 people invited) and 36 groups/pages (41,266 members) related on Facebook were examined. Results showed that the information flow on Facebook fluctuated in accordance with the event development in reality. Multiple patterns of manifestation, such as video of adopted news or songs, designed profile (protest icon), original ironic pictures, self-organized clubs by undergraduates and white T-shirts as a symbol, among others, appeared online and interacted with offline actions. It was also found that social media assisted the information diffusion and provided persuasive reasons for netizens to join the movement. Social media helped to expand movement influence in providing a platform for diversified performances for actions taken in a protest, which could express and develop core and consistent movement repertoire.

Keywords: Social Media, Social Movement, Facebook, Macao

Introduction

Information communication technologies (ICT), social media in particular, have become an indispensable part of our daily life. Questions remain to be answered by scholars who study how they actually function in social movements in the political arena. In the past few years, there have been a number of Facebook fan pages created by social activists attempting to organize and plan demonstrations against corporations, the government, or other power entities in Hong Kong, Taiwan, and Macao. In May 2014, the protest against the Retirement Package Bill in Macao provided us an opportunity to conduct a deeper examination on how these Facebook pages functioned. Social and political organizations and associations motivated around 20,000 Macao residents (this number was estimated by the organizers; the police however counted only 7,000 attendees in the protest) to participate in the May 25 and the May 27 protests in 2014, against the bill which was considered to be awarding generous retirement packages to the Chief Executive and the principal high-ranking officials. The residents in the two protests received immediate and massive information via smartphones and online social media. The protests eventually led to the withdrawal of the bill. Evidence was clear that ICT has not only reinforced the effectiveness of information exchange, but has also mobilized people's participation in social movements.

Literature Review

It is generally recognized that Facebook has become a virtual public sphere where individuals exchange ideas on international and local affairs (Bennett, 2003; Castells, 2007) by posting comments, sharing information, "liking," inviting others to participate events, and/or organizing online and offline actions. Previous research shows interest in social media activism in an effort to explain the evolution of social and political revolutions as well as the role of alternative media, such as in the case of the Occupy Wall Street demonstrations (Preston, 2011), the Iranian election in 2009 (Gaffney, 2010), the turmoil in Egypt, Libya, and Tunisia in 2010 (Eltantawy & Wiest, 2011) and so forth.

Social Movement

Tilly (2004), a sociologist, expressed in his book *Social Movement* that "local populations are more likely to experiment with a social movement towards democratization, and when successful, are more likely to incorporate it into their political struggles." Scholars Snow, Soule, and Kriesi (2004) defined social movements as

> …one of the principal social forms through which collectivities give voice to their grievances and concerns about the rights, welfare, and well-being of themselves and others by engaging in various types of collective action, such as protesting in the streets, that dramatize those grievances and concerns and demand that something be done about them. (p. 3)

Giddens (1985) has identified four areas in which social movements operate in modern societies:

1. Democratic movements that work for political rights;

2. Labor movements that work for control of the workplace;

3. Ecological movements that are concerned with the environment;

4. Peace movements that work toward, well, peace (p. 318-320).

As noted in the book, Tilly (2004) characterizes social movements based on three elements:

1. A sustained, organized public effort making collective claims on target authorities; let us call it a *campaign;*

2. Employment of combinations from among the following forms of political action: creation of special-purpose associations and coalitions; public meetings; solemn processions; vigils; rallies; demonstrations; petition drives; statements to and in public media; pamphleteering; call the variable ensemble of performances the *social movement repertoire;*

3. Participants' concerted public representations of WUNC: worthiness, unity, numbers, and commitment on the part of themselves and/or their constituencies; call them *WUNC displays.* (p. 3-4)

As for the development of social movement, Blumer (1969), Mauss (1975) and Tilly (1978) have described different stages of social movement, going through "Emerge, Coalesce, Bureaucratise, Changes and Decline".
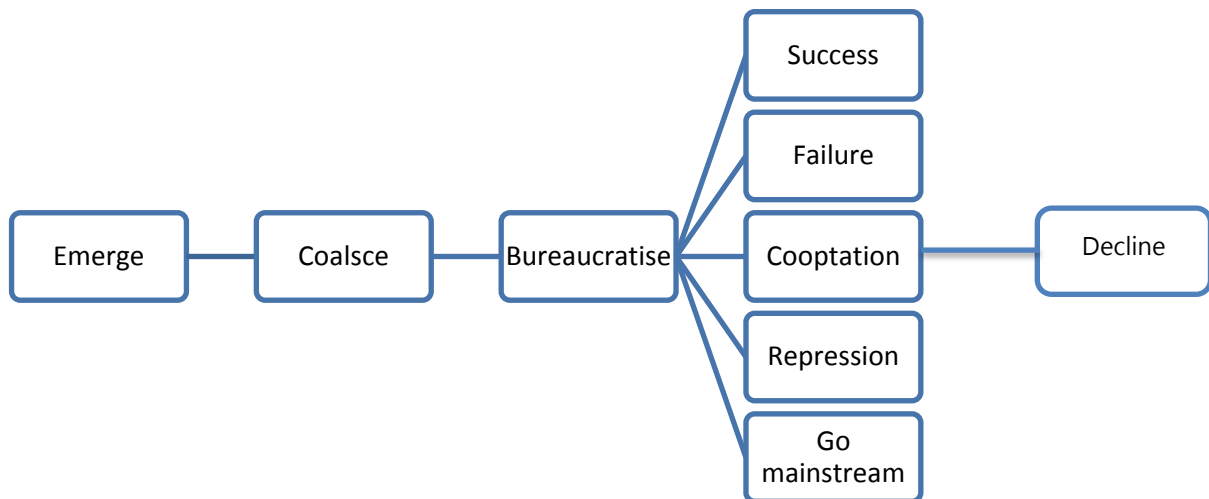
Stages of Social Movement (Blumer, 1969; Mauss, 1975; Tilly, 1978)

Having reviewed the previous research regarding social movements, it can be seen that the two protests against the Retirement Package Bill belonged to the "democratic movements that work for political rights" (Gidden, 1985). Citizens of Macao who objected to government corruption and were concerned about the bill demonstrated. Unlike traditional social movements, Macao's people were aware of the issue and gathered themselves via online channels, namely social media.

Social Movement in Macao

Like Hong Kong, Macao is a Special Administrative Region of the People's Republic of China. After the handover of Macao to China (in 1999), the traditional pattern for interaction was gradually broken and different social classes began to fight for the interests of their groups (Liang, 2012). Cai (2013) listed 12 mass demonstrations between 2006 to 2010 in Macao, with grassroots or vulnerable groups being the main participants. Cai also concluded new features of social movement after Macao's handover: a) higher frequency; b) more aggressive; c) larger in scale; 4) more diversified in demand.

The Role of Social Media in Social Movements

Social media empowers the mass to be involved in and have a great influence in politics. As the Turkish Prime Minister fears, social media may have "the power of mass protests to topple governments" (Shirky, 2011).

Caren and Gaby (2011) tracked the role of Facebook in the movement of Occupy Wall Street in New York City on September 17, 2011. They found that Occupy groups have recruited over 170,000 active Facebook users and more than 1.4 million "likes" in support of Occupations. On October 11, occupy activity on Facebook peaked with 73,812 posts and comments on an occupy page in a day. By October 22, there had been 1,170,626 total posts or comments associated with Occupation pages. They found that Facebook is the most prominent social networking site associated with the movement.

As for Euromaidan protests which happened in the Ukraine in February 2014, Social Media and Political Participation Lab at New York University had been closely following social media activity related to the protests since they began in November. The number of tweets mentioning the main hashtag used by protestors, #Euromaidan, steadily increased over the day on February 18 as protests in the square became more violent. Over 250,000 tweets concerning protest hashtags were posted on February 19. Their findings suggested that social media continue to be a pivotal organizational tool for those in Kiev and also the most relevant mechanism for disseminating and exchanging information both within the Ukraine and abroad, as they have been throughout these protests. Furthermore, activity on social media is incredibly responsive to events on the ground (Barberá & Metzger,2014).

For the relationship between social media and social movement, scholars (Neumayer and Raffl, 2008; Samuels, 2011) believe social networks are tools that facilitate collective awareness and mobilization globally and allow for the creation of a community that interacts with individuals to change politics. As social media change the communication relationship among people, many-to-many communication has potential to take part in social movements (Spier, 2011), offering the possibility of organizing social movements without an organization. Information dissemination via social media is more speedy and efficient, which can bring down the costs for social movement participants and organizers (Spier, 2011).

Shirky (2008) explored the connections between social media and collective action in his book *Here Comes Everybody: The Power of Organizing Without Organizations.* Shirky outlined three components that new media provided to collective action: promise, tools, and bargain (PTB).

1. Promise provides the basic reason for individuals to join a social movement or take part in collective action.

2. Tools, in the sense of ICTs and social media platforms, assist the coordination and execution of a social movement or a collective action.

3. Bargain describes the methods of action, rules and norms followed etc. It can be addressed as methods of framing processes, the methods formed and followed, as well as the methods of aggregation and utilization of resources.

American scholar Lynch carried out a research on the Egyptian Uprising in 2011, and drew four distinct ways by which the new media can be seen as challenging the power of Arab states. The new media could affect the incidence and impact of collective action through a wide range of mechanisms:

1. Reduced transaction costs; the new media may promote the collective actions by lowering the barriers to communication and organization.

2. Informational cascades raise participants' expectation on reaching collective action's claims;

3. Increased costs of repression;

4. Extended scale and diffusion; the new media help affect international support of the regime (Lynch, 2011, pp.304-305).

In addition to the positive attitude towards the role of social media in social movement, some scholars raised concerns on the limitation of social media's functions. Gladwell (2010) had reservations about social media's effects in social movements in the article "Small Change." He said that the platforms of social media are built around weak ties. Facebook has an obvious advantage in the field of managing acquaintances. It is easier and more convenient to have more friends in the virtual world than real

society. Facebook constructs "networks, which are the opposite, in structure and character, of hierarchies."(pp. 4)

Weak ties attribution of social media may lower the threshold of participating in social movements. However, demonstrations are high-risk activism, demanding "strong-tie" organization.

> The Internet lets us exploit the power of these kinds of distant connections with marvelous efficiency. It's terrific at the diffusion of innovation, interdisciplinary collaboration, seamlessly matching up buyers and sellers, and the logistical functions of the dating world. But weak ties seldom lead to high-risk activism. (Gladwell, 2010, p. 3)
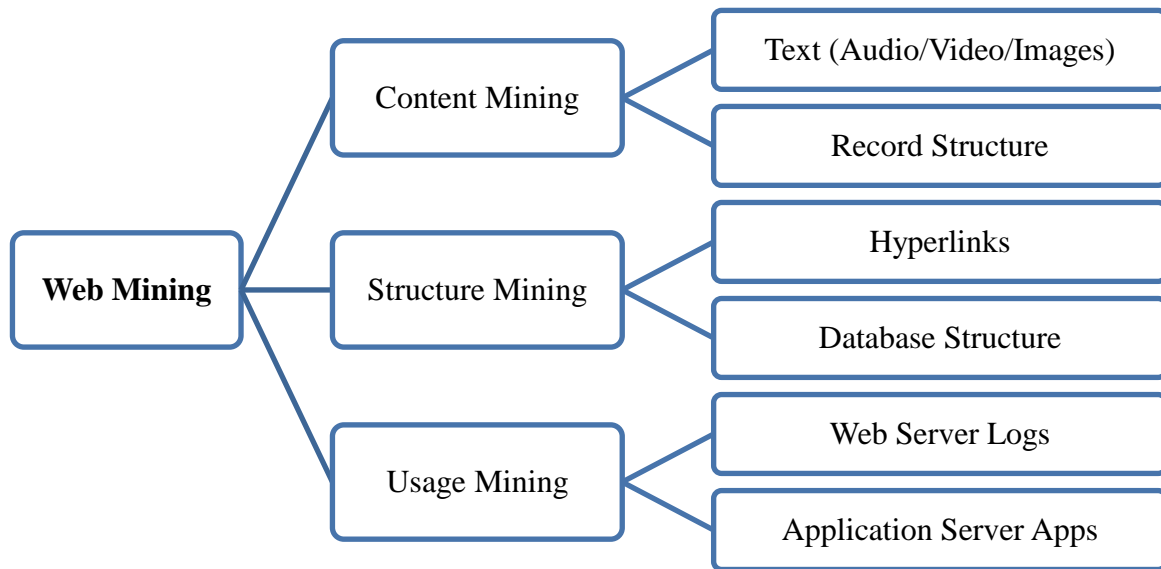
Web Mining Approach

Traditional social science methods seem to have difficulty capturing the ongoing information flow in social media, which is operated in a real-time manner and at a huge volume. In order to record the whole process of the social movement, we have adopted the web mining approach, which is a common way to conduct data mining on the World Wide Web. For analyzing targets, web mining can be divided into three categories: web usage mining, web content mining and web structure mining (Herrouz, Khentout, & Djoudi, 2013).

1. Content Mining: under content mining, the analysis unit is an individual document, which is each web page. Text mining techniques can be applied, for the semi-structured nature of web pages, or structured information extracted from unstructured web sites.

2. Structure Mining: this method views the web as a directed graph, with the web pages (or whole web sites) being the vertices, and are connected by hyperlinks. Structure and content mining approaches are often combined.

3. Usage Mining: based on records of requests of visitors of a web site, usage mining method analyzes the web server logs.

Web Mining Taxonomy (Herrouz et al., 2013)

For web content mining, two analysis approaches are dominant, 1) Unstructured Text Data Mining and 2) Semi-Structured and Structured Data Mining (Herrouz et al., 2013).

1. Unstructured Text Data Mining: Most of the web content data is unstructured text data. The research applies data mining techniques to unstructured text and is termed Knowledge Discovery in Texts (KDT), or text data mining, or text mining.

2. Semi-Structured and Structured Data Mining: Semi-structured data is a point of convergence for the Web and database communities: the former deals with documents and the latter with data. This form of the data evolves from rigidly structured relational tables with numbers and strings to enable the natural representation of complex real-world objects like books, papers, movies, etc., without sending the application writer into contortions.

Research Questions

By adopting the web mining approach, this research aimed to determine how Facebook, as the most commonly used social media, functions in a social movement. Research questions are thus developed to be answered as follows:

1. Based on Facebook information on the issue, what was the development path of the movement?

2. During the movement, how did Facebook function in the social movement?

3. Did Facebook have an impact on the movement's consequence? And how?

Methodology

Facebook data for groups/pages/events were divided into two types, structured data and unstructured text data. Structured data included the number of posts, comments, likes, shares and the number of fans, which were analyzed quantitatively. The data, the event trend, and the content type explained the information trend and formation. Unstructured text data were analyzed using the content analysis method, which then helped to analyze the event development, related event topics and roles, appeal channels mentioned by Facebook users and performance forms in the virtual world.
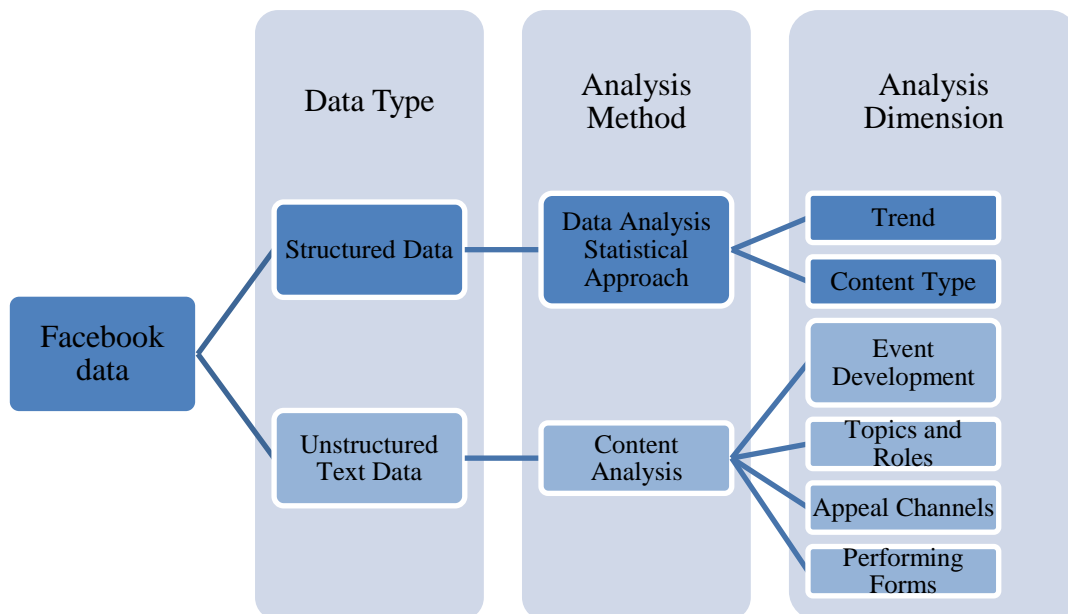
Analytical Framework

We adopted a commercial web mining platform – eMiner, developed by the eRS e-Research team to collect all the available data including texts, pictures and numerical data such as the number of likes and shares in a real-time fashion on Facebook. The textual data was analyzed using an online content analysis engine which was the

integral component of the platform. For the event information, we developed a coding book and then set it up in the platform. Trained coders performed the coding work by examining the textual contents which appeared randomly on the computer screen.

Build text database		Set category (Coding book)		Carry out content analysis by trained coders		Export results
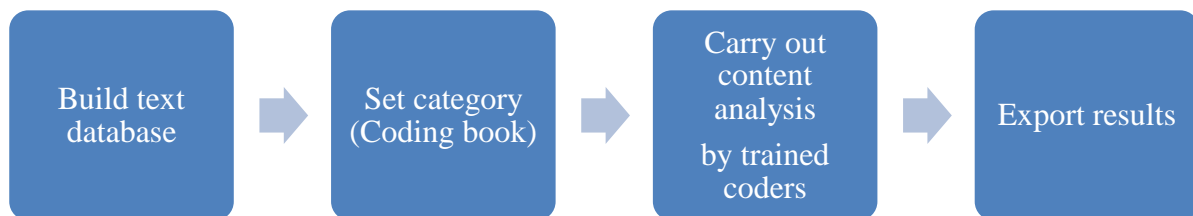
For the data type, all the statuses, comments, links, photos and videos in 36 related Facebook groups/pages were collected. In addition, 12 Facebook events were monitored (see detailed information in the appendix). The time period covered from 20 April to 31 May in 2014, during which we monitored the whole development of the event.

Combined with structured and unstructured data on Facebook, we focused on the basic information of related Facebook content, time trend of information flow, content type, mentioned topics and roles, appeal channels, and performance forms on Facebook.

Mining the Facebook Indicators

In this study, we tried to examine the protests against the Retirement Package Bill in Macao on Facebook. According to Facebook, several indicators, such as comments, likes, shares, and fans, can help us to understand the popularity of content on online groups or pages.

a) **Comment:** The comments box allows people to comment on content on the site using their Facebook profile and shows this activity to their friends' news feed.

b) **Like:** Clicking "Like" below a post on Facebook allow people to know that you enjoy it without a comment. Liking a page means you are connected to that page. Liking a post from a friend means you let your friend know you like their post without leaving a comment.

c) **Share**: The "Share" button allows people to add a personalized message to links before sharing them on their timeline, in groups, or to their friends via a Facebook Message.

d) **Fans**: The "Follow" button allows people to subscribe to the public updates of others on Facebook. More fans mean more attention and influences.

Facebook allows users to create an event. The host could invite others to join the event.

a) **Going:** The number of friends who are going to the event.

b) **Maybe:** The number of friends who may go to the event.

c) **Invited:** The host can invite friends to join the event. If the host allows it, the guests can invite their own friends to join the event too.

Findings

Basic Information

Twelve events and 36 related groups/pages were reviewed during the research period from 20 April to 31 May 2014.

There were 12 events that invited 181,106 people in total; 36,133 people joined the online events, and 2,163 people indicated that they might participate in the events.

There were 36 groups/pages involving 41,266 members and listing 253,552 likes. There were 1,149 posts and 13,519 comments, which received 248,224 likes and 30,721 shares.

On May 27, a status with text and pictures regarding the location where crowds gathered outside the legislative assembly building received the most likes (6,406). On May 29, a status about the news that Chui Sai On (the Chief Executive of the Macao Special Administration Region) announced the withdrawal of the bill received the most comments (356), which were also shared by the most Facebook users (1,203).

Event Development

Based on the data showing the development of the protests, we characterized the event into five periods.

1) Latent period

<u>16 December 2013:</u> The Macao government submitted the Retirement Package Bill to the Legislative Assembly. The bill was then passed in the "general assembly discussions and voting".

2) Warm-up period

<u>5 May 2014:</u> Second Standing Committee of the Legislative Assembly voted five to one to deny public consultation of the bill.

3) Starting to get hot period

<u>16 May 2014:</u> New Macau Association (one of the activist groups) collected signatures requesting the withdrawal of the Retirement Package Bill; some netizens launched a photo campaign to ask for support from the residents to withdraw the bill.

4) Outbreak point

<u>25 May 2014:</u> There were over 20,000 participants in the protest, while there were only about 500 supporters (from Jiangmen Association) for the bill; on that evening, the Macao government finally agreed to withdraw the bill for reconsideration. Due to the excessive number of protesters, the area around the legislative assembly building lost mobile network signal.

5) Fire-off period

<u>29 May 2014:</u> Chief Executive Fernando Chui Sai On announced that he would write to the Legislative Assembly to withdraw the draft bill.

Trend

In accordance with the trend data, 25 May to 29 May was the period with maximum information flow. On 25 May, the protest broke out; and on 29 May, the Chief Executive announced the bill withdrawal.

Facebook Posts, Comments, Likes and Shares
(2014/4/20-2014/5/31)
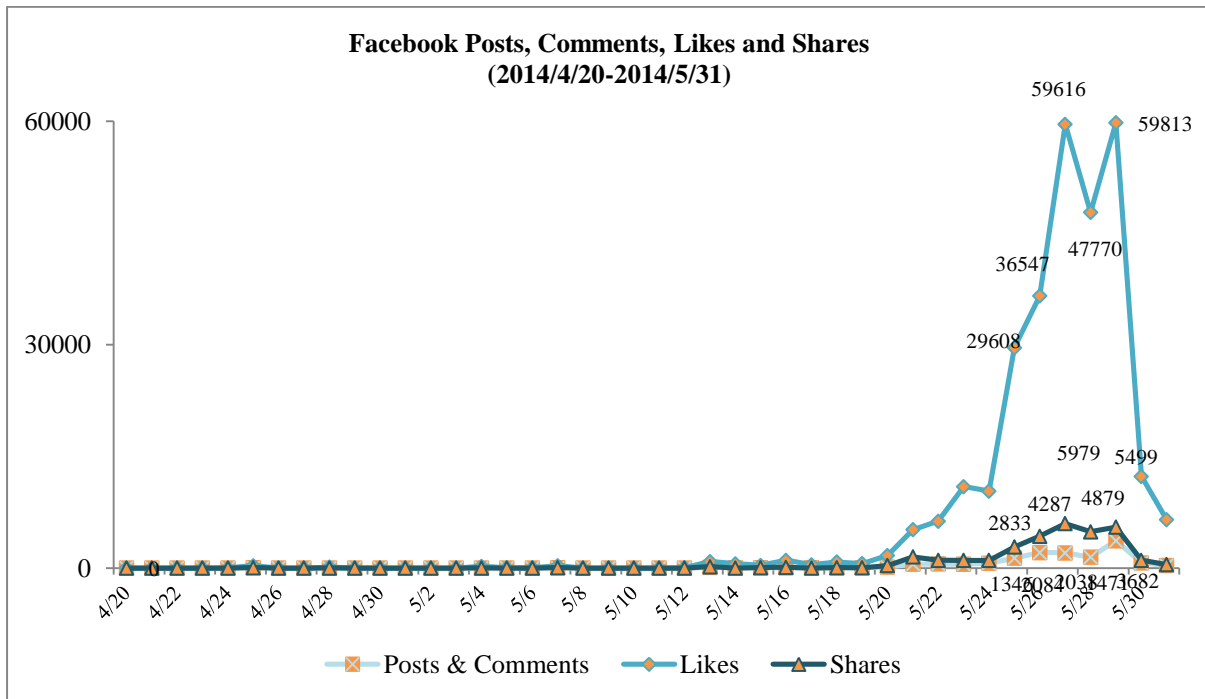
Content Type

On Facebook, the text information occupied most of the content, taking up 94.5%, while pictures took up 4.5% and video content 1.0%.

Content Tpye
(2014/4/20-2014/5/31, 15,261)
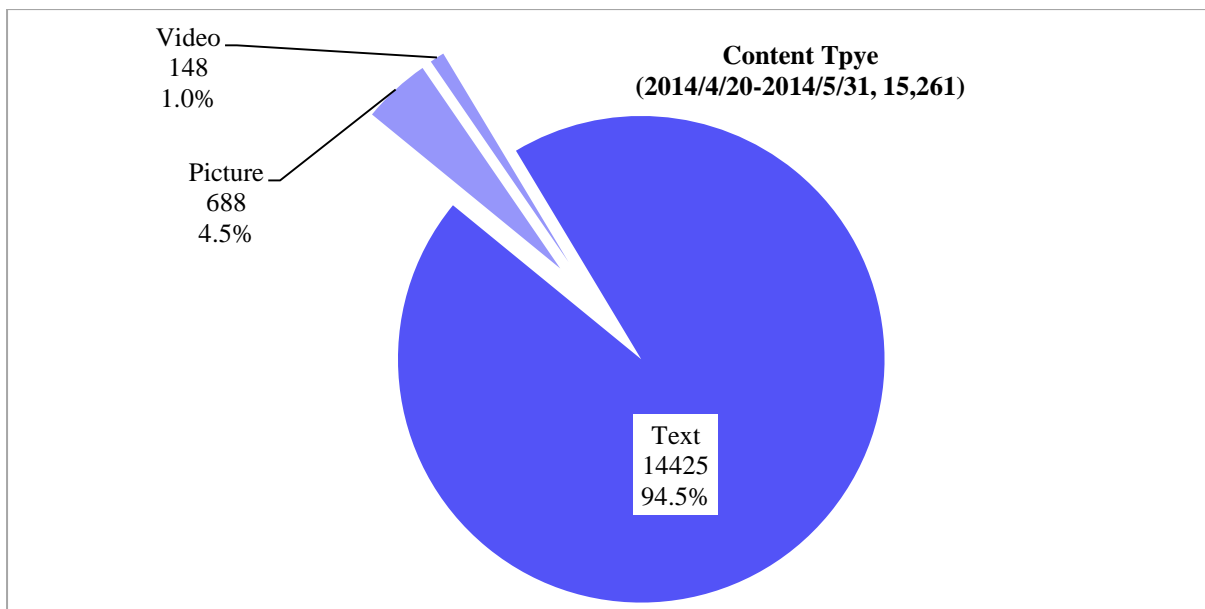
Topics and Roles

When talking about the Retirement Package Bill, Facebook users most frequently (464) mentioned the topic "Chief Executive enjoyed criminal immunity," followed by "Monthly salary rises from 14% to 30% after retirement" (189). There were five counts

that mentioned "Principal high-ranking officials receive medical subsidies until death after retirement".

Topics in the Retirement Package Bill Mentioned

■ Chief Executive enjoyed criminal immunity

■ Monthly salary rises from 14% to 30% after retirement

■ Principal high-ranking officials receive medical subsidies until death after retirement
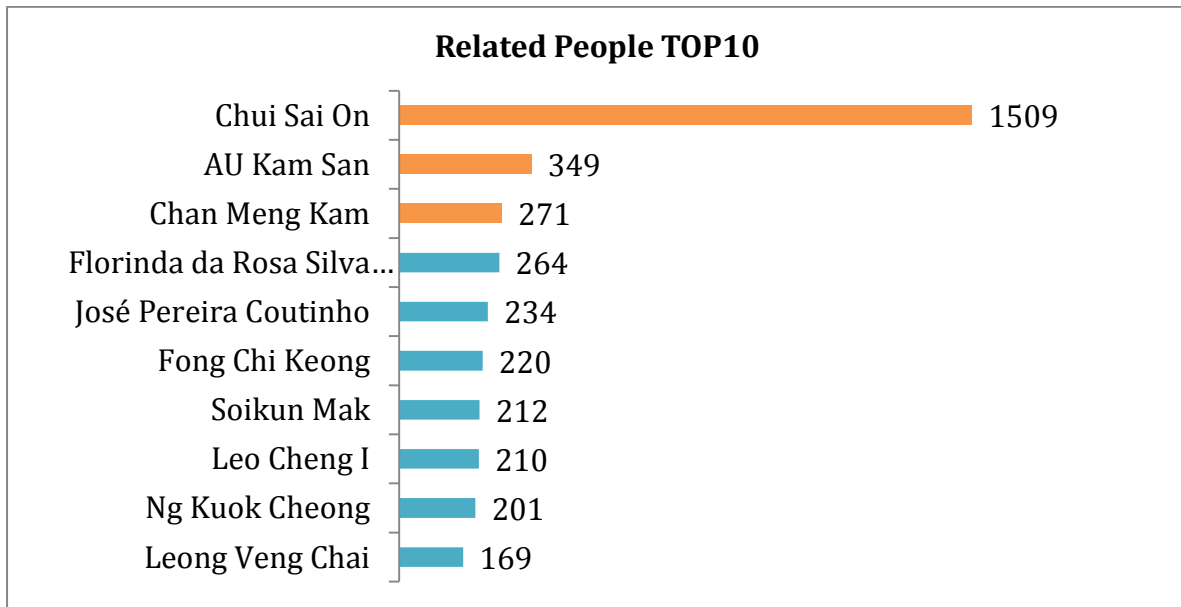
464

189

5
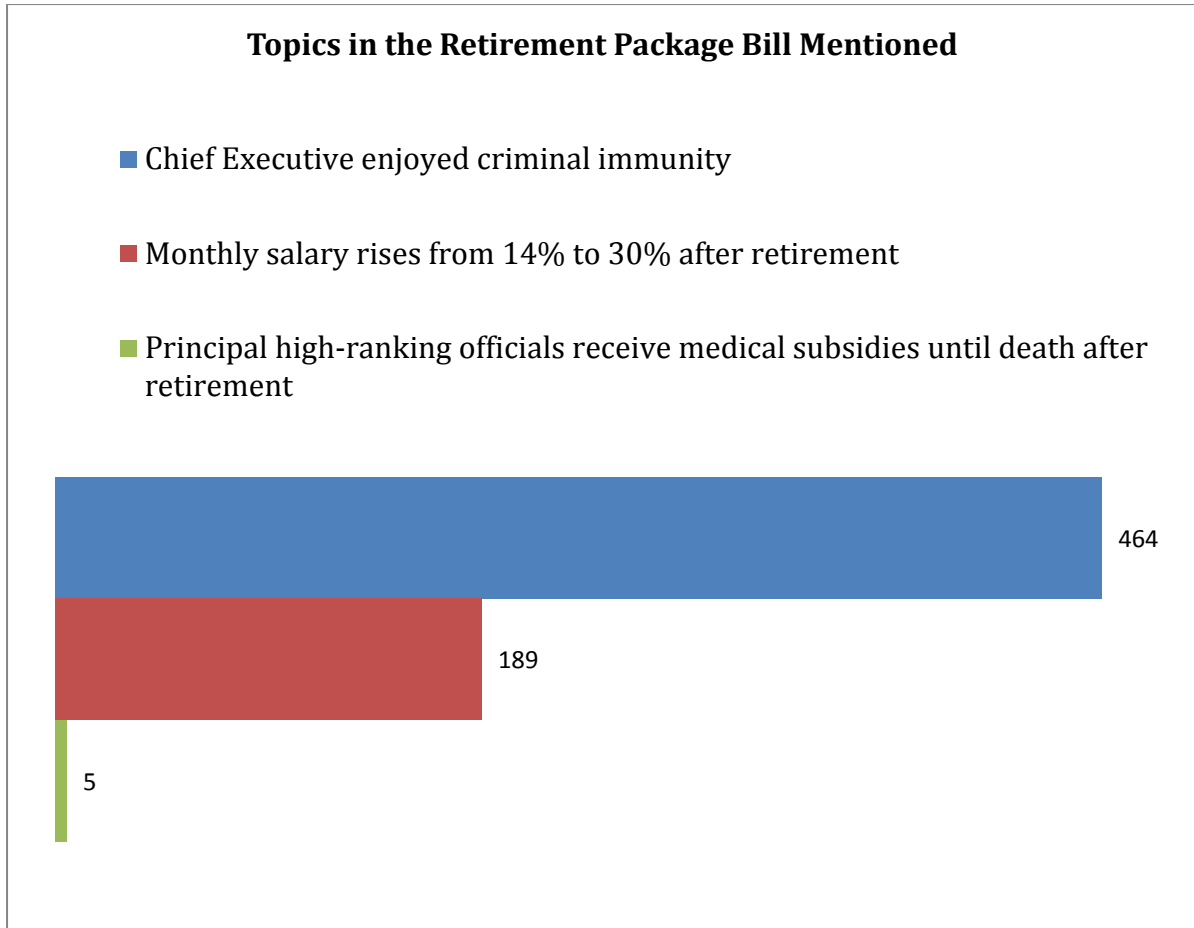
As for the whole movement, Facebook users talked about "May 25 Protest" most frequently (1,813 times), followed by "May 27 Surround the Legislative Assembly" (1,432 times).
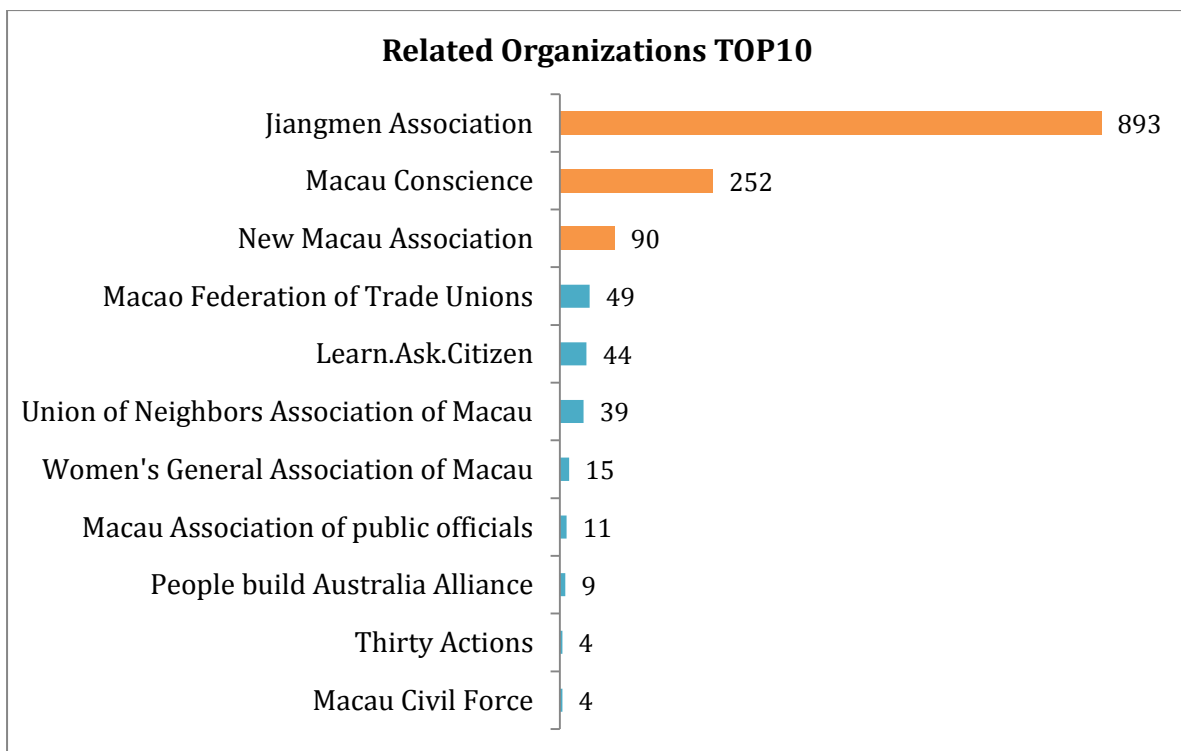
Event Activities

Event	Dimensions		Account
1. **5.25 March**	1.1. Almost 20,000 residents protested against the Bill	819	1813
	1.2. Jiangmen Association protested in favor of the Bill	562	
	1.3. Organizations protested against the Bill	388	
	1.4. José Pereira Coutinho and Leong Veng Chai claimed to participate	29	
	1.5. Appeal to follow instructions ("Please don't go to Avenida de Almeida Ribeiro")	15	
2. **5.27 surrounding legislative council**	2.1. Over 7,000 residents surrounded the legislative assembly building	851	1432
	2.2. "Macao Conscience" called for support to surround the legislative assembly building	326	
	2.3. Appeal to withdraw the Bill	228	
	2.4. Police set the protest zone in front of the legislative assembly building	14	
	2.5. The surrounding action should comply with the laws	13	
3. **Students outside Macau protested the Bill**	3.1. Appeal to withdraw the Bill	227	564
	3.2. Take group photo and send letters in front of Taipei 101	131	
	3.3. Object to Chief Executive criminal immunity	100	
	3.4. Upload the protest photos onto social media	90	
	3.5. Call for "activities" in social media	10	
	3.6. Public angry with corruption of officials	6	

The key figure in the movement was Chief Executive Chui San On, who announced the withdrawal of the bill on May 29, putting the whole movement to an end. There were 1,509 counts mentioning Chui Sai On, far more than other public figures.

Related People TOP10

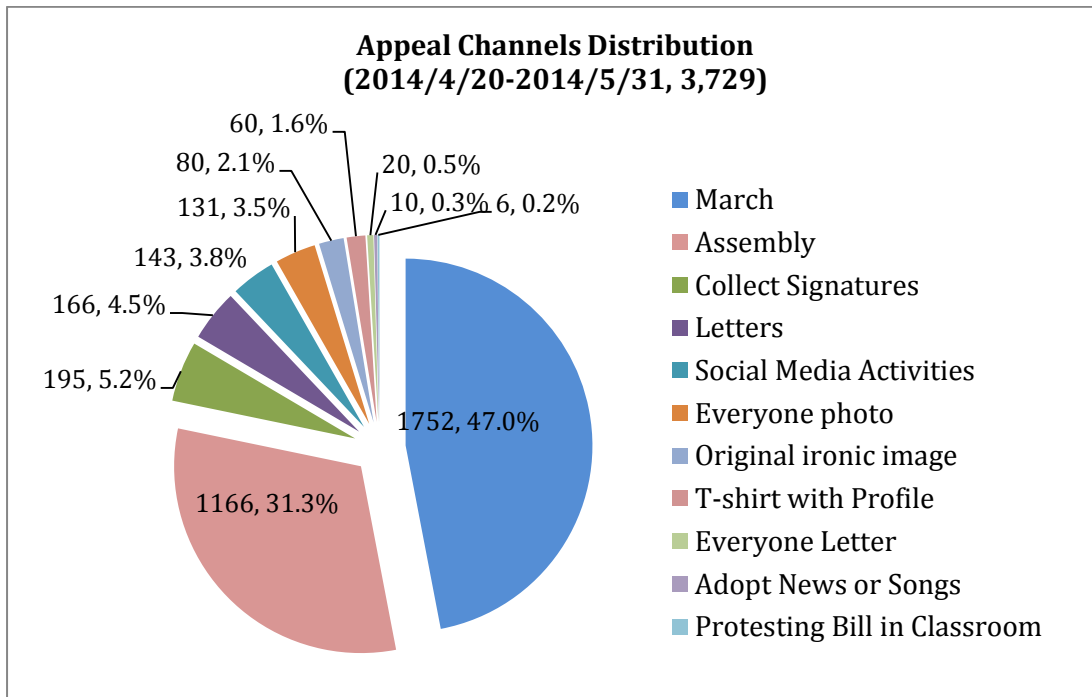| Person	Value
Chui Sai On	1509
AU Kam San	349
Chan Meng Kam	271
Florinda da Rosa Silva...	264
José Pereira Coutinho	234
Fong Chi Keong	220
Soikun Mak	212
Leo Cheng I	210
Ng Kuok Cheong	201
Leong Veng Chai	169

As for associations involved in the event, Jiangmen Association, who supported the Retirement Package Bill, was mentioned 893 times in the May 25 Protest.

Related Organizations TOP10

Organization	Value
Jiangmen Association	893
Macau Conscience	252
New Macau Association	90
Macao Federation of Trade Unions	49
Learn.Ask.Citizen	44
Union of Neighbors Association of Macau	39
Women's General Association of Macau	15
Macau Association of public officials	11
People build Australia Alliance	9
Thirty Actions	4
Macau Civil Force	4

Appeal Channels

"Protest" was mentioned most frequently as the appeal channel (47.0%), followed by "assembly" (31.3%).

**Appeal Channels Distribution
(2014/4/20-2014/5/31, 3,729)**

60, 1.6%
80, 2.1%
131, 3.5%
143, 3.8%
166, 4.5%
195, 5.2%
20, 0.5%
10, 0.3% 6, 0.2%
1752, 47.0%
1166, 31.3%

- ■ March
- ■ Assembly
- ■ Collect Signatures
- ■ Letters
- ■ Social Media Activities
- ■ Everyone photo
- ■ Original ironic image
- ■ T-shirt with Profile
- ■ Everyone Letter
- ■ Adopt News or Songs
- ■ Protesting Bill in Classroom

Performance Forms

In the traditional movement, there were multiple patterns of manifestation. However, on Facebook, more performance forms appeared on the basis of offline methods. Today, online and offline performance forms affect each other, and play important roles in the events of this study.

1) Video of adopted news or songs

Netizens adopted news or songs to express their discontentment about Macao's present situation and called for others to pay attention to the issue. They also called for supporters to sing together. (See: "Who is not singing? (Macau)". Link: http://www.YouTube.com/watch?v=CDW5ToaLTD8)

2) Designed profile (protest icon)

Some netizens used the protest icon (shown below) as their Facebook profile, which showed a clear message of their attitude.

Facebook user "Georgia Lei" uses "Withdraw" picture as her profile picture on her personal page.

3) Ironic pictures

Netizens drew ironic pictures and posted them on the Facebook, mocking the Chief Executive and the issue.

"Loving Hiding Daily" is adopted by "Macau Daily." The text in the picture means "when loving hiding becomes the truth, uncovering the truth is an obligation".

4) Self-organized clubs by undergraduates

Undergraduates who are studying outside Macao, namely in Taiwan, organized themselves to protest against the Retirement Package Bill. They held slogan signs and took group photos. They posted the photos on the Facebook, showing their concerns and attitudes.

Soochow University & Fu Jen Catholic University in Taiwan. Macau students held the slogans and took group photos.

5) A white T-shirt as a symbol

In the May 27 Protest, organizers called for Macao residents to join the protest. On the Facebook posters, information about the time and the place was printed. They called for the participants to wear the white T-shirt to indicate their support of the action.

Movement participants wear white clothes as a symbol of action.

Discussion and Conclusions

During the observation period in this study (20 April to 31 May 2014), the events on Facebook included more than 180,000 users; while the related groups/pages involved more than 40,000 members, which indicated that Facebook had taken a significant part in the movement. As the movement went on, the information flow

increased tremendously. Facebook, as a key role player in the social media, exerted a great influence on the movement.

Information path on Facebook was consistent with the event development

As Blumer and other scholars described, stages of a social movement go through "emerge, coalesce, bureaucratize, change and decline." In this study, the movement emerged on December 16, 2013, and then warmed up in May 2014. In May, Macao residents started to pay close attention to the issue and some social groups (e.g., New Macau Association) began to protest against the bill with some actions, such as collecting signatures which demanded the withdrawal of the bill. Later on, the two protests against the bill increased the discontentment of the residents to the highest extent and finally pushed the government to withdraw the bill. The results of the two protests were deemed a success.

Social media assisted information diffusion

Facebook and mobile phones played a significant role in the protests, providing a cheap and convenient channel for communication. People and organizations made good use of Facebook to express their opinions and encourage other people to get involved in the movement. However, in the May 25 and May 27 protests, the area outside the legislative assembly building lost mobile network signal and residents criticized the telecommunications suppliers. This side event has indicated the important role of mobile phones in the protests.

Social media multiplied the activities' impacts

In the two protests, the residents shared information on social media, initiated the action and participated in the activities. Furthermore, residents who were not currently staying in Macao were also concerned about the movement. On the day following the May 25 Protest, about 50 Macao students studying in Taiwan gathered in front of the Taipei 101 building, took group photos and sent appeal letters. Later, more Macao students in Taiwan uploaded their photos holding the slogan signboard of "Withdraw" to convey their support of the Macao protests. This fact has proven that social media was the battlefield for all people who were concerned about the issue, no matter whether they were staying in or outside Macao.

Social media provided the persuasive reasons for netizens to join the protests and raised participants' expectation in reaching the objective

The dissemination of information was a persuasive procedure. The comments and messages on Facebook persuaded netizens to believe in the movement and made them move. As more and more people got involved in the protests, the opposition voice became more and more powerful. It was then easier to raise participants' expectations in reaching the objective of the action.

Social media helped to express and develop a core and consistent movement repertoire by diversified performances

Social media is a platform that accepts different voices. All stakeholders can try hard to win supporters. In the two protests, the "withdraw" viewpoint was the mainstream, although there were both supporters and opponents. Diversified performances, as mentioned above, such as videos or pictures, helped to express and develop a core and consistent movement repertoire.

Research Limitations and Future Research

This study only attempted to look at how Facebook functioned in the particular case of the protests against the Retirement Package Bill in Macao. Whether or not the conclusion of this study can be applied to other cases may need more investigations because different issues may differ in the power of mobilization.

Privacy is another concern for a study using the web mining approach. Our attempt in this study only collected the data which were open for public viewing on Facebook, such as public groups/pages/events, but not personal Facebook pages and comments. Interaction on Facebook is a closed circle. This creates a difficult obstacle which researchers shall address in future research.

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