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Tie strength and *guanxi* on Taiwan Facebook users'
information exchange behavior

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Abstract

Tie strength and *guanxi* on Facebook users' information exchange behavior

By

Chong Chui Fen

Granovetter proposed that weak ties connect different sections of social networks, thus function as the channel for individuals to gain access to useful information unavailable at existing social circles. The first motivation of this study is to explore to what extent strength of ties theory explains information exchange behaviour of Taiwanese Facebook users. According to past research, Chinese rely on those with close *guanxi*, such as family members and close friends to satisfy individual's needs. This leads us to ask if *guanxi* would also play an important role in satisfying individual's needs for information. Thus the second motive of this study is to explore the significance of *guanxi* for Chinese Facebook users in selecting the counterpart for information exchange. It is hoped that the results of this investigation will contribute to social networks, *guanxi*, information behaviour research and social network sites users' study, especially in Taiwan. Based the data collected via online survey, this study found that respondents tend to rely on strong ties as their primary sources of information. If their strong ties were not able to provide the information, respondents would rely on the connections of these strong ties, rather than the weak ties in their network, to find the information they needed. Thus strong ties are the key to information exchange in a social network.

Keywords: tie strength, social network theory, *guanxi*, Chinese interpersonal relationships, Facebook, social media.

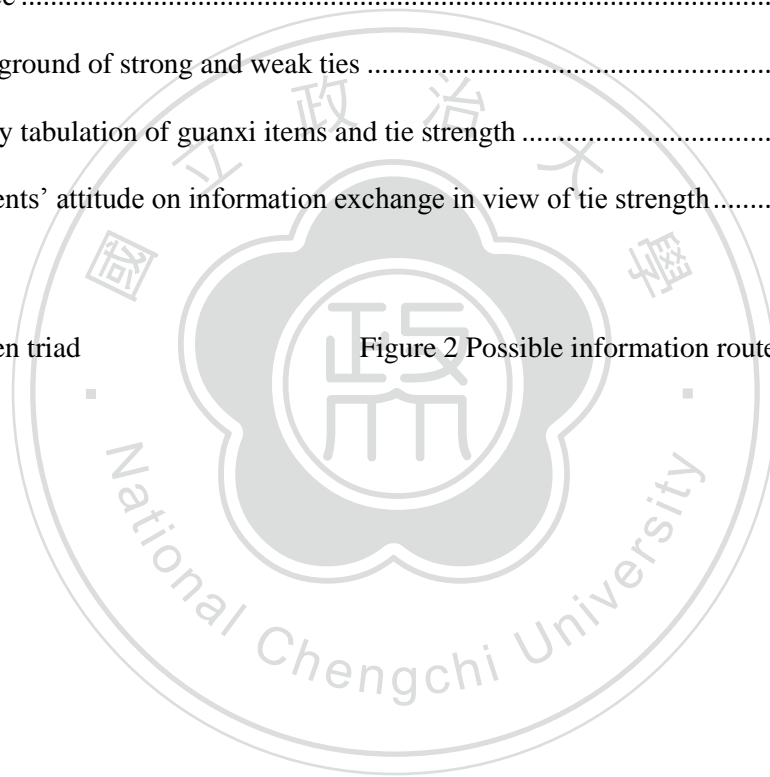
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Chapter 1 Introduction

1.1 General background

In recent years, the prevalence of internet, along with popularity of cyber culture contributed to fast development of social network sites (SNSs), both in the number of service providers and user population. It is considered one of major developments in the age of Web 2.0.

According to 2009 online entertainment behavior survey of Taiwanese internet users conducted by Market Intelligence & Consulting Institute (MIC), 65% of the respondents had visited social network sites; 48.7% of them use the social networking service at least once a day. The motivations behind include “keeping in touch with friends or stay updated on their status (72.9%)”; and “sharing thoughts with friends (61.9%)”. Sixty percent of the respondents indicated that they had been introduced to the sites by relatives or friends (Online entertainment behavior survey, 2009).

The driving force underlying the popularity of social network sites can be attributed to the need to stay connected with people. Internet has provided the convenience and cost efficiency to fulfil the need. In short, SNS refers to websites or services that enable individuals to establish social network online. Haythornthwaite (2005) defined social network as below:

A type of exchange or interaction is known as a social network relation, and pairs who maintain one or more types of relations are said to maintain a tie. Across a set of individuals, person-to-person connectivity builds into social networks (p.127).

The preliminary form of online community may dated back to Usenet in 1979. However, contemporary SNSs contain several features that mark the departure from the previous mode of online community. Boyd and Ellison (2007) define SNSs as online services that enabled individuals to “(1)construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse his or her list of connections and those made by others within the system” (p.211).

SNSs usually require users to provide basic identity information for registration. However, it is the decision of users as to what extent they will disclose their personal information in their personal profile. It can range from the basic information such as name, school information, photos to extensive personal information including email address, relationship status, phone

number, and home address. Facebook users can also join different networks and groups based on shared interest.

The information in the profile is self-reported by the users. The site management company lacks motivation and resources to verify the accuracy of the information. This is on the assumption that because of the intertwined nature of online and offline social connection, most users reveal their true personal details, thus raising the question of online privacy protection.

The second major characteristic of SNSs is visible social connections. These online connections are called Friends. The articulated list of Friends on SNSs is capitalized to differentiate from the friends in daily life (Boyd & Ellison, 2007).

Donath and Boyd (2004) indicated that most SNSs share a similar model of Friends link. The four common features for links are mutual, public, unnuanced and decontextualised. For example, when someone sent a Friend Request, an individual has to confirm it in order for the link to be established. Thus this contact is included in one's Friends network. These articulated connections are visible to others even users out of the network. But only Friends can view the full profile. Once the link is established, there is no distinction between close Friends or acquaintances. They are all treated equivalently as Friends. The links are decontextualised, one cannot choose to show part of the network to certain contacts only (Donald & Boyd, 2004).

The visible social connection is the significant feature that distinguishes SNSs from other modes of CMC. It serves several purposes that lend credibility for self presentation in users' profile. The visible social connection is assumed to be an implicit verification of identity thus contributes to ensure honest self-representation in profile. This is based on the assumption that it requires too much effort or difficulties to fake his or her Friends connection (Donald & Boyd, 2004).

1.2 Development of Social Network Sites

SixDegrees.com, launched in 1997, was the first recognizable social network site. Its users were allowed to create personal profile, list their Friends, and later also surf the Friends list. While these functions were available in other online communities, SixDegrees.com was the first to integrate them into a new social networking platform (Boyd & Ellison, 2007).

The early stage of SNSs development was slow. SNSs users were limited to computer geek and a small portion of internet users. It was not until the launch of Friendster in 2002, SNSs hit the mainstream. Friendster was launched as a social complement for a business networks site. It was designed to facilitate friends-of-friends to meet (Boyd & Ellison, 2007).

The popularity of Friendster has inspired other online service providers to follow suit. MySpace, launched in 2003, allows users to personalize their profile, in addition to regularly adding features to the site. It became very popular among teenagers, musicians and post-college urbanites (Boyd & Ellison, 2007).

Facebook was launched in February 2004, by Mark Zuckerberg and his friends from the dormitory room of Harvard University and soon expanded to other universities in United States. At that stage Facebook usage was limited to college networks only, as individual must have an .edu email address to sign up as member. This made Facebook a relatively closed network, but user population already reached one million by December 2004 (Facebook.com). Facebook has surpassed MySpace in its visitor base for the first time with the rapid growth of 153% as compare to 3% for MySpace, from June 07-June 08 (comScore, August 2008).

1.3 The usage of social network sites

Boyd and Ellison (2007) indicated that online personal social network may reflect the offline social structures to a certain extent. Donath and Boyd (2004) propose the number of weak ties an individual can form and maintain will increase substantially with the help of new communication technology. But the technology will not result in the similar positive effect on an individual's strong ties. This is because of the new communication technology makes touching base with wide variety of people sporadically in a relatively cheaper, easier way.

In the case of Facebook, users regularly receive notification on updates on their Friends' profile via Newsfeed function. If some updates catch his attention, he can click into Friends' profile and find out more about it, or response by leaving a message, comment for him or her. This helps the users in maintaining a large and diverse social network online or offline, with minimum efforts.

Although making new connection is not the primary goal of using SNSs, as indicated by Lampe, Ellison, & Steinfield (2006), the use of SNSs is not limited to the maintenance of

existing offline social network only. It also provides the opportunity for establishing connection between individuals that otherwise may not be. This potential connection is called latent ties (Haythornthwaite, 2005). Haythornthwaite (2005) further referred latent ties as ties that are possible but not yet activated. The latent ties are inactive until something happens to tip them into weak ties, or less likely, strong ties. However this usually happens by chance rather than individual's initiative. In the case of Facebook usage, users may browse through Friend list on Friends' profiles, and send Friend request to add someone to his/her contact list. Thus activated the latent ties.

Computer networks connect computer as well as users, thus formulate social network (Wellman, 1997). Information exchange and interpersonal interaction are the two major components of social networks. Information behavior is a social act (Burnett, 2000), whether face-to-face or computer-mediated (Haythornthwaite & Wellman, 1998). Information exchange and interpersonal interactions often occur simultaneously, and social networks are important sources of information in addition to media sources. Thus it is impossible to study information behavior in isolation. In fact, contacts in the social networks often function as information intermediaries for each other. This leads to the discussion of information behavior in the next section.

1.4 Information behavior

What is information? Christopher Fox (1983) captured the vagueness of information:

Information seems to be everywhere.....disseminated by media of communication exchanged in conversation.....contained in all sort of things.....libraries are overflowing with it, institutions are bogged down by it, and people are overloaded with it.....no one seems to know exactly what information is (p.3).

This description is even more salient in the age of information, particularly the prevalence of internet.

Information behavior is the totality of human behaviour in relation to sources and channels of information, including both active and passive information seeking, and information use. Thus, it includes face to-face communication with others, as well as the passive reception of information as in, for example, watching TV advertisements, without any intention to act on the information given (T. D. Wilson, 2000).

Research in information behavior had captured attention from information scientists. The Royal Society Scientific Information Conference in 1948 marked the beginning of modern study of information behavior, when a number of papers on the topic of information behavior were presented. However, the term information behavior was not used in the papers. Seven years later the term “information science” was coined by Christ Hanson (T. D. Wilson, 1999).

There is a long history of research on information seeking, especially on the use of the sources like books and newspaper or information systems such as libraries and the mass media. The information needs and uses of scientists and engineers were the target of investigation in the information seeking research in the 1960s. In the 1970s the research on information shifted its focus from formal channels and task-oriented needs toward the individuals as finder, creator and user of information (Case, 2002).

Dervin’s sense-making methodology also contributed to the literature of information behavior by placing the emphasis on information users rather than sources. It “is integral to understanding how human beings derive meaning from information” (Tidline, 2005).

The principle of least effort, which predicts that individuals make choices to minimize their work in performing task is also applied in information behavior research. This principle points out that individuals tend to return to the sources they have used in the past rather than exploring new sources of information (Case, 2005).

According to Granovetter’s strength of weak ties theory (Granovetter, 1973), weak ties are the major sources of the new information as they are the links that connect different sections of social networks. The theory had been widely used for the studies of information resources exchange in social networks.

However, little is known about how strength of ties conditioned the information exchange behaviour of social network users. This first objective of this study is to explore to what extent the weak ties concept explains information exchange behaviour of Taiwanese Facebook users.

1.5 Research Motive and Aim

Guanxi, literal translation of relation in Chinese, is the cornerstone of the Chinese societies which plays significant role in social and economic interactions (Chen & Chen, 2004).

According to past research, Chinese also rely on those with close *guanxi*, such as family members and close friends to satisfy individual's needs on economy, religion, education and recreation (Hsu, 1953; Hwang, 1987). This leads us to ask if *guanxi* would also play an important role in satisfying individual's needs for information. If yes, how would *guanxi* help us understand the relation of Chinese Facebook users with the strong ties and weak ties in their networks. Thus the second motive of this study is to explore the significance of *guanxi* for Chinese Facebook users in selecting the counterpart for information exchange. It is hoped that the results of this investigation will contribute to social networks, *guanxi*, information behaviour research and social network sites users' study, especially in Taiwan.

This paper particularly focuses on the Facebook users in Taiwan because it is high popularity among internet users. According to comScore, Facebook is the world largest social networking site and the fourth largest site in the world. It captured 5.1% of the total time spent online worldwide in September 2009, scored an increase of 2.9 % compared to September, 2008 ("Microsoft Sites Captures Largest Share of Time Spent Online Worldwide," 2009).

Facebook users in Taiwan have grown over five millions in November 2009. Gender distribution is nearly equal. The major age groups of the audience includes 39.1% (age 25-34) and 33.4% (age 18-24) ("Facebook marketing statistics, demographics, reports and news," November 3, 2009). The large population of Facebook users provides a fertile ground for further academic research.

Chapter 2 Literature Review

This paper will investigate information exchange behaviour on Facebook. Social network theory-- the strength of weak ties will be used to form the analytical framework. Based on the research question, this chapter will begin with a brief review of literature on information exchange. Because personal networks are considered one of the important information sources, the next section will present the major findings in social networks research. Because the primary interest of this paper is placed on Taiwanese Facebook users, the literature on interpersonal relations--*guanxi* will also be reviewed.

2.1 Information exchange

The concepts of information seeking, and information sharing have often been used in human information behavior research. These are closely related concepts but can still be differentiated. Information seeking is “a conscious effort to acquire information in response to a need or gap in your knowledge” (Case, 2002). Facebook users are usually not purposively seeking information when they interact with their Facebook contacts. Thus this concept may not have reflected the information behavior of Facebook users. However, the literature on information seeking could shed some lights on human information behavior.

Information exchange is including both active and purposive and less goal oriented and implicit information diffusion. Information sharing is limited to giving information that someone already acquired (Talja & Hansen, 2006). Thus it falls short in describing the information behavior of Facebook users. Interaction between Facebook users may involve both receiving and giving of information.

Information exchange includes giving and receiving information. Thus provides a wider scope of coverage in describing Facebook users' information behavior. Thus this study will use the concept of information exchange to explore information behavior of Facebook users. Information and communication are the two major features in virtual communities. Interpersonal interaction and access to information are provided by virtual communities. They function as platform for open sharing and exchange of information. Social network sites are one of the most popular types of virtual communities. Through the synchronous and

asynchronous communication in Facebook, the users can find both socio-emotional support and an active exchange of information (Burnett, 2000). Blanchard & Horan (2000) suggested information exchange and the accessibility of information are the two primary aspects of virtual communities.

Despite the availability of libraries and various information services, a large body of studies in library and information science (LIS) indicate people rely on personal networks (for example, friends, relatives, co-workers and neighbor) as the sources of various information. This is because interpersonal information sources are considered more accessible, credible, reliable, and applicable to the each unique situation (Lu, 2007).

Williamson (1998) pointed out in everyday life, people seeking information to monitor their life. He constructs an ecological model of use for everyday life information by borrowing the idea of “incidental information acquisition” from Wilson (1977).

Information is in part acquired because it is deliberately sought...it is also found where is not specifically sought, as an accidental concomitant of routine activities with other purposes or as pure accident...it is clear that we could describe individual patterns of information-gathering activity, both where the search for information was the primary motive and where it was incidental (P. Wilson, 1977, p.37)

The Williamson’s (1998) model consists of concentric circles with the user at the core. There are four layers of information sources heading toward different use of the information at the outer layer. The layer closest to the core is intimate personal network, the next layer is wider personal networks, followed by mass media and institutional sources. The user performs both purposeful information seeking and incidental information acquisition respectively with each layer of information source, except for institutional sources. The institutional sources are only used for purposeful information seeking. The model shows that factors such as socio-economic circumstances, values, lifestyles, physical environment and personal characteristics may influence to what extent the information is sought, acquired and used.

From the model, it is clear that personal network is an important source of information. Hall’s (1959, 1966, 1976, 1984) cultural model on the level of context in communication may be applied to information exchange as well. In the high context culture, the communicated message may contain little information, the unspoken meaning is more important. While in low context culture, thoughts are expressed explicitly in messages transmitted. Information

flow is fast in high-context cultures where relationships and information are valued more than schedules, in comparison to low-context cultures (Komlodi, 2005).

Because of the importance of social networks as an informal information source, the next section will be dedicated to the literature on social networks. This perspective has often been used to explore information behavior.

2.2 Social network analysis

Social network theory and social network analysis have been used interchangeably in many studies. However, there are significant differences between the two. A social network theory is a premise for predicting network behaviour that aims to explain the operation of networks (Schultz-Jones, 2009). On the other hand, social network analysis is an approach and set of techniques used to the study of the relational aspects of networks (Schultz-Jones, 2009). To use this technique to study the behaviour of networks it is essential to identify the roles and positions of the members of the network. There are some terminology shared by both theory and analysis in network research. However, the function of social network theory and social network analysis is different. In this study, social network theory will constitute the theoretical framework while features of social network analysis will be discussed because it contributes to the understanding of network behaviour.

From the perspective of social network analysis, a network is defines as “a set of nodes and the set of ties representing some relationship or lack of relationship, between the nodes. In the case of social networks, the nodes represent actors, i.e., individuals, groups, organizations” (Brass, 1995, p.42-43).

Social network analysis views individuals’ access to information in terms of exposure to and control of information. The central idea of social network analysis is examining the patterns of contacts, ties and connections between actors in terms of their positions in the network. These relations connect pairs of actors into larger relational systems (Scott, 2000).

Social network can be analyzed in terms of their structure, i.e. whole network and egocentric network. “The perspective assumes that actors (whether they be individuals, groups, or

organizations) are embedded within a network of interrelationships with other actors. It is this intersection of relationships that defines an actor's position in the social structure, and provides opportunities and constraints on behaviour" (Brass, 1995). Thus actors' behaviour, norms should be interpreted in terms of structure rather than personal attributes. The operation of dyadic relationship is determined by social structures. Thus similar structures are presumed to create similar outcome (Wellman, 1988c).

Relationship is the basic element of social network analysis. Measures have been developed to depict the links, or ties from the perspective of network, such as strength, and symmetry (reciprocity), and direction (work flows from A to B, but not the other way), stability, indirect links. These measures may not indicate the relationships of individual actors, but their relationship within the network. Social network analysis categorizes individual actors according to their different roles in the network. For example a star who is highly central to the network; a bridge who is a member connecting two or more groups (Brass, 1995).

A whole network approach is examining the relationships among members from the perspective of an outside observer. The strength of this approach is it allows simultaneous view of the social system as a whole and its components, allowing researchers to trace the flow of information. However, the whole network approach is not always feasible because it requires the information and participation of every member in the network (Wellman, 1988c). It is not feasible to study online social networks because networks are dynamic, constantly evolving.

Egocentric or personal networks on the other hand define the point of view of an individual. An individual is the center for each personal network. This approach offers the individual view of networks. Through these egocentric networks, a researcher can describe how individuals are linked by strong and weak ties in a network. These networks form the social systems and influence the flow of resources channeled to and from them. "The world is composed of networks, not groups", in fact a networks of networks (Wellman, 1988c). A may provide B with the information he obtained from C. Thus the relationship between A and B may be influenced by connection between A and C. The relationship between A and C has to be considered in order to examine relationship between A and B (Brass, 1995).

2.3 Social network theories

There is a very large volume of social network research, in various disciplines, accumulated since the idea of tie strength was proposed by Granovetter in year 1973. Most of it involved social network research in organizational behaviour, including leadership, power, turnover, job satisfaction, job performance, entrepreneurship, stakeholder relations, knowledge utilization, innovation, profit maximization, vertical integration, and so on (Borgatti & Foster, 2003). Major findings from these studies will be discussed in the next section as they offered some substantial insights to social network research.

In order to understand social network, it is necessary to know the building blocks of community. Participants' sense of community is essential for establishing strong community. Membership is important in building the feeling of belonging to a group. Members' feeling toward group or the group to its members as perceived generate influence on their behavior. Communication among members facilitate resources exchange and integration, thus fulfill their needs. Frequent interaction, shared experience and anticipation on the future create emotional closeness among members (McMillan & Chavis, 1986).

There are two primary streams among network studies, to examine the causes of network structures or the consequences. The studies that examine the consequences of networks are parallel with the structuralist idea that actor's behaviour is conditioned by networks in which the actor was embedded; while studies that examine the causes of network explore the network in terms of actor personalities and latent propensities (Borgatti & Foster, 2003). Relational perspective of network research saw interpersonal transmission as taken place among those with pre-established social ties. The structuralists suggested that two nodes have similar outcome (shared the same attitude) because their positions in networks are the same, even if direct connection between them is unavailable (Borgatti & Foster, 2003).

Social capital concept had been used in a wide range of research in terms of a person's ties or network position in bringing substantial outcome. It is also often used to explain the information transmission in social structures. Social capital has been the central idea of social

networks and the associated norms of reciprocity are valued by people who are in them. Putnam (Putnam, 1995) defines social capital as the “features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit” (p. 66).

Coleman (1988) sees social capital as a resource for individuals defined by its function and is context specific. The social capital that facilitates certain actions may be useless to others. Information channel, prospects for acquiring information that facilitate action, is one of the three major forms of social capital. Social relations that are maintained for other purposes can also be used to obtain information.

While social capital research is primarily individual-based, how research treats ties and their function had distinguished two major streams of the studies. For example, the studies Coleman (1990) and Burt (1992) focus on structure of ties in ego-network, and tend to ignore the content of ties. In contrary, Lin (2001) and others focus on the resources that flow through social ties. Social ties are seen as channels of information and other types of resources flow (Borgatti & Foster, 2003).

Social influence studies (N. E. Friedkin & Johnsen, 1999) and network diffusion studies embodied the structuralist traditions by placing the emphasis on constraint (DiMaggio & Powell, 1983), while social capital literature emphasized on opportunities (Gargiulo & Benassi, 2000) and individuals are seen as actively exploiting his/her network position for the benefits of him/herself (Borgatti & Foster, 2003). As Borgatti & Foster (2003) pointed out, “[S]ocial capital studies seek to explain variation in success (i.e., performance or reward) as a function of social ties, whereas diffusion and social influence studies seek to explain homogeneity in actor attitudes, beliefs and practices, also as a function of social ties.” (p.1002)

Burt (1992) proposed the concept of structural holes, in which the lack of ties among contacts in individual’s ego-network is considered social capital. In other words, individuals can maximize the volume of useful information from their social networks if there is no connection among their contacts. The underlying assumptions are: the amount of ties an individual maintained is limited, and information will be shared among friends. If A and B are friends, they will have similar information, as a result it would be more efficient for an

individual to link to just one of the pair meanwhile try to link to someone unconnected to them (Borgatti & Foster, 2003).

Social network theory had also been used in conjunction with other related theories in research human information behaviour, for example, small world theory, social exchange theory.

Travers and Milgram (1969) conducted an experimental study to examine the density of social networks. The design of the study is each starting person was provided with a document and asked to begin moving it by mail toward the target person. Two individuals may not directly know each other, but they may share one or more acquaintances, that link them indirectly. The information about target person is communicated through social networks. Two randomly selected American can be connected with average of 5.2 intermediaries. The “small world theory” (Milgram, 1967) states that social networks are tightly knitted, plentiful of unexpected strings that link individuals far apart physically or socially (Travers & Milgram, 1969).

Blau (1964) defines exchange behaviour as “voluntary action of individuals that motivated by the returns they are expected to bring and typically do in fact bring from others”. The central idea of social exchange theory is social structure observed as configuration of social relations between actors (individuals and organizations), where the relations involve the exchange of valued items, both material and non-material ones (informational, symbolic, and etc) (Cook & Whitmeyer, 1992).

Homans (1958) investigates the relations between reward and the performance a particular action. Emerson (1976) emphasizes the concept of “reinforcement” in social exchange. Reward refers to positive reinforcement. The more a certain action is rewarded, the more likely the repetition of the action. Homans (1958) indicates that a person who gives much to others will try to get much from them, and a recipient who receives much is also put under reciprocal pressure. This is consistent with the concept of reciprocity in interpersonal relationship in Chinese societies.

Information exchange in social networks is a type of social exchange. It involves a primary principle: when a favour was granted to a person, despite the general expectation of being reciprocated in future of the favour-giver, the specific form does not formulate in advance.

Thus the nature of reward is non-negotiable, and is up to the person who is supposed to reciprocate to decide. Thus trust plays an important role in the process of social exchange (Blau, 1964; Homans, 1958).

Exchange relation develops gradually in a steady process. It usually starts with a small exchange that requires little trust due to its low risk. If the favour is not returned, the exchange relation could be terminated. If the favour is returned with value higher than expectation, then a person has proved that he or she is trustworthy. Thus the prospect of receiving bigger assistance in future is higher. The process of social exchange generates trust in social relations through its cyclical and expanding features (Blau, 1964).

While the literature reviewed in prior paragraphs provides general ideas about social network research, “the strength of weak ties” proposed by Mark Granovetter is one of the theories that provides theoretical framework for viewing network behavior (Schultz-Jones, 2009).

He investigates how the types of ties are involved in the diffusion of job-related information. Generally, interpersonal ties could be categorized in three forms: strong, weak and absent. The strength of ties is the combination of the amount of time, emotional intensity, intimacy and the reciprocal services which characterize the tie (Granovetter, 1973). Strong ties typically involve close friends, team-mates and other relationship that is intense and stable. They tend to share information, resources, contacts and experience from the same pool. There is a high level of intimacy and self-disclosure between them. The ties are both instrumental and emotional. Resource and information exchange are frequent and reciprocity is emphasized. By contrast, the weak ties refer to acquaintances and casual contacts. People connected by weak ties are situated in different social circles with less similarity between them. Resources and information exchanges are infrequent. The ties are primarily instrumental, share few types of information or support (Haythornthwaite, 2005).

The weak ties theory suggests that individuals usually rely on weak ties to receive new information about job mobility. This is because only weak ties can bridge the gap between different sections by creating more and shorter paths between them. Members from different social circles are the resources for new information not already available in existing social circles (Granovetter, 1973).

In the case of job related information diffusion, he agrees that the instinct is those with strong ties are more motivated to assist with job information. However, individuals are more likely to obtain job information from those he or she maintains weak connection. This is because of those with strong ties are usually come from similar social background and pooling from the same information sources. Thus strong ties may not be able to channel new information about job opening. On the other hand, the different social background of weak ties may access to fresh job information that is unavailable with the existing social circles. He suggests labor-market information diffusion is byproduct of other social processes rather than the results of searching through social networks (Granovetter, 1974).

Social network sites such as Facebook are one of the most popular types of virtual community. Thus the literature on virtual communities will be presented next.

2.4 Virtual communities

Virtual communities generally refer to communities that form through computer mediated communication (CMC). A variety of terms have been used to describe them including electronic and online communities (Blanchard & Horan, 2000). Virtual communities also refer to a number of people communicating through CMC based on shared interests (Mousavidin & Goel, 2009).

Virtual communities can be generally distinguished into two major categories. The first type is electronic community that supplements the traditional physically based community. For example a website of city hall, schools or community organization that provides electronic resources for residents' use. The second type of virtual community is geographically dispersed members connected on the basis of shared interest in certain topics. Communication between members of these communities may be limited to online interaction and never meet in person (Blanchard & Horan, 2000).

Both geographically dispersed and physically based virtual communities facilitate the connection of previously unknown people on the basis of shared interests. Geographically dispersed communities tend to establish sparsely knit networks as the members scatter in different areas. Physically based virtual community create network with higher density through overlap with face to face networks (Blanchard & Horan, 2000).

It is useful to investigate the nature of virtual community with the knowledge/theory from social networks of offline community. Although CMC can overcome the space distance, but it is just one of the channels people use to interact. The communication baggage from real life is still dominates online interactions, such as gender, cultural background, socioeconomic status and offline connections with others (Wellman & Gulia, 1999).

Virtual community can be examined from three approaches. It can be analyzed as a community as a whole with the focus on sense of community felt by all members. Discourse level of analysis is the second approach to studying virtual community. Third, social network analysis focus on the ties and links among members (Mousavidin & Goel, 2009) which have been discussed in previous section.

A popular research theme about virtual community is the resemblance or difference between online and offline social networks. For in-person community, social support such as companionship, emotional aid, information, services, even financial support and tangible material/goods channel through social networks. However, the supports do not come from one source. People maintain multiple connections with different people to access to a variety of resources. Similar to in-person community/social networks, various social resources can be found online. Online social network can find social resources pool through specialized relationships as well as pooling resources from a virtual community (Wellman & Gulia, 1999).

Virtual community is also explored in terms of norm of reciprocity that is common in face to face community. Reciprocating support and social resources ensures that more is available when needed in the future. There are concerns of the lack of motivation in providing support in virtual community. Because of the social or geographical distance, and the large and disperse social networks online, internet users may be less likely to be rewarded or receive support in return (Constant, Kiesler, & Sproull, 1996; Thorn & Connolly, 1987) (Wellman & Gulia, 1999). The prevalence of user generated content and booming online social networks has shown these concerns are unnecessary. Non-tangible social resources are available in online social networks including emotional support, information and providing a sense of belonging. This may be due to the fact that it can be done conveniently at home and does not require a huge investment of time, financial or energy (Wellman & Gulia, 1999).

The advance of transportation, communication and internet transform the concept of in-person community. Neighborhood and kinship ties are only part of individual's overall community networks. Communities exist as social networks consist of kin, friends, and co-workers, regardless of geographical distance. Defining community in terms of space has been replaced by the concept of social networks ((Wellman, 1988a, 1993; Wellman & Gulia, 1999).

Strong ties in online social networks carry characteristics similar to strong ties in offline social networks (Wellman & Gulia, 1999). Bases on "small world theory" (Milgram, 1967, Travers & Milgram, 1969), Dodds, et al (2003) performed a experimental study to investigate the online social networks by using email instead of chain letter. Their findings are global social networks are searchable in an average of five to seven steps.

Some of Wellman observations for virtual communities in general are applicable to social network sites. The ties people build and maintain in online social networks are quite similar to their face to face community ties: intermittent, specialized and varying in strength (Wellman & Gulia, 1999). The online ties may be specialized, but the combination of large and disperse connections maintain online apt to provide a wide range of support (Wellman & Gulia, 1999).

Communities of different size, composition and structure exist online. The nature of online communication enables the virtual communities to become more global and local simultaneously as global connectivity and local matters intersect. The internet support densely-knit group communities as well as personal communities. Group communities and personal communities operate online and offline (Wellman & Gulia, 1999).

For information transmission in virtual communities, Burnett (Burnett, 2000) proposes a typology that illustrates various information behavior in virtual communities. He sees information exchange as social act that forms the foundation of virtual communities. Burnett (2000) points out despite virtual communities' lack of face-to-face interaction among their members compared to traditional communities, information exchange creates opportunities for socializing and other types of interactions. Information sharing itself is considered a social act (Burnett, 2000).

Previous studies have shown tie strength mediating information behavior in social networks. However, tie strength may be insufficient to explore information exchange in social networks

of Chinese societies. Chinese social network is operated under a complex cultural mechanism. *Guanxi* as an indigenous construct of interpersonal relationship may shed some lights on understanding the way social networks function in Chinese societies. The most fundamental idea underlying the Chinese social networks is concept of *lun* (倫). Understanding it is significant for exploring Chinese social networks. Thus the discussion Chinese social networks will start from *lun* concept.

2.5 Interpersonal relationship in Chinese societies

There are two major concepts in any discussion of social networks in Chinese societies: “*lun*” (倫) and *guanxi* (關係). The origin of *lun* concept can be traced back the classical text of Confucianism. *Guanxi* is relatively a modern expression. The usage of the term “*guanxi*” and the relevant studies began to receive research attention at the early stage of economic reform in China. However, the scope of *guanxi* research has extended over the decades from dominantly instrumental to the general perception of interpersonal relationships in Chinese societies. The two concepts are related but not the same, it is like the two sides of a coin

Pan (1948) indicates the major features of *lun* in Confucianism are differentiation between individuals and the types of relations which should be built between individuals. The most fundamental idea underlying the concept of *lun* is differentiation (別)(King, 1991). Role relations for individuals distinguish in accordance to different *lun*. Social order is maintained when everyone behaves in the appropriate role.

In the Book of Rites (禮記), the ten relationships: gods and ghost, ruler and subject, father and son, the noble and humble, the close and distant, the rewarded and punished, husband and wife, public and private affairs, seniors and juniors, superiors and inferiors are fundamental types of human relationships. Everyone should know his or her place and behave accordingly (Fei, 1992).

Based on *lun* concept, Fei (1992) was the first anthropologist to propose the concept of different mode of association (差序格局) to explain interpersonal relationship in Chinese societies in 1947. Interpersonal relationships in Chinese societies are base on different foundation. Different bases lead to different principles in interaction. Kinship is the primary determining factor for the closeness or distance, those related by blood or marriage located in

the circle closest to the core. This is called *zijiren* (自己人). However it is not an impermeable circle. *Zijiren* is often used to indicate the closeness between the two, and anyone can be added to that primary circle under different circumstances or context. The networks in Chinese societies are elastic with the self constantly at the core of circle (Fei, 2007)

Fei (1992) made a comparison on the concept of relations between Western and Chinese societies. He points out that all members in an organization of Western societies are equivalent, similar to straws in a bundle. He called it organizational mode of association (團體格局). By contrast, social relationships in Chinese societies are self-centered, “like the ripples formed from a stone thrown into a lake, each circle spreading out from the center becomes more distant and at the same time more insignificant” (Fei, 1992).

The fundamental idea of *lun* is still deeply embedded in the Chinese social system today. Chen and Chen (2004) point out the various aspects of *lun* in Chinese societies. First meaning of *lun* is about human relationships. Human is not seen as independent entity, but exist in relation to others. The second meaning of *lun* is social order. Social order can be interpreted hierarchically and horizontally. In hierarchical differentiation, certain members enjoy some privilege, such as ruler over subject, father over son, husband over wife, senior over junior. Horizontally, everyone is the core of their own social network. Others are differentiated in terms of their closeness to the self. *Lun* also refers to moral principles dominating the interaction between individuals. Moral principles are differentiated in correspondence with the differentiated relationships (Chen & Chen, 2004).

At early stage of economic reform in China, the mechanism of market economy is far beyond mature. Law and regulation system is in transition period. There are things that cannot be done or achieved by proper procedures, people rely on *guanxi* to achieve their goals (King, 1991). According to a Chinese saying: “It is not who you are, it is who you know that counts”. This shows the importance of *guanxi* in Chinese societies.

Guanxi is constituted of two characters, “*guan*” (關) literally means close, barrier, concern, involve; “*xi*” (係) means connection, bind and relation. Literally *guanxi* means “particularistic ties” (Jacobs, 1979), “personal connections,” “interpersonal relationships”.

Guanxi research at this early stage is perceived as instrumental ties between individuals. The scopes of *guanxi* behaviour/norm are focused on the gift-giving behaviour as the primary means to gain access to limited resources (Yan, 1996a). Mayfair Yang (1994) pointed out the exchange nature of *guanxixue* by saying “*guanxixue* or art of *guanxi* places an emphasis on the binding power and emotional and ethical qualities of personal relationships” (p.4). Fieldwork had been conducted in various villages/cities in different part of China. Yan (1996b) investigates the moral principles and cultural logic underlying the gift-giving structure/system in a village in northern China.

The concept of *guanxi* takes a turn as the economic power of China becomes stronger. Attracted by the huge market potential, Western investment started to channel into Chinese market. However, some of the initial explorations were baffled. Cultural difference is considered one of the major problems. Thus *guanxi* caught the attention of Western academia, research attention had been paid to *guanxi* and organizational communication. On the other hand, research on *guanxi* from a larger scope, seeing it as indigenous construct of interpersonal relationships also prospered. This enables the *guanxi* concept to develop beyond the limitation of instrumental ties in a gift economy.

Guanxi has been interpreted “as an indigenous Chinese construct and define it as an informal, particularistic personal connection between two individuals who are bounded by an implicit psychological contract to follow the social norm of *guanxi* such as maintaining a long term relationship, mutual commitment, loyalty, and obligation” (Chen & Chen, 2004, p.306) .

Luo (2000) indicates that there are several important principles underlying building and maintaining *guanxi*. First, *guanxi* is transferable. Two individuals that have a shared acquaintance may initiate *guanxi* through the introduction or recommendation of the connecting person. *Guanxi* is reciprocal and intangible. People in a *guanxi* are committed to the invisible reciprocity norm in the long run. *Guanxi* is a utilitarian concept that emphasizes exchange of favors, instead of sentiment. *Guanxi* is also personal ties building on the anticipation for long term development (Luo, 2000). Luo (2000) examines *guanxi* from the instrumental perspective which portrayed *guanxi* as an instrument for resources/social exchange.

Hwang (1987) develops a theoretical model of interpersonal relationship of Chinese societies. He categorizes interpersonal relationships into three types: the expressive tie, the instrumental

tie, and the mixed tie. The types of tie will determine which interaction principle is applicable. The expressive tie generally refers to extended and stable social relationship, including immediate family members, and close friends. This is the core group of an individual's *guanxi* network. The need rule dominates the interaction within expressive ties. The instrumental tie refers to the relationship one has to establish with others outside of the core circles target to fulfil his or her material or service needs. This relationship is usually unstable and temporary, for example between salesmen and customer. The equity rule is fundamental for this type of *guanxi* in which one will question what are the cost and reward (Hwang, 1987).

Next is the mixed tie, also called particularistic tie, is the mixture of expressive and instrumental ties. The perception of favor (人情) and face (面子) are most frequently used in this type of relationship. It occurs chiefly among relatives, neighbours, colleagues and so on. The bases perspective considered *guanxi* is determining not only the interaction pattern also the potential development of *guanxi*. It is easier for a relationship of instrumental tie to become mixed tie, but always difficult to change from relationship of mixed tie to expressive tie. This is because expressive tie involves a much deeper sense of trust between members that may not exist in mixed tie (Hwang, 1987).

Yang (1995) also distinguishes relationship into three categories: family, acquaintance and strangers. There are different principles of interaction associate with different ties, responsibility for family, favor for acquaintances as well as gain and loss for strangers.

Ye (2004) distinguishes two most distinctive dyads of complementary interpersonal relationships in Chinese societies: acquaintance (熟人) vs. stranger (生人) and one of us (自己人) vs. outsider (外人). Through frequent social interaction over a period of time, a stranger may become acquaintance but does not necessarily shift from outsider to one of us which has fixed boundary.

Viewing *guanxi* as mechanism to facilitate social exchange may be an oversimplification of concept of *guanxi*. It overlooks the rich cultural connotation and complexity of *guanxi* and the sentimental attributes of *guanxi*. Seeing interpersonal relations in Chinese societies simply performing the role imposed by hierarchy or obligation prescribed by *lun* in maintaining social order also disregards the dynamics of dyadic relationship between

individuals. Thus the dyadic perspective may contribute to understanding of information sharing as it is integral part of interaction between individuals (Chen & Chen, 2004).

Yang (2001a) points out that the limitation of categorical view on *guanxi* is seeing the core circle with fixed boundary that eliminates the possibility of others to become one. The boundary of various circles is flexible in correspondence with the context, and it is up to the individual to define and distinguish. The emphasis of categorical approach is placed on connection between *guanxi* categorization and interaction mode. *Guanxi* or the interaction itself and their operation model are unexplored.

Interpersonal interaction is largely determined by self-other relationship. Although individuals generally consider themselves as members of a collective which is a central feature of collectivism, however the concept of the collective is non-existent in Confucianism. The absence of “group” concept leads to a void of guiding principle for interaction between self and those with no relationship. Individuals are the central of their own social network in a concentric pattern. The layer closest to the core is the strongest tie, and as layers move further away from the core they become less and less significant. Moreover, each relationship is unique one way or another (Wang & Liu, 2010).

The definition of relationship between individuals is fluid and roles can change following reciprocal interactions between the self and the “other” involved. Underlying this fluidity of relationships is the principle of reciprocity or “報” (repay, retribution) in the Chinese culture (Wang & Liu, 2010). The concept of *bao* is not only applicable in self-significant others relations, it is generally applied in all self-other relations.

Confucianism emphasizes both interdependence and self-reliance (Wang & Liu, in press). At first glance, the Confucian seems to put conflicting demands on Chinese individual. On one hand, individual is supposed to fulfil one’s obligations impose by social position. On the other hand, the individual self is at the core of concentric circles, relationships are determine by the psychological distance self and other (Chen & Chen, 2004).

Take a deeper look at the Confucianism socially interdependence and concentric circles of social network, will find out selfism plays a central role in both concepts. An individual has to know his/her social position to know the social role before fulfilling it. One also has to know the closeness in self-other relations to response properly during the interaction. Thus

Confucianism socially interdependence consist of vertically upward levels and concentric circles are horizontally outward movement from an individual self.

2.6 Strength of ties and guanxi

Strength of ties and guanxi can be distinguished conceptually. Based on the understanding of tie strength and guanxi, the reseacher compiled the table below to show the conceptual difference between the two.

Table 1 Comparison of tie strength and guanxi

Features	Tie strength	Guanxi
Bases	Based on shared interest, for example, similar political stance, and hobby.	Based on shared identity, for example same surname, came from same township.
intensity	Strong, and weak ties. Strong ties are intense and stable relationships while weak ties are feeble and short term connections.	Blood related, close, and distant (遠近親疏). Blood relations are the closest connections for an individual. However, guanxi is not limited to blood relations only. Close friends may be seen as brothers or sisters even though they are not blood related.
Reciprocity	Instant reciprocity. A favour may be reward by a meal, or a gift immediately.	The concept of favor (人情) enables delayed reciprocity. A favour may be earned, owed, and repaid/returned. A favour may be returned in different forms, for example giving information, and initiating guanxi with third party. The value of favour is measured by the efforts put in to accomplish it.

Transferability	Non-transferable.	Transferable, for example a <i>guanxi</i> person is trusted, thus his/her friends are trusted.
Governing rule	Same principles for all ties. General principles such as being fair and kind may be applicable for all ties.	Different principles associated with different <i>guanxi</i> person. Individuals may go to a great extent to help those with close <i>guanxi</i> but ignore those not include in the same <i>guanxi</i> network.
Development	Develop in stages. Weak ties may be developed into strong ties with frequent interaction, and emotional supports. Strong ties may be faded away and become weak ties with less interaction.	An act of benevolence may nurture a lifelong relationship even in the absence of frequent interaction.

Source: (Chiu, Hong, Zhu, & Chih, 2007; Granovetter, 1973; Haythornthwaite, 1996; Hwang, 1987; Jacobs, 1979 ; Luo, 2000; Wellman, 1988c)

Ties strength and *guanxi* concepts are originated from different social and cultural background, and both are used to explain network behaviour in respective society. Despite the differences as described above, the two described relations that may be built in similar contexts. For example, colleagues in the same company, classmates in the same school, and neighbours in the same community. Both concepts endorsed the idea of reciprocity, and trust.

Strength of ties may be conceptually different from *guanxi*, however, is this the situation for Taiwan Facebook users? Do they rely on weak ties for information as described in the weak ties theory? Is there any connection between *guanxi* and tie strength? If yes, what is the nature of this connection? This study tries to provide some insights to these questions.

Chapter 3 Research Method

3.1 Research framework

Granovetter (1973) proposed in weak ties theory that weak ties link different sections of social networks, thus individuals are able to access information and other social resources unavailable at the existing social circles. After Granovetter (1983) reviewed the articles testing the hypotheses of weak ties theory, he maintained that while strong ties are more motivated to share information weak ties are still the major sources of new information.

From the study on faculty members of various disciplines of University of Chicago and Columbia University, Friedkin (1982) concluded that strong ties and weak ties play different roles in information flow. While strong ties are more central in contributing to information flow about activities within groups, weak ties are more central in diffusing information about activities outside the group. "In both types of information flow, the contribution of weak ties is impressive since person tend to maintain more weak than strong ties.....The strength of weak ties lies not in their individual efficiency but in their numbers (Friedkin, 1982, p.284).

The predominant underlying assumption of weak ties theory is that social contacts individuals weakly linked have information and wishes to share with anyone that needed them. However, there may be a gap between information possession and information diffusion. The weak ties might possess niche information currently unavailable in the existing social circles. Nonetheless, they may lack motivation or communication channels to diffuse the information. Thus in theory, weak ties function as the shorter path of information flow, however in practical weak ties may not perform the role as often as predicted.

Weak ties theory proposed the only path for information to flow between A and B is the link between A and B regardless of the strength of their ties. Thus the link that connect A and B assumed a great significance (Please refer to Fig. 1, Granovetter, 1973).

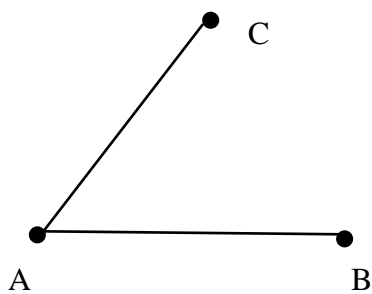


Figure 1 Forbidden triad

(Source: Granovetter, 1973)

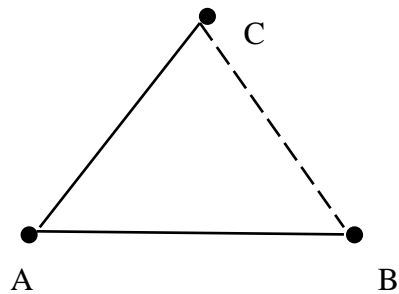


Figure 2 Possible information route

(Projection of current research)

In Chinese societies, common third party is a type of *guanxi* bases. Two individuals can claim to have *guanxi* because they have a common friend. This substitute *guanxi* may be initiated by the common friend or either of the two parties for the purpose of getting assistance, or solving problems (Chen & Chen, 2004).

If B and C are both acquainted with A, a connection may be established between B and C, even though there are no other direct *guanxi* bases between them. The connection can be the bridging ties that function as an information path. Information from B may be transferred directly to C without going through A (Please see Fig. 2). Information flow between A and B may have more than one route, for example from A to B, or from A to C then to B, as opposed to the only path proposed by weak ties theory.

When seeking help, including advice, information and other forms of assistance, individuals consider the contacts in their *guanxi* network, and select one or more that are most likely to help. Based on the estimation of *guanxi* closeness between them, the help seeker already held some of expectations on the possibilities of the favour being granted before a formal request had even been made of the favour. The closer *guanxi* generates higher expectation. “The extent to which such expectation is met serves as a feedback on the quality of the *guanxi* and bases for deciding if adjustment is needed” (Chen & Chen 2004). If the input efforts are exceeding the expectation, it may result in closer *guanxi*. If the outcome of input is below expectation, such as a favour not returned, the *guanxi* quality may deteriorate.

Given the above analysis, we are led to ask of the weak ties theory is indeed applicable to Chinese online social networks? The question leads to our first hypothesis,

H1: The importance of weak ties as source of information is significantly greater than that of strong ties.

Our analysis above also shows that tie strength is conceptually different from *guanxi*, yet in Chinese societies *guanxi* plays a major role in social networks and resources are often shared among in-group members in the same *guanxi* network (Shin, Ishman, & Sanders, 2007). Trust and communication were also found to be two important elements in information diffusion (Ramasamy, Goh, & Yeung, 2006).

This leads us to question if Chinese Facebook users' *guanxi* with strong ties and that with weak ties is different, and if *guanxi* plays a role in selecting counterpart for information exchange:

H2 There is significant difference between Facebook users' *guanxi* with strong ties and their *guanxi* with weak ties, and

H3: Strong *guanxi* positively predicts respondents' selection of strong ties in exchanging information.

H4: Weak *guanxi* negatively predicts respondents' selection of weak ties in exchanging information.

3.2 Operational definition of key concepts

Tie strength

A “tie” in this study refers to a “contact person” or a “Friend” on respondents' Facebook Friend list. Since the publication of Granovetter's weak ties theory (1973), the volume of research using tie strength concept to examine information resources exchange in social networks are overwhelmingly larger than empirical studies attempted to measure or test the concept (Mathews, White, Soper, & von Bergen, 1998; Petróczi, Nepusz, & Bacsó, 2007). Likewise, different dimensions of tie strength have been discussed widely for social network

research in general, rather than used specifically for examining relations of online social network users.

Most of the primary indicators of tie strength in the existing literature of social ties or network research were developed in offline context. (Petróczi, et al., 2007) summarized eleven indicators including primary indicators such as frequency, intimacy/closeness, as well as indicators which were infrequently used were specific to offline context, for example, desire for companionship, and multiple social context (breadth of topics), they were therefore inapplicable in this study. “Virtual communities are created/maintained and held together by computer-mediated communication (CMC), therefore components such as help provided and received, time spent together or even communication may have different meanings” (Petróczi, et al., 2007, p.41). Despite the abundant literature on tie strength research, therefore, there is no standardized scale available.

Emotional intensity/closeness is seen as most distinctive indicator of tie strength for some studies (e.g. (Marsden & Campbell, 1984). However, other researchers reached contradicting conclusions. “Those studies that measure ties and tie strength using the single word ‘knowing’ may misinterpret the composition of tie,” (McCarty, 1996, p. 14) pointed out. He questioned the predictive power of closeness, as closeness /knowing may be understood differently by respondents (McCarty, 1996).

A considerable number of tie strength studies were targeted on finding predictors and indicators of tie strength (e.g. (Mathews, et al., 1998), rather than to quantify tie strength. It is however important to quantitatively distinguish strong ties from weak ties, because only then the claims and theories which rely on the concept of tie strength can be tested (Granovetter, 1973, Petróczi, et al., 2007).

Empirical studies focusing on tie strength in virtual communities are rather limited (Petróczi, et al., 2007). Among the few, there are two studies relevant to the current study. Muncer et al. (Muncer, Loader, Burrows, Pleace, & Nettleton, 2000) defined tie as “having at least one posting between two participants and used the number of postings on each strand and frequency to indicate strength” (Petróczi, et al., 2007, p.41).

Actual interaction between users had been used to distinguish strong ties and weak ties on Facebook in the research by Viswanath, Mislove, Cha, & Gummadi (2009). They found that the median number of posts per user pair is two in the first year the link was established and 81% of the pairs exchange less than five wall posts in a year. They divided the users into two groups: high and low rate interaction. The average number of posts exchanged between high-rate interaction groups is 16.2, and the median number is 10 posts. The user pairs may also interact via messages, photo sharing, application, and chat (Viswanath, et al., 2009).

There are two major levels of analysis for network study, individual actors, and actor and network. Organization represents a higher level of analysis than individuals in terms of scope and complexity of the entities being examined. This macro perspective may not apply to the study of online social network information exchange, as it is individual-based and considered micro-level (Borgatti & Foster, 2003).

Tie strength in this study is measured from the dyadic perspective, meaning the intensity is viewed for each pair of individuals (e.g. where A and B are friends or not; the frequency of contact between them), rather than for each node (e.g. age or gender of each actor from the perspective of network structure) (Borgatti & Foster, 2003).

Taking the above into consideration, “frequency of contact” is used here as it is clear and hence easier for respondents to understand and respond to questions. “Strong ties” in this study are defined as user pairs that interact three times or more per week via Facebook, by way of wall posts, comments, video and application sharing, chat, or messages. User pairs that exchanged less than five wall posts in a year were considered low interaction in research (Viswanath, et al., 2009). Thus, “weak ties” in this study is defined as user pairs that interact once in three months, via wall posts, comments, video and application sharing, chat, or messages.

Information exchange

Information exchange is dyadic communicating behavior that diffuses information. In this study questions relating to such exchanges were targeted at primarily information on job opportunities, the same as that Granovetter used in his 1973 study. The focus on job-related

information helps respondents to relate to the situation described in the question and properly respond to it. But in this study, leisure activities information was also added to see if different types of information would entail different patterns of behavior.

Guanxi

For the present study, *guanxi* is viewed strong societal relationship involving favor, mutual benefit, reciprocity and personal connection (Chiu, et al., 2007). According to the past research, trust is also an important component in *guanxi*. Thus “trust” is added into the *guanxi* scale (Osland, 1990; Ramasamy, et al., 2006). The *guanxi* scale in this study was developed on the basis of the above components, and the items from *guanxi* scale by Zhuang, Xi, & Tsang (Zhuang, Xi, & Tsang, 2010). But as the Zhuang, et al. (2010) study was designed to examine organizational *guanxi* behavior, some of the items had been removed or rephrased to adapt to the purpose of this study, for example, “If not for my company, I would rather not have a connection with him (them).”

3.3 Questionnaire design

This questionnaire is aimed at exploring information exchange behavior of Facebook users, from the perspective of tie strength and *guanxi*. Most items were closed-ended questions, with the exception for the two questions: (1) the length of time they have come to know the strong tie and weak tie that they have identified, and (2) average time spent on Facebook per day. There are four sections of the questionnaire, the first section measures respondents’ *guanxi* with their strong ties and the likelihood of exchanging job and entertainment /leisure information. The second section repeats the same questions with the weak tie that the respondents identified. The third section attempted to capture the importance of *guanxi* for respondents’ selection of information exchange counterpart. The fourth section is the demographics and Facebook usage.

Four independent variables were used to explain the variances in the dependent variable, i.e. the likelihood of selecting strong vs. weak ties in exchanging information of different types. The four independent variables are demographics, Facebook usage, tie strength and *guanxi*. Following are the explanations for each variable.

(1) Demographic

There are four items included in demographic variables: gender, age, education level and monthly income. Respondents were divided into four age groups: (1) 40 years old and above (2) 30-39 years old (3) 20-29 years old (4) 19 years old and below. Education level is divided into four options: (1) junior high school (2) high school or vocational school (3) bachelor's degree (4) master's degree and above. The monthly income is divided into five options: (1) 19,000TWD and below (2) 20,000-29,000TWD (3) 30,000-39,000 TWD (4) 40,000 TWD and above (5) refused to answer.

(2) Facebook usage

Facebook usage consists of two items, time spent on Facebook and the number of Facebook contacts. The average time spent on Facebook in a day is an open ended question. Respondents were required to provide input in a certain format, for example 1/35 indicated 1 hour and 35 minutes, 0/55 indicated 55 minutes. The data were recoded into groups for the purpose of clear presentation in frequency table only: (1) 1-100 minutes (2) 101-200 minutes (3) 201-300 minutes (4) 301-400 minutes (5) 401-500 minutes (6) 501-600 minutes (7) 601-700 minutes (8) 701-800 minutes (9) 801-900 minutes. However, during the process of statistical test, the data remained as continuous variable. On the other hand, the number of Facebook contacts is divided into (1) below 100 people (2) 101-200 people (3) 201-300 people (4) over 301 people.

(3) Information exchange

There are two items included in this variable: "You often receive new information of leisure activities from him/her" and "You used to receive information about new job opportunities from him/her". The options for these items are (1) Disagree (2) Somewhat disagree (3) Somewhat agree (4) Agree. Respondents' scores on the items were combined to form the "information source" variable. This is the dependent variable in the following statistical test.

(4) *Guanxi*

There are five items under the *guanxi* variable: "Have each other's back in work, school work or daily life", "He/she is a trustworthy person", "Get together for dinner or social activities", "Gift giving during festival", "if he/she taken care of you on work/ class, you will reciprocate

him/her”. The respondents had to choose among these four options: (1) Disagree (2) Somewhat disagree (3) Somewhat agree (4) Agree. The scores of respondents on these items are added up to establish the *guanxi* index. The higher score of respondents indicated closer *guanxi*. Identical questions were used for strong and weak ties.

5) Tie strength

In this study, tie strength is categorized into two types: strong ties and weak ties. Strong ties are those interact three times or more per week via Facebook, while weak ties are those interact once in three months via Facebook. The definition of ties is stated in questionnaire, and the respondents were required to answer “yes/no” if she/he had this type of contacts on Facebook.

3.4 Data collection

This paper is an empirical research. Data will be collected through a web survey. This method is chosen because of its ability to reach out to a large target population--the Facebook users--at minimum cost and rapid turnaround (Sheehan & Hoy, 1999). A potential concern of web survey is the problem of multiple responses from a single individual. This problem has been put under control by choosing the web survey platform that captures the IP address of respondents. Thus multiple responses from the same IP address can be ruled out. Another potential risk for web survey may be non-target population response to the survey. In order to minimize the risk, the target population of this survey--Facebook users, is clearly stated in the introduction of the questionnaire, non-Facebook users are advised not to proceed to the questionnaire.

The web survey is conducted by posting a short message on popular online forum. The short message contains a brief introduction of the study and the link to the web page on which the questionnaire is posted. A pilot study was performed before the survey. Based on the feedback from the pilot study, the questionnaire was revised to enhance its reliability and validity. Some questions were removed because of low internal consistency in the reliability analysis. Some questions had been rephrased to facilitate the understanding of respondents. For the two open-ended questions, the sample format of answer was provided to guide the respondents in answering those questions.

Chapter 4 Results

BBS was chosen as the channel to reach potential respondents because of its large and diversified population of users. There were 150 thousands users during peak hours such as weekend nights. During off peak hours, it may carry 40 thousands users. The average age of BBS users is 24 ("批踢踢實業坊," 2010). This is the age young people go to universities or take up graduate programs. On the other hand, the two majority age groups of Taiwanese Facebook users are 18-24 (31.9%) and 25-39 (50.9%) ("Facebook marketing statistics, demographics, reports and news," 2010). It is reasonable to assume that there is a considerable portion of overlapping between these two populations, since both of them required a certain level of computer literacy and internet access. BBS became the logical choice channel to reach Facebook users from all over Taiwan, at a minimum cost.

The target population of this study is Taiwanese Facebook users. Online survey was conducted to collect data for SPSS analysis. The questionnaire was structured on an online survey platform (<http://esurveyspro.com/>). Brief introduction and link to the questionnaire was posted on relevant BBS pages, including surveys, Facebook, master's degree, graduate and some universities' pages. There were 8 lucky draw prizes (100TWD of 7-11 convenient store shopping voucher each) to increase the response rate. Data collection was carried out from May 17, 2010 to June 7, 2010. There were 537 visits recorded by the survey platform, with 249 valid responses; the response rate was 46.4%.

The questionnaire was anonymous based. However, email address was required for those who wish to join the lucky draw in order to notify the winners. It took about 5 minutes to finish the questionnaire. The online survey platform registered the IP address of respondents. Once completed, the respondents were unable to link again to the questionnaire. This step was taken to minimize the probabilities of repeated responses.

4.1 Description of sample

The demographics distributions of the sample for this research are gender, age, education level and monthly income. In terms of gender, there are 99 male respondents (39.8%), and 150 female respondents (60.2%). Majority of the respondents are aged 20-29 (88%), 26

respondents are younger than age 19 (10.4%) and 4 respondents are aged between 30-39 years (1.6%). Majority of the respondents are university students (74.7%), followed by graduate programs (24.1%); only a few of them have high school academic background (1.2%). As most of them are students, their economic status is low: 186 of respondents (74.7%) with monthly income less than 19,000TWD; 18 respondents (7.2%) ranged between 20,000-29,000 TWD; there are 12 respondents (4.8%) in the range of 30,000-39,000TWD; only 6 (2.4%) have monthly income over 40,000TWD. Twenty seven of the respondents (10.8%) refused to reveal this information.

On Facebook usage, 88 (35.3%) of the respondents reported that they have less than 100 contacts on Facebook. A similar number is shown for 101-200 Facebook contacts with 89 respondents (35.7%). There are a small number of respondents: 35 (14.1%) reported 201-300 Facebook contacts. Time spent on Facebook per day ranges from less than five minutes to 14 hours, the average is two hours and 11 minutes (mean=130.56, SD=124.31). Fifteen percent of the respondents spent one hour on Facebook in a day, followed by the half an hour spent for 10.4% of them.

There was no screening question to ensure those responded were Taiwanese users, however, the questionnaire was posted on BBS which usage was generally limited to Taiwanese users.

Table 2 Demographics distribution of the sample

Variables	Items	Frequency	Percentage
Gender	male	99	39.8%
	female	150	60.2%
Age	40 and above	0	0
	30-39	4	1.6%
	20-29	219	88.0%
	19 and below	26	10.4%
Education level	high school/vocational	3	1.2%
	bachelor's degree	186	74.7%
	master's degree and above	60	24.1%
Income level	less than 19,000NT	186	74.7%
	20,000-29,000NT	18	7.2%

	30,000-39,000NT	12	4.8%
	40,000NT and above	6	2.4%
	refused to answer	27	10.8%
Number of Facebook contacts	less than 100	88	35.3%
	101-200	89	35.7%
	201-300	35	14.1%
	301 and above	37	14.9%
Time spent on Facebook per day (in minutes)	0	1	.4%
	1-100	132	53.0%
	101-200	67	26.9%
	201-300	29	11.6%
	301-400	11	4.4%
	401-500	5	2.0%
	501-600	3	1.2%
	601-700	0	0
	701-800	0	0
801-900	1	.4%	

4.2 Comparison of strong and weak ties

Of the 249 respondents, 177 respondents (71.1%) have contacts that they communicated via Facebook at least twice a week—defined as “strong ties” in this study, while this level of contacts is not found for 72 respondents (28.9%). One hundred and seventy three (97.7%) among those with strong ties reported that these strong ties were added to Facebook after their initial interaction in offline context. Only four of them indicated that the contacts were established via Facebook. Thus, a majority of the respondents have real life interaction with these strong ties. The most common kind of interaction is classmates, with 124 respondents (49.8%). There are 11 respondents that indicated their interaction is limited to Facebook; a similar number goes to club membership. Eight of the respondents have strong ties that are family members. Other interactions include boyfriend and girlfriend, and also roommates. About half of respondents indicated their socioeconomic background is not significantly

different with both strong and weak ties. One hundred and twenty five respondents (50.2%) disagreed that their socioeconomic background was substantially different from that of the strong tie they identified. One hundred and twenty eight respondents (51.4%) indicated the background disparity with that of the weak tie they identified. On the other hand, 138 respondents (55.4%) reported that they belong to the same social circle with their strong ties, while 64 respondents (25.7%) reported the same with their weak ties (for details please see table 7 in Appendix 1).

Frequency tabulation also showed differences between strong and weak ties on different aspects of *guanxi*. Most respondents were positive in mutual help, trust, Face-to-Face social interaction, gift-giving and reciprocity with strong ties rather than weak ties, yet they are particularly negative on mutual help, Face-to-Face social interaction and gift-giving with weak ties (for details please see table 8 in Appendix 2).

Frequency tabulation on respondents' attitude in selecting counterpart for information exchange (for details please see table 9 in Appendix 3) showed that over half of them (53.1%) indicated they would first go to their strong ties when new job opportunity information was needed. When information is unavailable from strong ties, 58.6% of them will try to gain access through strong ties' network. Sixty three percent of the respondents agreed that information from weak ties usually came through their post on Facebook for public viewing. Sixty eight percent of the respondents agreed that previous interaction experience would influence their decision on whether to share job-related information with a contact. However, 72.3% of them also indicated that they would try to get information, regardless of tie strength, if they really wanted it.

Sixty two percent of the respondents agreed that they would give strong ties a higher priority in sharing job opportunity information; by the same measure, 69% of the respondents agreed that strong ties are more active on providing information. Seventy one percent of the respondents would give job-related information to the friends of their Facebook contacts, yet 64.3% of them agreed that they would not post the information for all of their Facebook contacts.

Sixty nine percent of the respondents agreed that attempt to obtain job opportunity information from weak ties that they hardly communicated was inappropriate, 57.8% also

indicated that according to past experience, seeking information from weak ties yielded less effective results.

4.3 Data analysis

The data from questionnaire were entered into SPSS software for analysis. The following tests were conducted:

Reliability analysis--to examine if scales are consistent in measuring a particular concept.

Paired-samples t-test--to find out if there is significant difference on two variables by respective respondents.

Correlate bivariate analysis--to find out if there is correlation between variables and the direction of the relations.

Multiple linear regressions--to find out which predictors or independent variable carry higher predicting value on dependent variable.

Hypothesis 1: The importance of weak ties as source of information is significantly greater than that of strong ties.

Paired sample t-test was conducted to test H1. Contrary to the weak ties theory, respondents attributed higher importance to strong ties as a source of new information in comparison with weak ties. The differences are significant (paired sample t-test, $t=3.15$, d.f. =25, $p<.01$, table 1). Thus H1 is not supported.

Table 3 Paired sample t-test results on information source and tie strength

	Mean (n=249)	Standard deviation	t-value
Strong ties as information source	3.39	2.46	3.15**
Weak ties as information source	2.87	1.76	

** $p<.01$

Paired sample t-test was used to find out if there are significant differences on the importance of strong ties vs. that of weak ties in exchanging different types of information. Results showed significant differences between the importance of strong ties vs. weak ties in providing information about leisure activities ($t\text{-value}=3.75, p < .001$), with strong ties as the more important sources of information. Yet for job-related information, the difference was insignificant. The lack of statistical significance for the importance of strong ties vs. weak ties in providing job-related information might be explained by respondents' lack of interest or experiences in seeking such information, as most of them were still students. However, it is worthy of notice that the pattern of response remained the same, with greater importance attached to strong ties, rather than weak ties, in information provision.

Table 4 Paired sample t-test results on information types and tie strength

Information types	Strong ties		Weak ties		t-value
	mean	SD	mean	SD	
Leisure	1.91	1.42	1.55	1.02	3.75***
Job related	1.47	1.21	1.32	.90	1.88

*** $p < .001$

Hypothesis 2: There is significant difference between respondents' *guanxi* with strong ties and their *guanxi* with weak ties.

Paired sample t-test was performed to compare *guanxi* closeness between strong and weak ties. The results shown the differences are significant. Five items of four-point Likert scale were used to build the *guanxi* index in this hypothesis. The higher numbers indicated a closer *guanxi*. *Guanxi* on strong ties (mean =2.27, SD= 1.52) indicated closer *guanxi* between respondents and the strong tie they identified; while *guanxi* on weak ties (mean= 1.69, SD=.96) showed a more distant *guanxi* between respondents and the weak tie they identified. Thus H2 is supported.

Table 5 Paired sample t-test results of *guanxi* and ties

	Mean (n=249)	Standard deviation	t-value
<i>Guanxi</i> on strong ties	2.27	1.52	5.53***
<i>Guanxi</i> on weak ties	1.69	.96	

***p<.001

H3: Strong *guanxi* positively predicts respondents' selection of strong ties in exchanging information.

H4: Weak *guanxi* negatively predicts respondents' selection of weak ties in exchanging information.

Based on the properties of *guanxi* as discussed earlier, including transferability and reciprocity, a series of items were developed to find out to what extent does *guanxi* accounts for variance in respondents' selection of information source. Reliability analysis was conducted respectively for the *guanxi* scale on strong ties (mean=2.27, SD=1.52, Cronbach's alpha=.971) and weak ties (mean=1.69, SD=.96, Cronbach's alpha=.914). Both shown high internal consistency.

Multiple linear regression analysis was performed for strong and weak ties to test the hypothesis. The first block is demographics (gender, age, education background and economic status); the second block is Facebook usage (number of Facebook contacts and time spent on Facebook); and third block, *guanxi*.

Table 6 Multiple linear regression analysis results of demographics, Facebook usage, and guanxi on information source

	Strong ties	Weak ties
Dependent variable	Strong ties as information source	Weak ties as information source
First block (demographics)		
Gender	-.01	-.01
Age	-.04	-.04
Education background	.12***	.06
Economic status	-.04	.00
R Square	.133	.29
Δ Adjusted R ²	.12	.01
Second block (Facebook usage)		
Time spent on Facebook	.01	.02
Number of Facebook friends	.02	.02
R Square	.08	.03
Δ Adjusted R ²	.08	.02
Third block (<i>Guanxi</i>)		
<i>Guanxi</i>	.83***	.76***
R Square	.55	.54
Δ Adjusted R ²	.56	.55

***p<.001

The multiple linear regression results has shown that for strong ties, *guanxi* positively predicted strong ties as information source (Beta=.83, p<.001). Education level (Beta=.12, p<.01) also carried significant predicting values. *Guanxi* is also the most distinctive predictor (Beta=.76, p<.001) for weak ties as information sources. Positive relations of strong *guanxi* prediction on strong ties as information source indicated the closer the *guanxi* with their contact, the more respondent relied on them to receive *guanxi*. Thus H3 was supported. The

fact that the more distant *guanxi* was to be associated with WT indicated respondents were less likely to rely on weak for information. Thus H4 was also supported.

Overall, the data analysis showed that Taiwanese Facebook users relied on strong ties as their information sources rather than weak ties as predicted by weak ties theory. Strong ties are the primary information sources for the respondents and their *guanxi* with strong ties are also closer. This can be seen from the several features of *guanxi*—mutual help, trust, face to face social interactions, gift-giving and reciprocity. Further discussion of the implications of the results will be presented in next chapter.



Chapter 5 Discussion

5.1 Implications on research

The weak ties theory posited weak ties as the links that connect different sections of the social network, hence the channel for receiving useful information. However results of this study showed that respondents tend to rely on strong ties as their primary sources of information. They also tend to agree that strong ties are more motivated to provide information, in comparison to weak ties. Hence respondents would prioritize their strong ties over weak ties in information exchange.

The idea of transferable *guanxi* as discussed earlier enabled Chinese network users to access the networks of their strong ties for the information unavailable from the existing social circles. If their strong ties were not able to provide the information, respondents would rely on the connections of these strong ties, rather than the weak ties in their network, to find the information they needed. In other words, most respondents tend to go through the networks of their strong ties to connect to different sections of the social network, making strong ties the key to information exchange in a social network. This finding is in parallel with the concept of primary groups proposed by mass media research researchers (Katz & Lazarsfeld, 1965). Primary groups refer to different types of formal or informal social groupings, including family, friends, co-workers, which formed individuals' interpersonal networks and through which they conduct all kinds of daily activities. Thus, primary groups become the major sources of attitudes, opinions as well as information (Lu, 2007).

Chinese societies are also known to be high in particularistic trust, but low in general trust (Fukuyama, 1996, Chen & Chen, 2004). Trust is based on preordained relationship such as among family members as well as achieved relationship (Chen & Easterby-Smith, 2008), for example friends, and co-workers. Trust and responsibilities among family members is by and large fixed, yet trust between friends and other achieved relationships has to be built over time and frequent interactions (Chen & Chen, 2004). Results of this study also reflected this differential trust: respondents would not post job-related information for public access on Facebook, an indication of a lack of general trust to their contacts. However, most of the respondents indicated that they would share job-related information with Facebook contacts'

friends. As a result, the information is shared even though direct connection between information giver and information receiver is not established.

Findings from the current study also link back to the differentiation concept and the idea of concentric circles proposed by Fei (1992). Strong ties that are close to the inner circles of the individual's social network have the priority to access the individual's resources, including information, and other resources from his/her networks. Individuals are keeping higher expectation on strong ties compare to weak ties in fulfilling their information needs as indicated by the results of the study. For weak ties located further away from the inner circles, their information needs are not individual's concern. Individual may also reluctant in allowing weak ties to gain access to information he/she possessed, let alone obtaining information through his/her networks.

Another major finding emerged from the study is that the length of time since first acquaintance was not an effective indicator of tie strength. Some contacts might have established acquaintance a long time ago, but were merely weakly linked. On the other hand, those who have come to know one another only shortly may become strong ties. This finding contradicts the finding of a study by Gilbert & Karahalios (2009) which showed duration since first communication as an effective predictor of tie strength on social media. Explanations may lie in the principle of reciprocity in *guanxi* development.

After the initial contact, *guanxi* has to be built through personal interactions in order to sustain the *guanxi* or foster closeness in *guanxi*. Personal interaction is the key for building *guanxi* (Jacobs, 1979, Chen & Chen, 2004). Personal interaction can be categorized into two types - the expressive and instrumental interactions. Expressive interactions refer to social-oriented activities/gatherings on occasions such as weddings and birthdays. Instrumental interactions are pragmatic transactions and exchanges, including information exchange, and work place cooperation. Through these interactions, the sense of trust, affection (感情) and obligation (交情) between the individuals will be developed (Chen & Chen, 2004). Otherwise despite the long duration since first communication, the *guanxi* will remain at the status of distant *guanxi*.

Donald & Boyd (2004) found that social network sites are well-suited to maintaining weak ties conveniently at a minimum efforts, thus the sites may greatly contribute to increasing the number and diversity of weak ties formed and maintained. In this study only a small number

of the respondents indicated that they have no weak ties; a slightly bigger number reported no strong ties and most had both strong and weak ties on Facebook. However most respondents also indicated that their contacts on Facebook, with whom they are either strongly or weakly linked to, are met in offline situation before added to Facebook network. A majority of them have or used to have some kind of interaction in real life, be it classmates, friends, roommate, club members and other people they met in previous activities. This finding is consistent with the findings of earlier studies of Lampe, et al., (2006; 2008) that found Facebook users using the website to maintain the connection with existing contacts, rather than making new contacts online (Lampe, et al., 2006). In a follow-up study, they found that little has changed in Facebook use. Facebook is used mainly to maintain the contacts developed offline instead of meeting new people. However, new users were found to be substantially more likely to engage in them than longer-term users (Lampe, et al., 2008). This may be a topic worth further observation, the behaviour of long-term users and new users.

Family is the basic structural and functional unit in Chinese society (Yang, 1995), in contrary to individual in Western societies. However, the results from current research have not found family ties to be assuming a significant role in Facebook network; respondents exchanged information with classmates and friends more frequently than family members on Facebook. Only a handful of respondents identified their family members as strong ties. Chow & Ng (2004) also found that in working environment, people shared more contents with close associates than with family members. “Family members are not involved in the regular activities of the respondent, but are there when needed,” as Chow & Ng pointed out (2004, p.1089).

5.2 Implications on social media marketing

Findings of the current study may also offer some insights on the information flow of Taiwanese Facebook users. With the understanding of how information flows over social network sites, products or services information can be channelled to those who needed them. Social media have increasingly become a powerful tool for marketing and customer relationship management (J.Rosen, March12,2009; Kim, Jeong, & Lee, 2010). Many companies post new product information, photographs and video clips on Facebook and other social media services. The comments by members about their products or services are also

monitored and responded through Facebook and other social media services (Kim, et al., 2010). Xiang & Gretzel (2010) found that experience sharing and information posted on social network sites have been used by travellers to plan for activities during travelling, including events, nightlife and park.

5.3 Conclusion

Most Western social network theorists tend to focus on network structure and individuals' positions in the network in social network behaviour. The content and process of dyadic relationships are not the primary concerns from a sociological perspective. However, Chinese view networks from a different perspective. Dyadic ties in relation to the self are the focus of social network rather than the interconnectedness of the ties to each other (Chen & Chen, 2004). Thus with whom and on what topics an individual exchange information are very much influenced by the *guanxi* between the two individuals rather than his/her position in the social network.

Consistent with the interaction in offline context, *guanxi* dominates the way Taiwanese interact in online social networks. The change of communication platform did not impact the way people interact with one other.

Guanxi building is the Chinese version of network building (King, 1991). King (1991) made a wonderful remark on *guanxi* building and usage:

As a socio-cultural concept kuan-hsi (guanxi) is deeply embedded in Confucian social theory and has its own logic in forming and in constituting the social structure of Chinese society.....Chinese kuan-hsi building can be characterized as an ego-centered social engineering of relation building.....Indeed, network building is used (consciously or unconsciously) by Chinese adults as a cultural strategy in mobilizing social resources for goal attainment in various spheres of social life. To a significant degree the cultural dynamic of kuan-hsi building is a source of vitality in Chinese society (p.79).

The findings from this study lead us to wonder if tie strength may not be a universally accepted social network concept. The weak ties theory is inadequate in explaining information exchange behaviour of Taiwanese Facebook users. *Guanxi* on the other hand provides a clearer explanation on the issue of “with/from whom an individual shares, or seeks information.”

5.4 Limitations and further research

This study is subject to certain limitations. Most of the respondents are university students. Working Facebook users are under-represented in the sample of this study. This limits the applicability of the results to generalize to the entire population of Taiwan Facebook users. Future research may focus on the working population of Facebook users. Greater importance on *guanxi* may be assumed by working forces. *Guanxi* is important for the exchange of information including trade secrets and competitor information (Warren, Dunfee, & Li, 2004).

The current study is limited to Taiwanese Facebook users. Thus the generalizability of the results to Chinese societies in general may be limited. Further research is required to determine to what extent does *guanxi* has an impact on the information exchange behavior of Facebook users of other Chinese societies, for example, those in Hong Kong, Malaysia and Singapore. The mixed cultural influences in the abovementioned cities or countries may or may not have an impact on the *guanxi* concept and its role on information exchange. This is a topic worthy of further exploration.

Another limitation of the study is the online self-report survey method for data collection. The quality of answers falls beyond the control of the researcher. Clarifications and follow up questions were unavailable to further understand the interplay of tie strength, *guanxi* and information exchange behavior of Facebook users. Future research may deploy focus group methods or in-depth interview in addition to survey to gain more insights of the research topic.

The sample size of 249 is not huge in comparison to the large population of Taiwanese Facebook users. Future research may carry out a large scale survey to gain deeper understanding and overview of the population and their behavior. Social media are a fast changing communication platform, so are the users and their behavior. Social science research on online social behavior may become increasingly important in the quest to understand how and why people behave in certain patterns.

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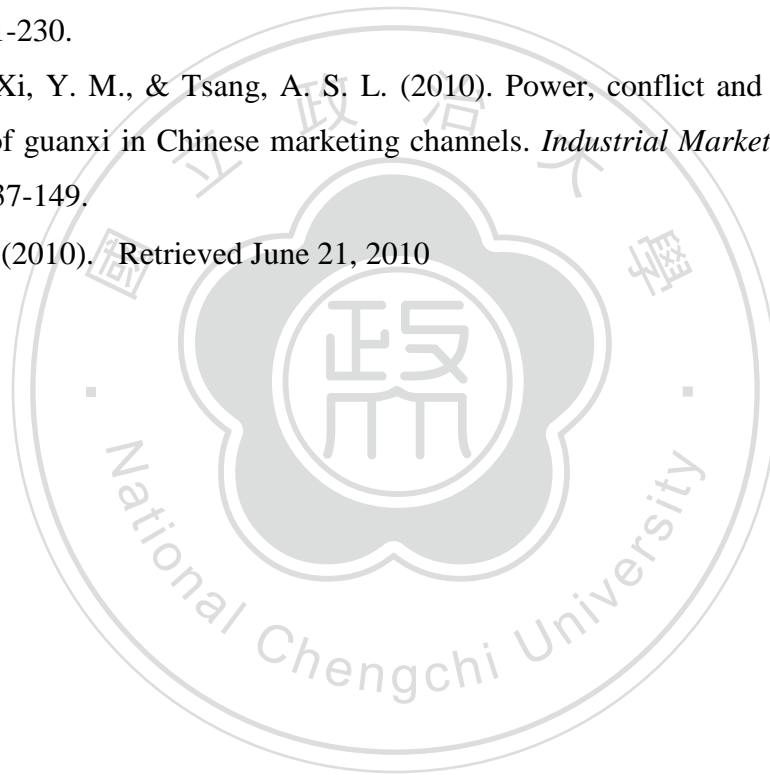
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Appendix 1

Table 7 The background of strong and weak ties

Items	N=249	Strong ties		Weak ties	
		Frequency	Percentage	Frequency	Percentage
Availability	No	72	28.9%	41	16.5%
	Yes	177	71.1%	208	83.5%
Type of contact	New contact made on Facebook	4	1.6%	57	22.9%
	Existing contact	173	69.5%	151	60.6%
Real life interaction	Facebook only	11	4.4%	75	30.1%
	classmate	124	49.8%	94	37.8%
	co-worker	8	3.2%	3	1.2%
	club member	11	4.4%	11	4.4%
	Family/relative	8	3.2%	6	2.4%
	other	15	6.0%	18	7.2%
Socioeconomic differences are substantial	Disagree	44	17.7%	43	17.3%
	Somewhat disagree	81	32.5%	85	34.1%
	Somewhat agree	38	15.3%	53	21.3%
	Agree	14	5.6%	25	10.0%
Belong to same social circle	disagree	12	4.8%	73	29.3%
	somewhat disagree	26	10.4%	68	27.3%
	somewhat agree	93	37.3%	54	21.7%
	agree	45	18.1%	10	4.0%

Appendix 2

Table 8 Frequency tabulation of guanxi items and tie strength

Items	ST	WT	ST	WT	ST	WT	ST	WT
	Agree		Somewhat agree		Somewhat disagree		Disagree	
	Frequency (percentage)		Frequency (percentage)		Frequency (percentage)		Frequency (percentage)	
Mutual help	71 (28.5%)	9 (3.6%)	79 (31.7%)	30 (12.0%)	20 (8.0%)	73 (29.3%)	3 (1.2%)	93 (37.3%)
Trust	95 (38.2%)	31 (12.4%)	73 (29.3%)	93 (37.3%)	7 (2.8%)	44 (17.7%)	1 (.4%)	36 (14.5%)
FtF Social interaction	65 (26.1%)	6 (2.4%)	71 (28.5%)	21 (8.4%)	28 (11.2%)	61 (24.5%)	12 (4.8%)	118 (47.4%)
Gift-giving	44 (17.7%)	2 (.8%)	77 (30.9%)	27 (10.8%)	40 (16.1%)	64 (25.7%)	16 (6.4%)	114 (45.8%)
Reciprocity	81 (32.5%)	34 (13.7%)	87 (34.9%)	110 (44.2%)	6 (2.4%)	30 (12.0%)	3 (1.2%)	33 (13.3%)

Appendix 3

Table 9 Respondents' attitude on information exchange in view of tie strength

Items	Agree	Somewhat agree	Somewhat disagree	Disagree
	Frequency (percentage)	Frequency (percentage)	Frequency (percentage)	Frequency (percentage)
It is considered inappropriate in attempt to obtain job opportunity information from weak ties you hardly know.	44 (17.7%)	128 (51.4%)	56 (22.5%)	21 (8.4%)
If you have information of job opportunity, your strong ties have the priority to access the information.	45 (18.1%)	110 (44.2%)	69 (27.7%)	25 (10.0%)
You would post job opportunity information on Facebook for all contacts to access.	17 (6.8%)	72 (28.9%)	105 (42.2%)	55 (22.1%)
Information from weak ties usually came from their public post on Facebook.	28 (11.2%)	129 (51.8%)	70 (28.1%)	22 (8.8%)
If you need information of new job opportunity, you would first goes to your strong ties.	34 (13.7%)	98 (39.4%)	78 (31.3%)	39 (15.7%)
On the basis of the connection between you and a Facebook contact, you will give information of job opportunity to his/her friends.	30 (12.0%)	147 (59.0%)	53 (21.3%)	19 (7.6%)
If information is unavailable with your strong ties, you would try to obtain it through their personal connections.	21 (8.4%)	125 (50.2%)	75 (30.1%)	28 (11.2%)
Whether she/he helped you in the past will influence your decision to share or not job opportunity information with him/her.	40 (16.1%)	130 (52.2%)	61 (24.5%)	18 (7.2%)

Strong ties are active in providing information that you needed.	28 (11.2%)	144 (57.8%)	65 (26.1%)	12 (4.8%)
From the past experience, weak ties are less motivated in providing information you needed.	29 (11.6%)	115 (46.2%)	88 (35.3%)	17 (6.8%)
You will try to obtain job opportunity information from a Facebook contact regardless of tie strength.	34 (13.7%)	146 (58.6%)	55 (22.1%)	14 (5.6%)



Appendix 4 Taiwanese Facebook users' using behaviour survey 2010

Greetings from Chong Chui Fen, currently I am a master's degree candidate from College of Communication, National Chengchi University. The purpose of this survey is collecting data for my thesis in order to investigate the using behaviour of Taiwanese Facebook users. This questionnaire is anonymous, your answers are considered confidential and for the purpose of academic use only.

This questionnaire is targeted on Facebook users, if you are Facebook user, please proceed, otherwise please quit at this point.

Thank you very much for your participation.

1. First, we would like to know more about your interactions with your Facebook Friends.

Is there Facebook contact with whom you interact often (on average interact at least three times per week via Facebook, including Wall post, comment, photograph and application sharing, message and online chat)?

(0) No (Please forward to question no. 7) (1) Yes

2. If the answer for question no. 1 is positive, please identify one contact as the counterpart for answering questions 3-6 and write down his/her name/nickname below (this is to help you to maintain a consistent counterpart in answering)

3. You met him/her via Facebook or added to Facebook Friend List after initial interaction in offline context?

(1) met on Facebook (2) met in offline context then added to Facebook

4. How long it had been since first communication (Answer format: 3/1 indicates three years and one month; 0/7 indicates seven months)

5. Is there real life interaction between you and him/her?

(1) No, via Facebook only (2) Neighbor (3) classmate (4) colleague (5) club member (religion or hobby) (6) family member (7) Other (Please specify)

6.

(1) Disagree (2) Somewhat disagree (3) Somewhat agree (4) Agree

(A) You often received new information on leisure activities from him/her, including gourmet, entertainment, travelling.

(B) You perceived yourself as important information source for him/her.

(C) You would have each other's back in work, coursework or daily life.

(D) He/she is a trustworthy person.

(E) Your background is substantially different from him/her.

(F) You used to receive information about new job opportunity from him/her.

(G) There is a working relationship between you and him/her, and no persona emotions or motivations are involved.

(H) You two frequently meet in activities such as having dinner or participate in some social activities.

(I) You will give him/her something as a gift during festive events.

(J) You both belong to the same social circle.

(K) If he/she had taken care of you in work/coursework, you will reciprocate him/her in future.

7. Is there Facebook contact with whom you interact infrequently (on average interact once in three months via Facebook, including Wall post, comment, photograph and application sharing, message and online chat)?

(0) No (Please forward to question no. 13) (1) Yes

8. If the answer for question no. 7 is positive, please identify one contact as the counterpart for answering questions 9-12 and write down his/her name/nickname below (this is to help you to maintain a consistent counterpart in answering).

9. You met him/her via Facebook or added to Facebook Friend List after initial interaction in offline context?

(1) met on Facebook (2) met in offline context then added to Facebook

10. How long it had been since first communication (Answer format: 3/1 indicates three years and one month; 0/7 indicates seven months).

11. Is there real life interaction between you and him/her?

(1) No, via Facebook only (2) Neighbor (3) classmate (4) colleague (5) club member (religion or hobby) (6) family member (7) Other (Please specify)

12.

(1) Disagree (2) Somewhat disagree (3) Somewhat agree (4) Agree

(A) You often received new information on leisure activities from him/her, including gourmet, entertainment, travelling.

(B) You perceived yourself as important information source for him/her.

(C) You would have each other's back in work, coursework or daily life.

(D) He/she is a trustworthy person.

(E) Your background is substantially different from him/her.

(F) You used to receive information about new job opportunity from him/her.

(G) There is a working relationship between you and him/her, and no persona emotions or motivations are involved.

(H) You two frequently meet in activities such as having dinner or participate in some social activities.

(I) You will give him/her something as a gift during festive events.

(J) You both belong to the same social circle.

(K) If he/she had taken care of you in work/coursework, you will reciprocate him/her in future.

13. Next we would like to know more about your information exchange behaviour with Facebook contacts.

(1) Disagree (2) somewhat disagree (3) somewhat agree (4) agree

(A) It is considered inappropriate in attempt to obtain job opportunity information from weak ties you hardly know.

(B) If you have information of job opportunity, your strong ties have the priority to access the information.

(C) Strong ties are active in providing information that you needed.

(D) From the past experience, weak ties are less motivated in providing information you needed.

(E) You would post job opportunity information on Facebook for all contacts to access.

(F) Information from weak ties usually came from their public post on Facebook.

(G) On the basis of the connection between you and a Facebook contact, you will give information of job opportunity to his/her friends.

(H) If you need information of new job opportunity, you would first goes to your strong ties.

(I) If information is unavailable with your strong ties, you would try to obtain it through their personal connections.

(J) Whether she/he helped you in the past will influence your decision to share or not job opportunity information with him/her.

(K) You will try to obtain job opportunity information from a Facebook contact regardless of tie strength.

Demographics

14. Gender

(1) Male (2) Female

15. What is your age

(1) 40 years old and above (2) 30-39 years old (3) 20-29 years old (4) 19 years old and below

16. What is your highest academic level

(1) junior high school (2) high school, vocational school (3) bachelor's degree (4) master's degree and above

17. How long do you use Facebook per day in average? (Answer format: 1/35 indicates one hour and thirty five minutes, 0/55 indicates fifty five minutes)

18. How many contacts do you have on Facebook?

(1) below 100 people (2) 101-200 people (3) 201-300 people (4) over 301 people.

19. What is your monthly income level on average?

(1) 19,000TWD and below (2) 20,000-29,000TWD (3) 30,000-39,000 TWD (4) 40,000 TWD and above (5) refused to answer.

20. Please leave your email address to participate in lucky draw. It will be used to notify the winners.

The end of questionnaire, once again thank you for your participation.

Appendix 5 台灣 Facebook 用戶者使用行爲問卷調查 2010

您好，我是張翠芬，國立政治大學傳播學院的碩士生。目前在為我的碩士論文收集資料，旨在探討台灣的 Facebook 用戶的使用情況。問卷以匿名方式進行，您的填答是保密的，而且只是作為學術研究的用途，請放心填答。

這是有關 Facebook 使用的問卷調查，如果您是 Facebook 使用者，請繼續填寫，如果不是，請到此結束。

感謝您的參與，在此表達我誠摯的謝意。

1. 首先我們想要了解您跟 Facebook 友人的互動情況。

您的 Facebook 友人名單上是否有經常聯繫（平均一星期通過 Facebook 聯繫至少三次，包括塗鴉牆上留言、回應、照片分享、應用程式（application）分享、電郵和網上聊天）的友人？

(0) 否（請跳至第七題） (1) 是

2. 若 1 題的填答為“是”，請從中挑選一位當作回答 3-6 題的對象，並在方格中寫下他/她的代號（這是為了助您保持統一的填答對象）

3. 這位朋友您是透過 Facebook 認識或者認識以後才加入 Facebook 友人名單？

(1) 透過 Facebook 認識 (2) 認識以後才加入 Facebook 友人名單

4. 您們認識多久了？（填寫範例：3/1 代表 3 年 1 個月；0/7 代表 7 個月）

5. 您跟這位朋友在現實生活中是否有交集？

(1) 沒有，只有在 Facebook (2) 鄰居 (3) 同學 (4) 同事 (5) 同屬一個社團（宗教或嗜好） (6) 親人 (7) 其他（請說明）

6.

(1) 不同意 (2) 不太同意 (3) 大致同意 (4) 同意

(A) 您經常從他/她哪兒獲得新的休閒活動資訊，例如美食、娛樂、旅遊。

(B) 您認為自己是他/她重要的消息來源。

(C) 您與他/她會在工作、功課或生活中互相照應。

(D) 您覺得他/她是可以信賴的人。

(E) 您跟她的背景（成長過程、教育程度或專業）差異很大。

(F) 您曾從他/她哪兒獲得有關新的工作機會的消息。

(G) 您跟他/她除了因為工作上/課業關係而有來往，並沒有私人交情。

(H) 您跟他/她經常見面，例如共進晚餐或參與一些活動。

(I) 節慶時您總會記得送他/她一些有價值/意義的禮物。

(J) 您跟他/她有相同的社交圈。

(K) 他/她若曾在工作或課業上關照過您，您會於將來回報他/她。

7. 您的 Facebook 友人名單上是否有不常聯繫（平均三個月才通過 Facebook 聯繫一次，包括塗鴉牆上留言、回應、照片分享、應用程式（application）分享、電郵和網上聊天）的友人？

(0) 否（請跳至第 13 題） (1) 是

8. 若 7 題的填答為“是”，請從中挑選一位當作回答 9-12 題的對象，並在方格中寫下他/她的代號（這是為了助您保持統一的填答對象）

9. 這位朋友您是透過 Facebook 認識或者認識以後才加入 Facebook 友人名單？

(1) 透過 Facebook 認識 (2) 認識以後才加入 Facebook 友人名單

10. 您們認識多久了？（填寫範例：3/1 代表 3 年 1 個月；0/7 代表 7 個月）

11. 您跟這位朋友在現實生活中是否有交集？

(1) 沒有，只有在 Facebook (2) 鄰居 (3) 同學 (4) 同事 (5) 同屬一個社團
(宗教或嗜好) (6) 親人 (7) 其他 (請說明)

12.

(1) 不同意 (2) 不太同意 (3) 大致同意 (4) 同意

(A) 您經常從他/她哪兒獲得新的休閒活動資訊，例如美食、娛樂、旅遊。

(B) 您認為自己是他/她重要的消息來源。

(C) 您與他/她會在工作、功課或生活中互相照應。

(D) 您覺得他/她是可以信賴的人。

(E) 您跟她的背景（成長過程、教育程度或專業）差異很大。

(F) 您曾從他/她哪兒獲得有關新的工作機會的消息。

(G) 您跟他/她除了因為工作上/課業關係而有來往，並沒有私人交情。

(H) 您跟他/她經常見面，例如共進晚餐或參與一些活動。

(I) 節慶時您總會記得送他/她一些有價值/意義的禮物。

(J) 您跟他/她有相同的社交圈。

(K) 他/她若曾在工作或課業上關照過您，您會於將來回報他/她。

13. 接下來，我們想要了解您跟 Facebook 友人交換資訊的情況。

(1) 不同意 (2) 不太同意 (3) 大致同意 (4) 同意

(A) 為了找新的工作機會，而向少聯絡的 Facebook 友人打聽消息是很唐突的行為。

(B) 如果您得知某家大企業正在招聘，您會優先告訴常聯絡的 Facebook 友人。

(C) 常聯絡的 Facebook 友人知道您在找新的工作機會，會主動提供給您相關訊息。

(D) 根據去的經驗，少聯絡的 Facebook 友人答應替你留意新的工作機會，結果通常是不了了之。

(E) 如果您得知某家大企業正在不公開招聘，您會把這訊息公開張貼在 Facebook 上讓所有友人知道。

(F) 從少聯絡的 Facebook 友人那兒得到的工作機會訊息通常透過從他/她的公開張貼 (post) 得來的。

(G) 您會看跟某個 Facebook 朋友的交情份上，把新的工作機會訊息提供給他/她的朋友嗎。

(H) 您若想要換新的工作，您首先會向常聯絡的 Facebook 友人打聽。

(I) 如果常聯絡的友人幫不上忙，您會想辦法透過他們的人脈關係得到所需新工作機會的資訊。

(J) 對方過去是否在您尋求某些訊息時幫助過您，會影響您跟他/她分享新的工作機會訊息的意願。

(K) 如果您知道某個 Facebook 友人可能知道業界有哪些公司正在招聘，不管是否經常聯絡，您都主動向他/她請教。

基本資料

14. 請問您的性別是

(1) 男 (2) 女

15. 請問您的年齡是

(1) 40 歲或以上 (2) 30-39 歲 (3) 20-29 歲 (4) 19 歲或以下

16. 請問您的最高學歷

(1) 國中 (2) 高中、高職 (3) 大學 (4) 研究所或以上

17. 請問您每天使用 Facebook 的平均時間？（填寫範例：1/35 表示 1 小時 35 分，0/55 表示 55 分鐘）

18. 您在 Facebook 的友人大約有幾位？

(1) 少於 100 人 (2) 101-200 人 (3) 201-300 人 (4) 301 人或以上

19. 請問您每月的平均收入是：

(1) 1 萬 9 千元或以下 (2) 2 萬-2 萬 9 千元 (3) 3 萬-3 萬 9 千元 (4) 4 萬元以上
(5) 不願透露

20. 欲參加抽獎者請留下 email，將會以此 email 通知得獎者：

本問卷到此結束，再次感謝您的填答

