THE COMMUNICATION SYSTEMS INTEGRATING SOCIAL NETWORK TIES

RESUMO

Este estudo analisa o comportamento de universitários na formação da sua rede de network através dos sistemas de comunicação disponíveis como telefones, celulares, e-mails, websites de relacionamento, face a face e mensagem de texto, e a influência da forca do vínculo na transferência de informação.
Um questionário sobre o uso dos meios de comunicação foi respondido por 40 alunos do curso de graduação de uma faculdade no oeste do Estado de Nova York nos Estados Unidos considerando dois grupos de pessoas: a) amigos próximos e b) amigos de trabalho/estudo.
Os grupos responderam as seguintes perguntas: 1. Localização geográfica; 2. Principal meio de comunicação entre o aluno e seu network 3. Se ambos fazem parte do mesmo website de relacionamento; 4. Quanto os alunos se sentem confortáveis em solicitar aos membros do grupo um favor e compartilhar informações profissionais.
O resultado preliminar indicou que:
1. Alunos são mais prováveis em pedir favores e busca informação professional com amigos mais próximos do que com colegas de trabalho ou estudo.
2. Comunicação face a face foi o meio mais comum de comunicação com os alunos que trabalham ou estudam juntos.
3. Mensagem de texto e websites de relacionamento são os meios mais importantes de comunicação em ambos os grupos e mais freqüentes com os amigos mais próximos. Esta informação sugere que departamentos de recrutamento das universidades devem investir em novas áreas de relacionamento com alunos, uma vez que e-mails deixam de ser o principal meio de comunicação.

Palavras-chave: Network; Relacionamento; Transferência de Informação; Facebook.

ABSTRACT

This study analyzes how undergraduate students build their social network from the communication systems available to them including cell phones, e-mails, social network sites, face-to-face, and text messaging.
A questionnaire was given to a group of 40 undergraduate students from a small college in the Western New York area.
For each group, the participants were asked:
1. the geographic location of the members of the group
2. the primary source of communication used: e-mail, mobile phone, text messages, or face to face
3. whether or not the members of the group were part of their social networking site
4. their comfort level in asking each member for a favor or sharing professional information.
Preliminary results indicate the following:
1. Students are more likely to ask a favor or seek professional information from a close friend rather than from people they work and study with. In most cases, students present non local closest friends as their contact. This finding may have implications on how colleges disseminate professional information to their students.
2. Face to face communication is the most common means of communication with whom they work and study. Most of these people are local.
3. Both text messaging and Social Network sites are significant ways of communication in both situations and are used significantly more among closest friends. This finding may indicate that admissions departments and faculty may have to change their method of communication with students. E-mail may not be the most efficient means any longer.

Keywords: Network, Relationship, Transfer of Information; Facebook.

1.INTRODUCTION

"We are creating a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth," Barlow, J.P. 1996. What is being created is new electronic cultural space, a 'placeless' geography of image and simulation. (Morley and Robbins, 1995: 112)

In the last 25 years, people from different demographics and psychographics are able to connect with each other from almost anywhere and anytime. The communication system has evolved in many different directions shaping interactions according to users' interest and network. Academics have been studying the socio-economic impact of the communication systems in many different areas including social capital, spatial distribution, and social network and on how corporations may maximize their investment in consumer niches in the markets.

The advent of new social technologies provided individuals with a larger number of ways to interact and to promote all kinds of relationship. Coleman (1988) refers to Social Capital as the resources accumulated through the relationships among people, allowing the person to exchange resources from other members of the networks to which he or she belongs. Under the social network perspective, researchers have studied the importance of these interactions on building weak ties, which serve as the groundwork of bridging social capital. Donath and Boyd (2004) argue that SNSs can easily leverage weak ties because technology made communication systems more available, cheaper and easier to use.

Social networking interactions including websites such as Facebook, MySpace, Friendster and other ways of communication like emails, mobile calls, text messaging (SMS) and face to face are constantly taking priorities over each other, redesigning relationships as individuals get more involved with technology.

Researchers have been studying issues related to the degree of the word Friend and the strength of the ties in the virtual space, especially on network websites such as Facebook. Some observers argue that the meaning of friend has a greater amplitude for online relationships than to friends of a conventional relationship, claiming that there may be a superficial relationship that bridges a weak tie. However, although some individuals have a great number of Friends on their Facebook page, a survey reported that 46% of the survey respondents had either neutral feelings or felt disconnected from their friends on Facebook (Vanden Boogart, 2006).

Social researchers focus on the implications of these virtual relationships in the society such as social compensation and social enhancement (Zywica J & Danowski J, 2008). Joinson (2003) suggests that the internet usage is motivated by self-protection and self-esteem and social network sites (SNSs) provide a fertile ground for individuals to show their personal and professional qualities, without having to expose their weaknesses.

Another important reason to analyze the trends and changes in the communication system is the fact that traditional social networks suggest that the number of people that individuals maintain close relationship is about 10 to 20 (Parks, 2007), while for SNSs this number may be around 150 contacts (Dumbar, 1993; Gladwell, 2000).

This study intends to analyze the communication frequency and network strength comparing communication systems such as email, mobile/telephones, text message, face to face and others SNSs such as Facebook, MySpace, Friendster and linkledin among respondents closest relationships and work network.

The fact that someone is part of each other Facebook does not demonstrate the intensity of their interaction, nor if the same person is part of the individual SMS or any other network. It raises the question on the strength of the ties and its relationship, in other words, once a week face to face contact may build a stronger tie than posting notes on each other Facebook page.

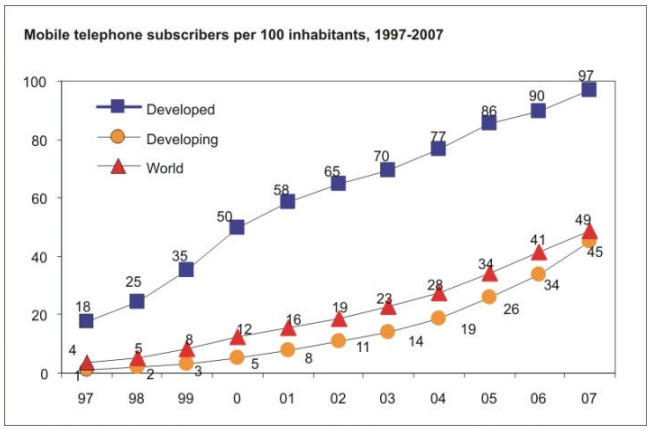
This study looks into undergraduate students in West New York social network interaction, way of communication and strength of ties.

1.1. The communication systems

Rhee and Kim (2004) indicate that the compatibility between innovations and existing social norms or patterns of behavior influence the adoption of new technology. The media substitution hypothesis (Atkin et al., 1998; Jeffres et al., 1995; Lin, 2001) suggests that the introduction of a new medium encourages a restructuring in the way people view existing media.

1.2.The mobile telephone

The mobile telephone allows people to exchange alphanumeric messages and information (up to 160 characters). Today, within seconds of submission, outstanding voice audio, text message, data are common features of most of the mobile phones. All over the world, an increasing number of digital cellular users are deciding who they add to their private network.



Nielsen Wire

The mobile telephone is medium of communication that allows users to build not only their own social network, but also their way of communication and writing. (Ichi, 2006). In some countries, young people have created their own unique subcultures in which they communicate predominantly through SMS (short message service), or by e-mail over their mobile phones (Ishii, 2004; Kasesniemi and Rautiainen, 2002; Skog, 2002). As of 2003, 63% of Japanese teens (aged 12–19 years) used the mobile-based Internet, whereas 53% accessed the Internet from their PCs (Mikami, 2004).

1.3. Internet emails

Emails addresses are unique, singular and individual. Today, the internet is an everyday activity not only for gathering information, but also as a means of communication among individuals or groups. The global mobility of individuals promotes the expansion of emails exchange in between business to business, business to consumers and consumers to consumers.

The development of internet to business to business and business to consumer in the last 15 years shows how fast the communication system has impacted the way people interact and communicate. Lenhart et. al. (2005) suggest that teenagers tend to use email for communicating with “adults” and institutions and for transmitting length and detailed information to many others.

The telecommunication companies took advantage of these trends and rapidly expanded their bandwidth systems connecting continents and providing the ground for fast and reliable long distance communication. Barnett (2005) suggests that the increase in international communication has led to the rapid global diffusion of values, ideas, opinions and technologies, i.e. underlying components of culture and created a global community. The new communication structure will not only redesign the interactions, but also influence on the spatial distribution of population as information and knowledge can be practically exchanged all around the globe.

1.4. Text messaging

Among the several utilities applied to the wireless system, in the United States Short Messaging System (SMS) grew 449% from an average of 65 text messages sent monthly in Qtr 1, 2006 to 357 text message in Qtr 2, 2008, while the average number of monthly calls grew 3% from 198 Qtr 1 2006 to 204 calls in Qtr 2, 2008. (Nielsen Company). U.S. teenagers (ages 13 to 17) have the highest usage levels sending and receiving an average of 1,742 text messages per month in Q2 2008 (Nielsen Company). The fast pace and rapid adoption by both the tweens and the teenagers show that the phenomena of instant communication is part of their socio cultural environment that will lead to many new ways of communication, reconfiguring the processes into which information will be sent, received and understood, modeling networks connection along the way.

Age Group	**Average Number of Monthly Calls***	**Average Number of Monthly Text Messages***
All Subscribers	204	357
Ages 12 & Under	137	428
Ages 13-17	231	1,742
Ages 18-24	265	790
Ages 25-34	239	331
Ages 35-44	223	236
Ages 45-54	193	128
Ages 55-64	145	38
Ages 65+	99	14
Source: The Nielsen Company (January 1, 2006 to June 30, 2008)		
*Note: Data includes U.S. wireless subscribers only.		

Nielsen Wire

Lenhart et al. (2005) suggest that the instant messaging is used for day-to-day conversations with a range of friends. Nardi et al. (2000) found that while instant messaging was used by members of an ongoing work group as a channel to seek and exchange content, it was also used as a coordinating tool for managing accessibility and flow of interactions, apart from the content.

In Japan, mobile phone emails tend to go to those more socially or physically present than those contacted through PC email (Miyata, 2006; Miyata et al.2005). Kim et al.(2007) suggest that mobile emails did not affect one's network diversity but did foster more supportive network ties, while PC emails increased network diversity, especially through more weak ties.

1.5. Face to face

Face to face is not a virtual communication, but like any other communication system it allows people to build and to select their network. This selection may result in strong or weak ties, depending on the frequency of interactions which is highly based on intangibles such as personality, values, believes and trust (Gronovetter, 1973).

The face to face interaction requires more frequent physical presence in order to be a major form of communication. Usually, it is related to the interaction of individual-to-individual. These individuals build relationships according to their synergy in culture, values, dependency and interests.

Considering the trends in the spatial distribution of population, as globalization expands the geographic area and promotes international development, it is expected the reduction of face to face interaction and changes in the strength of network ties. However, the social network by face to face contact will always exist as long as there are people sharing the same space. It is also recognized as the main communication system on building trust and values, due to the uniqueness of the visual and expressions.

1.6. Social network: the strength of the ties

Brass (1995a) defined strength as amount of time, emotional intensity, intimacy, or reciprocal services (frequency or multiplexity often used as measure of strength of tie). The strength of ties have been studied in several areas including team work building, knowledge transfer, individuals and other group relationships for different purposes. It is often measured by the frequency, i.e. how many times, or how often the link occurs between the actors. The individuals that have most of the links with others are considered with high centrality and have stronger ties with the network.

The network expectations from stronger ties and weak ties are different. According to the weak-tie theory originally advanced by Granovetter (1973), distant and infrequent relationships (i.e., weak ties) are efficient for knowledge sharing because they provide access to novel information by bridging otherwise disconnected groups and individuals in an organization. Strong ties, in contrast, are likely to lead to redundant information because they tend to occur among a small group of actors in which everyone knows what the others know.

Nelson (1989); Wegener (1991); Krackhardt (1992); Podolny and Baron (1997) suggests that weak ties only provide information benefits under certain conditions and are less beneficial than strong ties in providing socio-emotional support and solving conflict.

As global trends takes place and the population spatial distribution reaches long distances, the way in which people communicate becomes essential. However, it is difficult to state how distance and communication systems will influence strong ties through time and long geographic distances relationships. One question that remains is that if the strength of a tie is a matter of how far people are from one another or if it is a matter of similarities in interest, or maybe both.

As communication systems evolve, the way to measure centrality (strength of the tie) requires greater understanding. Individuals are keeping in contact with each other in many different ways for social support, knowledge and personal issues. This study measures the frequency of the communication system most available to undergraduate students with those who they would ask a favor and with those who they would share professional information.

1.7. Communication systems and the strength of ties

Recently, researchers have emphasized the importance of Internet-based linkages for the formation of weak ties, which serve as the foundation of bridging social capital. Because online relationships may be supported by technologies like distribution lists, photo directories, and search capabilities (Resnick, 2001), it is possible that new forms of social capital and relationship building will occur in online social network sites. Bridging social capital might be augmented by such sites, which support loose social ties, allowing users to create and maintain larger, diffuse networks of relationships from which they could potentially draw resources (Donath & boyd, 2004; Resnick, 2001; Wellman et al., 2001).

Many questions puzzle academics relating to how online social network sites (SNS) influence the strength the ties. One question raised in this study is which communication systems better support stronger ties. Many authors described the weak ties reaching new information, promoting individual opportunity for professional and personal growth. It seems that weak ties are well exploit by academics. However, strong ties are still simplified by the centrality concept, disregard the communication system used among individuals or organizations.

2. HYPOTHESES

The following hypotheses are to be tested using a survey with undergraduate students at the same college.

Hypothesis 1 – The individuals most closely to SNSs user (work related and friendship) are not the ones that they have most face to face, telephone or Mobile, email or text messaging interactions.

Hypothesis 2 – The frequency of interaction through text messaging is greater than through any other way of communication, which would be seem as a stronger tie.

Hypothesis 3 – The virtual connectivity links weak ties and face to face and telephone/Mobile are still the main source of strong ties.

Hypothesis 4 – The introduction of virtual tools such as SNSs, text messaging and email did not substitute the face to face or telephone/mobile communication channel as the main channels among closer friends.

3. METHODOLOGY

A group of 40 undergraduate students from a Liberal Arts college in West New York answered a questionnaire about the frequency of contact with 5 friends. Students were asked to think of the 5 friends that they consider their closest friends and 5 friends with whom they work or study with most closely.

The questionnaire asked for information on:

a) If their friends are local or not local to their regional area
b) Primary source of communication: email, mobile phone, text messages, face to face
c) Indicate if their friends are part of their social network service
d) How comfortable they are on asking a favor to their friends

e) How comfortable they are on sharing professional information with their friends

The control indicators for strong ties were the questions on requesting a favor and sharing professional information (1 for the lowest and 5 for the greater). Strong ties must score 5 for both questions.

Questionnaire

You will be asked to answer questions on:

Communication with whom you WORK OR STUDY with most closely

Communication with CLOSEST FRIENDS

Before you begin, please note these important instructions to completing this questionnaire:

Where lines are provided – fill in the blanks

Think of the 5 people with whom you WORK OF STUDY with most closely.

a) Please write the initials in column A (this is just to help you to keep track of your answers).
b) Indicate the gender in column B. (M = Male; F = Female).
c) Indicate if the person is local (L) or not local (N) to your regional area.
d) Indicate if the person is on college campus (C) or out campus (O).
e) Indicate if they are a member of your immediate or extended family (yes or no).
f) In Column F, indicate the number of times you communicate with them per week total.
g) In Column G, indicate how many times per week you communicate via email.
h) In Column H, indicate how many times per week you speak, via telephone or mobile phone.
i) In Column I, indicate how many times per week you send text messages to this person.
j) In Column J, indicate how many times per week you see or visit each other face-to-face.
k) In Column K, indicate if this person is part of your network at facebook, myspace, linkledin,
l) In Column L, indicate the way you communicate to this person the most (email (E); Telephone and Mobile (M); Text message (T); face to face (F); Facebook, myspace,…. (N)
m) In column M, please indicate which of the other individuals (persons 1,2,3,4 or 5) each person knows.

Information on Facebook usage

A) How many times per week do you use the internet?
B) Facebook become part of my everyday activity (yes or no).
C) Usually, how long do you spend on Facebook when you use it?
D) How many Facebooks friends do you have?
E) Do you contact them daily, weekly, bi-weekly, monthly, once a semester, once a year or never?
F) How often per week you used to meet your friends face to face before using facebook (daily, weekly, bi-weekly, monthly, once a semester, once a year or never)?
G) What would you assign the difference in the number of times that you communicate with your friends through Facebook compared to face to face?

4. RESULTS

It is important to highlight that the internet email was never mentioned as a primary way of communication with those that they would ask a favor or would share professional information.

Condition for Strong tie:

Comfortable to ask a favor - score maximum - 5

Comfortable to share professional information - 5

Table I

	Total Contacts	**STRONG TIES** **Favor = 5 - Prof. = 5**
Work/Study	**192**	**72** **37%**
Closest Friends	**197**	**103** **52%**

As expected, Table I shows that closer friends shows stronger relationship on both, asking favor and professional recommendations than to work/study friends.

The table II shows the main way of communication in between those who presented strong ties in both groups.

Table II

	Favor = 5 **Prof. = 5**	**Local**	**Text Message**	**Face to Face**	**Mobile Phone**	**SNS**
Work/Study	**72**	**67** **93%**	**39** **54%**	**34** **47%**	**17** **24%**	**62** **85%**
Closest Friends	**103**	**78** **76%**	**71** **69%**	**27** **26%**	**20** **19%**	**99** **96%**

a) Number of strong tie of closest friends is greater than study or work friends.

The percentage of closest friend to whom they would ask a favor and share professional information is significantly greater that to those who they study or work closely. It is important to highlight that a great percentage of the closest friends are not local to the place where students attend college.

b) Face to face is the most common means of communication with friends who they work or study closely. Most of these friends are local to their area.

c) Both text message and SNS are significant ways of communication in both situations, and significantly greater among closest friends.

Text message and social network sites are significant greater among closest friends, suggesting that even though some of their friends are not local to their geographic area, these virtual way of communication are widely used to keep in touch with each other and strong ties.

5. CONCLUSION

Some researchers suggest that friends can maintain a sense of connectedness even if the network members are geographically dispersed (Katz & Rice, 2002; Wellman & Gulia, 1999). New media may complement current interpersonal communication or may lead to additional and specialized uses (Johnson-Smaragdi, 2001; Quan-Haase & Wellman, 2006).

The research supports the statement that the social network services can be used to promote strong ties relationships for those who are distant from each other. SNS enables its users to present themselves in an online profile, accumulate "friends" who can post comments on each other's pages, and view each other profile (Ellison, Steinfield and Lampe, 2007).

The results of the research among undergraduate students shows the adoption for SNS and text messaging to sustain distant relationship, while face to face interaction are important among friends who work or study closely. It shows that the new technologies such as SNS and text message are important ways of communication to keep those who are physically distant as a strong tie.

The research also asked students on the number of SNS friends that they have in their network. This information can be used for further analysis considering that it is much greater than the average 16 friends that some studies identify as the number of strong ties that students are able to keep constant interaction.

Another important finding is that several friends are in both text messaging and SNS network of those who participated in the survey. Further research on frequency of contacts in both groups would be useful on defining the degree of the word "friend" in the online community. It is also expected to use the results of this research on investigating the network strength for both local and non-local connections in different communication systems.

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