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A Review of Social Network Sites: Definition, Experience and Applications

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Abstract: The Social Network Sites have dramatically changed the ways people connect each other by which people create and maintain their social relations on the Web. This paper focuses on three sections including definition of SNS, experiences of SNSs and applications of SNSs. Firstly this paper gives the definition of SNSs with 3 features: public or semi-public profile; a list of friends and share of those lists. Secondly it reviews the development of SNSs all over the world, demonstrated the different characteristics in different phases. Thirdly it discusses an array of applications of SNS. At last this paper points out the research subjects and areas focusing this topic which are open for future research opportunity.

Keywords: Social Network Sites; Computer-Mediated Communication; Electronic Commerce; business model

1 Introduction

Since their introduction, social network sites (SNSs) have attracted millions of people in the world, who have integrated these sites into their daily life. While Facebook, MySpace and Twitter attracted the majority of media attention in the U.S. and abroad, SNSs were growing in popularity worldwide. Orkut became the premier SNS in Brazil before growing rapidly in India[1], Mixi attained widespread adoption in Japan, Dutch users embraced Hyves, Hi5 was adopted in smaller countries in Latin America, South America, and Europe, Bebo became very popular in the United Kingdom, New Zealand, and Australia, and Kaixin prevailed in mainland of China. Additionally, previously popular communication and community services began to add SNS features. The Chinese QQ instant messaging service instantly became the largest SNS worldwide when it added profiles and made friends visible[2], while the forum tool Cyworld cornered the Korean market by introducing homepages and buddies[3].

SNSs connect people based on different features with different technologies. Most sites support the maintenance of pre-existing social networks, but others help strangers connect based on shared interests, political views, or activities. Some sites cater to diverse audiences, while others attract people based on common language or shared racial, sexual, religious, or nationality-based identities. Sites also vary in the extent to which they incorporate new information and communication tools, such as mobile connectivity, blogging, and photo/video-sharing.

Despite all of above, SNSs have fairly consistent key features, by which can help the development of these sites and their practices in electronic commerce.

This paper is structured into various sections. Section II is the definition review that presents the existing and related characteristics of SNS. Section III follows with the experience of SNSs, both worldwide and in china. Section IV indicates the new uses of technology for social networking constantly being observed. Section V presents an array of trends of SNS applications. Our recommendations for future research opportunity are reported in the conclusion in Section VI.

2 Definition of SNS

Social network sites are those web-based services that allow 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 their list of connections and those made by others within the system.

What makes social network sites unique is not that they allow individuals to meet strangers, but rather that they enable users to articulate and make visible their social networks. These meetings are frequently between "latent ties"[4] who share some offline connection. On many of the large SNSs, participants are not necessarily looking to meet new people; instead, they are primarily communicating with people who are already a part of their extended social network.

The backbone of SNSs consists of visible profiles that display an articulated list of friends who are also users of the system. Profiles are unique pages where one can "type oneself into being"[5]. After joining an SNS, an individual is asked to fill out forms containing a series of questions with which the profile is generated. Typically a profile includes descriptors such as age, location, interests, an "about me" section, and an uploading photo.

After joining a social network site, users are prompted

to identify others in the system with whom they have a relationship. These relationships differ by using different labels such as "Friends", "Contacts", and "Fans". SNSs use two kinds of confirmation for friendship. One is one-directional ties sometimes labeled as "Fans" or "Followers," though many sites call these Friends as well. The other is bi-directional confirmation which need the both sides agree on the friendship[6].

The public display of connections is a crucial component of SNSs. The friends list contains links to each friend's profile, enabling viewers to traverse the network graph by clicking through the friend lists.

Most SNSs also provide a mechanism for users to leave messages on their Friends' profiles. This feature typically involves leaving "comments". In addition, SNSs often have a private messaging feature similar to webmail.

3 Experiences of SNSs

3.1 Embryonic forms

The potential for computer networking to facilitate new forms of computer-mediated social interaction was suggested early on [7]. Efforts to support social networks via computer-mediated communication were made in many early online services, including Usenet, ARPANET, LISTSERV, and bulletin board services (BBS). Many prototypical features of social networking sites were also present in online services such as America Online, Prodigy, and CompuServe.

Early social networking on the World Wide Web began in the form of generalized online communities such as Theglobe.com (1994), Geocities (1994) and Tripod.com (1995). Many of these early communities focused on bringing people together to interact with each other through chat rooms, and encouraged users to share personal information and ideas via personal webpages by providing easy-to-use publishing tools and free or inexpensive webspace. In the late 1990s, user profiles became a central feature of social networking sites, allowing users to compile lists of "friends" and search for other users with similar interests.

3.2 The first stage (1997-2001)

According to the definition in this paper, the first recognizable social network site launched in 1997. SixDegrees.com allowed users to create profiles, list their Friends and, beginning in 1998, surf the Friends lists. SixDegrees promoted itself as a tool to help people connect with and send messages to others. While SixDegrees attracted millions of users, it failed to become a sustainable business and, in 2000, the service closed. Looking back, its founder believes that SixDegrees was simply ahead of its time. While people were already flocking to the Internet, most did not have extended networks of friends who were online. Early adopters complained that there was little to do after accepting Friend requests, and most users were not interested in meeting strangers.

From 1997 to 2001, a number of community tools began supporting various combinations of profiles and publicly articulated Friends. Some websites allowed users to create personal, professional, and dating profiles and users could identify Friends on their personal profiles without seeking approval for those connections. Likewise, shortly after its launch in 1999, LiveJournal listed one-directional connections on user pages. On LiveJournal, people mark others as Friends to follow their journals and manage privacy settings. Likewise, when the Swedish web community LunarStorm refashioned itself as an SNS in 2000, it contained Friends lists, guestbooks, and diary pages.

The next wave of SNSs began in 2001. Ryze.com was launched to help people leverage their business networks. Ryze's founder reports that he first introduced the site to his friends—primarily members of the San Francisco business and technology community, including the entrepreneurs and investors behind many future SNSs. In particular, the people behind this kind of webs were tightly entwined personally and professionally. They believed that they could support each other without competing. In the end, Ryze never acquired mass popularity. Other websites of this kind got their own achievements. Tribe.net grew to attract a passionate niche user base, LinkedIn became a powerful business service, and Friendster became the most significant, if only as "one of the biggest disappointments in Internet history".

3.3 The second stage (2002-)

New social networking methods were developed by the end of the 1990s, many sites began to develop more advanced features for users to find and manage friends. This newer generation of social networking sites began to flourish with the emergence of Friendster in 2002, and soon became part of the Internet mainstream.

Friendster launched in 2002 as a social complement to Ryze. It was designed to compete with Match.com, a profitable online dating site. While most dating sites focused on introducing people to strangers with similar interests, Friendster was designed to help friends-of-friends meet, based on the assumption that friends-of-friends would make better romantic partners than would strangers.

The initial design of Friendster restricted users from viewing profiles of people who were more than four degrees away (friends-of-friends-of-friends-of-friends). In order to view additional profiles, users began adding acquaintances and interesting-looking strangers to expand

their reach.

From 2003 onward, many new SNSs were launched. Most took the form of profile-centric sites, trying to replicate the early success of Friendster or target specific demographics. While socially-organized SNSs solicit broad audiences, professional sites such as LinkedIn, Visible Path, and Xing focus on business people.

"Passion-centric" SNSs like Dogster help strangers connect based on shared interests. Care2 helps activists meet, Couchsurfing connects travelers to people with couches, and MyChurch joins Christian churches and their members. Furthermore, as the social media and user-generated content phenomena grew, websites focused on media sharing began implementing SNS features and becoming SNSs themselves. Examples include Flickr (photo sharing), Last.FM (music listening habits), and YouTube (video sharing).

With the overplus of attention to SNSs, few people paid attention to SNSs that gained popularity elsewhere, even those built by major corporations. For example, Google's Orkut failed to build a sustainable U.S. user base, but a "Brazilian invasion" (Fragoso, 2006) made Orkut the national SNS of Brazil. Microsoft's Windows Live Spaces (a.k.a. MSN Spaces) also launched to lukewarm U.S. reception but became extremely popular elsewhere.

MySpace was begun in 2003 to compete with sites like Friendster, Xanga, and AsianAvenue. After rumors emerged that Friendster would adopt a fee-based system, users posted Friendster messages encouraging people to join alternate SNSs, including Tribe.net and MySpace. Because of this, MySpace was able to grow rapidly by capitalizing on Friendster's alienation of its early adopters.

One particularly notable group that encouraged others to switch were indie-rock bands who were expelled from Friendster for failing to comply with profile regulations.

While MySpace was not launched with bands in mind, they were welcomed. Indie-rock bands from the Los Angeles region began creating profiles, and local promoters used MySpace to advertise VIP passes for popular clubs. Intrigued, MySpace contacted local musicians to see how they could support them. Bands were not the sole source of MySpace growth, but the symbiotic relationship between bands and fans helped MySpace expand beyond former Friendster users. The bands-and-fans dynamic was mutually beneficial: Bands wanted to be able to contact fans, while fans desired attention from their favorite bands and used Friend connections to signal identity and affiliation.

Futhermore, MySpace differentiated itself by regularly adding features based on user demand[8] and by allowing users to personalize their pages. This "feature" emerged because MySpace did not restrict users from adding HTML into the forms that framed their profiles; a copy/paste code culture emerged on the web to support users in generating unique MySpace backgrounds and layouts

Alongside these open services, other SNSs launched to support niche demographics before expanding to a broader audience. Unlike previous SNSs, Facebook was designed to support distinct college networks only. Facebook began in early 2004 as a Harvard-only SNS (Cassidy, 2006). To join, a user had to have a harvard.edu email address. As Facebook began supporting other schools, those users were also required to have university email addresses associated with those institutions, a requirement that kept the site relatively closed and contributed to users' perceptions of the site as an intimate, private community.

Beginning in September 2005, Facebook expanded to include high school students, professionals inside corporate networks, and, eventually, everyone. The change to open signup did not mean that new users could easily access users in closed networks—gaining access to corporate networks still required the appropriate .com address, while gaining access to high school networks required administrator approval. Unlike other SNSs, Facebook users are unable to make their full profiles public to all users. Another feature that differentiates Facebook is the ability for outside developers to build "Applications" which allow users to personalize their profiles and perform other tasks, such as compare movie preferences and chart travel histories. In 2010, Facebook was reported becoming the largest website in U.S., sharing the total traffic to 7.07% for the first time beyond search engine giant Google,7.03% .

While most SNSs focus on growing broadly and exponentially, others explicitly seek narrower audiences. Some, like aSmallWorld and BeautifulPeople, intentionally restrict access to appear selective and elite. Others—activity-centered sites like Couchsurfing, identity-driven sites like BlackPlanet, and affiliation-focused sites like MyChurch—are limited by their target demographic and thus tend to be smaller. Finally, anyone who wishes to create a niche social network site can do so on Ning, a platform and hosting service that encourages users to create their own SNSs[9].

In china, several months after Facebook's foundation, Renren was designed to support distinct college networks. By now it became the largest social network site in china. Another famous SNS site Kaixin founded in 2008 focusing white collars. QQ also developed friend functionality to become a SNS site.

4 Applications of SNSs

With the increasing in popularity of social networking new applications for the technology are rising [10].

4.1 Real time

The first of emerging trends in social network sites is the concept of "real time" and "location based." Real time allows users to contribute content, then broadcast it as it is being uploaded. Twitter set the trend for "real time" services, where users can broadcast to the world what they are doing, or what is on their minds within a 140 character limit. Facebook followed suit with their "Live Feed" where users' activities are streamed as soon as it happens. While Twitter focuses on words, Clixtr, another real time service, focuses on group photo sharing where users can update their photo streams with photos while at an event. Friends and nearby users can contribute their own photos and comments to that event stream, thus contributing to the "real time" aspect of broadcasting photos and comments as it is being uploaded.

In the location based social networking space, Foursquare gained popularity as it allowed for users to "check-in" to places that they are frequenting at that moment. Gowalla is another such service which functions in much the same way that Foursquare does, leveraging the GPS in phones to create a location based user experience. Clixtr, though in the real time space, is also a location based social networking site since events created by users are automatically geotagged, and users can view events occurring nearby through the Clixtr iPhone app.

4.2 Uses in business

The second kind of uses is social networking between businesses. Companies have found that social networking sites such as Facebook and Twitter are great ways to build their brand image. Commonly there are five major uses for businesses and social media: to create brand awareness, as an online reputation management tool, for recruiting, to learn about new technologies and competitors, and as a lead gen tool to intercept potential prospects. These companies are able to drive traffic to their own online sites while encouraging their consumers and clients to have discussions on how to improve or change products or services.

4.3 Uses in the Social communities

The third use is the use in the Social communities. Julia Porter Liebeskind et al. have published a study on how New Biotechnology Firms are using social networking sites to share exchanges in scientific knowledge. Social networking is allowing scientific groups to expand their knowledge base and share ideas, and without these new means of communicating their theories might become "isolated and irrelevant".

Social networks are also being used by teachers and students as a communication tool. Because many students are already using a wide-range of social network-

ing sites, teachers have begun to familiarize themselves with this trend and are now using it to their advantage.

A final rise in social network use is being driven by college students using the services to network with professionals for internship and job opportunities.

5 Conclusions and Discussions

The rise of SNSs indicates a shift in the organization of online communities. While websites dedicated to communities of interest still prosper, SNSs are primarily organized around people, not interests. Early public online communities such as Usenet and public discussion forums were structured by topics or according to topical hierarchies, but social network sites are structured as personal (or "egocentric") networks, with the individual at the center of their own community. This more accurately mirrors unmediated social structures. The introduction of SNS features has introduced a new organizational framework for online communities, and with it, a vibrant new research context.

These wide applications make it necessary to do more research of SNSs. Scholarship concerning about SNSs is emerging from diverse disciplinary and methodological traditions, addresses a range of topics, and builds on a large body of CMC research. SNS research has focused on impression management and friendship performance, networks and network structure, online/offline connections, and privacy issues, and will concentrate on business model, new technologies, and mobile SNSs. These directions are also the future research work based on this paper.

References

[1] Madhavan, N. India gets more Net Cool. *Hindustan Times*. Retrieved July 30, 2007.

[2] McLeod, D. QQ Attracting eyeballs. *Financial Mail* (South Africa), p. 36. Retrieved July 30, 2007 from *LexisNexis*.

[3] Ewers, J. Cyworld: Bigger than YouTube? *U.S. News & World Report*. Retrieved July 30, 2007 from *LexisNexis*.

[4] Haythornthwaite, C. Social networks and Internet connectivity effects. *Information, Communication, & Society, 2005, 8* (2), 125-147.

[5] Sundén, J. Material Virtualities. New York: Peter Lang, 2003.

[6] Boyd, d. Friends, Friendsters, and MySpace Top 8: Writing community into being on social network sites. *First Monday, 11* (12), 2006.

[7] Starr Roxanne Hiltz, Murray Turoff. The Network Nation. MIT PRESS, 1993.

[8] Boyd, d.. Friendster lost steam. Is MySpace just a fad? *Apophenia Blog*. Retrieved July 21, 2007 from http://www.danah.org/papers/FriendsterMySpaceEssay.html

[9] Boyd, d. m., & Ellison, N. B.. Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, *13*(1), article 11.

[10] Search for "e-commerce, social networking". Google Trends. Accessed July 9, 2010.