



10-1-2009

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Recommended Citation

Michalec, Kaja and Leszek, Lilien (2009) "Computer Networks as Tools for Enlarging Social Networks in Western Civilization," *Comparative Civilizations Review*: Vol. 61 : No. 61 , Article 10.
Available at: <https://scholarsarchive.byu.edu/ccr/vol61/iss61/10>

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Apology

ISCSC apologizes for inadvertently omitting this position paper from the Proceedings of the 2009 conference. It is accordingly presented in the Journal.

Computer Networks as Tools for Enlarging Social Networks in Western Civilization

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POSITION PAPER

Computer-based social network services are and will remain dominating tools for enlarging social networks thanks to their positive and despite their negative features or impacts.

Key words: social network, social networking service, tools for social networking

1. Introduction

Communication is the essential fabric of social life, and only entities that communicate are able to create societies. Communication is necessary for coordination of all kinds of social activities on many levels, from families up to the level of international organizations.

“A *social network* is a social structure made of nodes (which are generally individuals or organizations) that are tied by one or more specific types of interdependencies, such as values, visions, ideas, financial exchange, friendship, sexual

relationships, kinship, dislike, conflict or trade” (Social network, 2009). Social networks include *nodes*—actors within the networks, and *ties*—the relationships between the actors. There can be many kinds of ties between the nodes, all of them predicated on the underlying communications mechanisms, since communication is a necessary (though not sufficient) condition for creating social networks.

Social network services (SNSes) are services supporting social networking, and advanced SNSes are currently based on computer networks [Social network service, 2009].

We believe that SNSes are dominating tools for enlarging social networks in our civilization, and will be even more indispensable in the future due to development of ever more sophisticated SNSes. They have gained and will maintain this position thanks to their positive and despite their negative features or impacts; both should be well known to users wishing to fully utilize their potential without adverse consequences.

To support these claims, we first present briefly the history and the present day of computer-based support for social networking (emphasizing modern computer-based SNSes). We then analyze positive and negative features and impacts of modern SNSes.

2. Early Technological Support for Social Networking

Interactions within social networks can be facilitated by two kinds of services and technologies: (a) *transportation facilities* that support face-to-face social interactions—within a limited physical space; and (b) *communication facilities* that support “virtual” social interactions without an inherent restriction on location of the interacting entities.

In the chronological order of their development, communication facilities include: *postal* technologies and services (with messenger services known already in ancient

civilizations); *telephone* technologies and services (started in the 1870's but widespread only in the 20th century); *computer* communication technologies and services (started in the 1970's but widespread only in the 1990's).

The evolution of computer-based networking tools includes many distinct stages such as: the ARPANET in the 1970s; the Internet in the 1980s; email and World Wide Web (WWW) in the 1990s; search engines (*e.g.*, AltaVista, Google), wikis (*e.g.*, Wikipedia), and *social network services* (*e.g.*, Myspace, Facebook) in the 2000s.

Despite the fact that social network services or *SNSes* (providing tools for enlarging human/social networks) blossomed only recently, the history of computer-based *SNS predecessors* can be traced back to 1969 when the ARPANET (a predecessor of the Internet) started its operation, and to 1979 when the Usenet (a worldwide distributed Internet discussion system with a hierarchy of topical categories named *newsgroups*) became available. From the late 1970s to the mid 1990s, bulletin board services (BBSes) were popular; originally BBSes were accessed only via a dial-up connection but by the early 1990s some BBSes allowed access via a network connection. In 1984, the first ever (as is claimed) Internet *user group* (a social network) was established for the computer game named Elite. In 1986, LISTSERV (the first automated mailing list manager, facilitating emailing to groups of users) was introduced.

The history of computer systems that can be already considered *SNSes* rather than *SNS predecessors* starts with early *SNSes*, that can be classified into three categories (Social network service, 2009): (a) *SNSes* based on *chat rooms and personal homepages*, including: The WELL (1985), Theglobe.com and Geocities (1994), Tripod (1995); (b) *SNSes* based on *email*, including: Classmates.com (1995), SixDegrees.com with user profiles, friend lists (1997); and (c) *SNSes* based on *website forms*, *e.g.*, Epinions, a general consumer review site (1999).

The current generation of computer-based SNSes includes: Friendster, MySpace, and Bebo (2002–2004); Facebook (2004); MySpace and Yahoo!360°—the latter not supported any more (2005).

As of May 2009, over 850 social networking sites are in existence, not counting many more niche social networks (facilitated by online platforms for creating own social networks, such as Ning). Some SNSes are global, some dominate in different languages and countries. Over 1,000 SNSes are expected by the year's end.

All these computer networks and distributed computing systems (based on them) facilitate to some degree social network interactions and became important tools in our civilization. But only the most recent stage in this evolution—namely, SNSes—provide tools designed to directly support social network activities. It has been said that the goal for SNSes is organizing the world's people—rather than organizing the world's information (which is the stated Google's mission).

3. Current Social Networking Services Supporting Social Networking

The following discussion and the numbers cited below indicate that SNSes are dominating tools for enlarging social networks in our civilization.

Currently, the five most popular SNSes (PRWeb, 2009) are: (1) *Facebook*, with 200 million users worldwide; it helps families and friends stay in touch, share photos and post messages; (2) *MySpace*, with 110 million users; helping friends to connect, blog and rank music; (3) *Twitter*, the fastest growing SNS, it leaped from being the 22nd largest to the 3rd largest in a year; it “connects people 140 characters at a time” as its advertising slogan says; (4) *Flixster*, with a very fast growth: going from the 16th to the 4th largest in a year; it is used to share movie

ratings and reviews with friends; (5) *LinkedIn*, most widely used in North America; it networks professionals, encourages sharing ideas and the exchange of professional information, and communicates opportunities within the business world.

Many SNSes are less known globally, but popular or even dominating in certain geographical, application-oriented, and other niches.

4. Impacts of SNSes on Enlarging Human/Social Networks

We believe that SNSes have gained and will maintain a dominant position thanks to their positive and despite their negative features or impacts. Both should be well known to users wishing to fully utilize their potential without adverse consequences.

It should be noticed that often the very same characteristic of a tool (like sharpness of a knife) that is beneficial or advantageous can also have the second side that is threatening or disadvantageous (a sharp knife can be used to either cut bread or to kill).

To clearly emphasize SNS features and impacts (to avoid getting some buried in text), the following two subsections are formatted as lists. Both lists are open-ended.

4.1. Benefits/Advantages of SNSes

- 1) The most promising feature of SNSes is their potential for a positive influence on personal relationships, realized by “Lower[ing] the communication barriers in space and time” (Hlebec et al., 2006).
- 2) SNSes facilitate social interactions “Due to the absence of physical cues and simplified communication” (*ibid.*). Hiding of such clues allows for social interactions that would not otherwise occur due to economic, professional, and other stratifications of society.
- 3) SNSes enable having more friends by facilitating management of larger numbers of people and interactions

(*ibid.*). This supports staying in touch with old friends and meeting new ones.

- 4) SNSes facilitate creation of virtual communities. Some of them would never be created, e.g., due to communication barriers (such as widespread physical locations of prospective social network members), or due to high overhead of creating them without the adequate computer-based tools.
- 5) SNSes assist in enlarging existing social networks in two ways (Castells, 2007): (a) by providing increased opportunities to bond with people and to exchange information; and (b) by making interaction with people easier than by more traditional ways of communications.
- 6) The sense of anonymity and security perceived by SNS users encourages frankness and openness (cf. Castells, 2007). In fact the “natural” anonymity is the most important difference between many online interactions and typical offline interactions (Więckiewicz, 2008). It is imparted by the lack of face-to-face interaction and physical distance between the interacting parties.
- 7) SNSes reduce stereotyping, by eliminating certain inherent aspects of face-to-face interactions that make it so easy. The physical distance and (typically) visual separation remove many hints of others’ looks, race, and gender, etc. This makes stereotyping more difficult though not impossible (due to hints like others’ vocabulary or writing style).
- 8) An SNS user often has the sense of controlling information revealed on oneself. Control in an SNS-based social network is often explicit, and seems much easier than in other social contexts (Buffardi & Campbell, 2008). Users themselves decide what information (about their occupations, interests, hobbies, private lives) they make available, e.g., in their profiles, thus placing this information in a public domain.

- 9) SNSes assist in job search, speeding up feedback and advice people can get from their own social networks. Complementing the former benefit, SNSes can assist in employee search by companies (Thew, 2008).

4.2. Threats/Disadvantages of SNSes

- 1) A loss of privacy (Lilien & Bhargava, 2008) is the most serious threat for SNS users. Any information released online (any email sent, any blog published, etc.) can “escape” from its owner’s/creator’s control. It can occur by a mistake made by the owner/creator or anybody to whom the owner/creator entrusted information. It can also be a result of malicious actions, such as privacy invasion by computer security attacks.
Furthermore, privacy losses can be compounded by mining, aggregating, and inferring from any information put online anytime, anywhere, and by anybody.
Uncontrollable privacy losses can far exceed the most pessimistic users’ expectations since the power of accumulating information online works against privacy of any user.
- 2) Security attacks on users’ cyberspace assets collected by one or more SNSes are the second most critical threat posed by SNSes. The category of SNS-based crimeware is growing quickly. Profiles can be exploited by cyber criminals (e.g., for phishing).
- 3) SNSes provide a false sense of anonymity and security to users. Complete anonymity is just a myth. Users incorrectly infer it from the lack of face-to-face encounters and their ability to use of pseudonyms instead of their actual names. Users usually do not understand that anonymity is far from absolute, and that they have only a certain degree of anonymity. Many do not even know that their anonymity can be completely eliminated, for example, by a court order.

Furthermore, anonymity is not assured even without an intervention by authorities. With a certain effort, everyone

can be identified since: "Every person does a few quirky, individual things which end up being strongly identifying" (Unmasking, 2009).

- 4) The sense of anonymity may encourage breaking ethical and moral restraints (Więckiewicz, 2008) as it eliminates the fear of accountability and consequences for one's deeds. This is true especially for users for whom the only significant barrier keeping them from non-ethical or immoral behavior is a fear of criticism, retribution, penalties, etc.
Anonymity encourages thinking that the Internet may be used to release tension and discharge anger. It encourages voicing more radical and extreme opinions—sometimes frankly, sometimes only provocatively; both can result in "flame wars."
- 5) SNSes can contribute to the widening of the digital divide, further enriching digital haves and leaving behind digital have-nots. This can occur at any level, from local (privileged and disadvantaged communities) to international (privileged and disadvantaged countries).
- 6) Users of SNSes can feel excessively connected. This can result from being either overwhelmed with the quantity of information or underwhelmed by its quality. In the former case, the pure volume of information becomes an issue. In the latter case, users could become disappointed with the triviality of information or annoyed with its commercialization.
- 7) SNS replace rich face-to-face interactions with impoverished online interactions (Ilciów, 2007), reducing sensory experiences due to very limited mode of online interaction vs. its traditional counterpart. The former typically (still) have no audio or visual clues (incl. emotional clues), and provide no physical contact (Castells, 2007), such as a handshakes, back slaps, or other haptic clues.

- 8) SNSes promote superficial relationships (Buffardi & Campbell, 2008; Hlebec et al., 2006), being a tool supporting more quantity than quality interactions. Indeed, many users are drawn to SNSes by their support for maintaining large numbers of relationships (many users have hundreds or even thousands of “friends”).
- 9) Online relationships are more difficult to nurture and, in general, they do not last long, have high death rates (Castells, 2007; Hlebec et al., 2006). A contributing factor is that it is easier to ignore messages from a person known only online.
- 10) Online relationships can more easily be based on falsehoods than traditional relationships. Simply, it is typically easier to lie online than face to face (“even a dog can order sausages over the Internet, and pay with her owner’s credit card”). It is also easier to fail communicating the whole truth by neglect or carelessness, for example, by delaying updates of one’s old photos, personal or professional information (especially if the former may result in painting a rosier picture of oneself). A user can reinvent oneself out of pure vanity—to stay forever young and beautiful, or to appear to always be on top. Other unethical but forgivable motivations for falsifications of self-descriptive data include a lack of self-confidence, or attempts to get closer to a person the user wants to get involved with romantically. Unquestionably negative motivations for online falsifications include constructing plots to enable use or abuse of others, or framing intended crime victims (too often children or young adults are targeted in this way by sexual predators).
- 11) SNSes are a dream environment for narcissists, significantly amplifying their actions aimed at getting attention and showing off (also with “massaged” photos and information), and satisfying their need for “gain[ing] esteem from public glory” (Buffardi & Campbell, 2008).

12) The Internet and SNSes have an addictive nature, with 15% of university students in the U.S. and Europe knowing a person addicted to the Internet (furthermore, “5.9% to 13% of users “exhibit disturbed behavior on the Internet”) (Morahan-Martin, 2005). Addicted users report feeling out of control, and indicate serious impairments in their lives. Problems include work- and school-related problems and dismissals, interpersonal problems, separations and divorces.

However, it is hard to say with certainty what the root causes of these problems are, whether they are a result of Internet addiction, or merely the Internet is used to cope with personal problems (e.g., as a remedy for loneliness). Grohol (1999) notes that “Some [...] argue that the Internet is no more addictive or compulsive than is watching television, talking on the telephone, or doing other leisure activities.”

13) SNSes can foster social isolation of individuals by reducing time spent in face-to-face social contacts, which can result in harming personal relationships, hurting family and friends (Hlebec et al., 2006).

5. Conclusions

Computer-based social networks systems (SNSes) are more and more important tools enabling an explosive and unprecedented growth of social networking in our civilization. The growing sophistication and diversity of SNSes makes them easier to use, better matched for users’ networking needs, and performing better.

We have discussed both positive and negative impacts of SNSes. Both should be well known to users wishing to fully utilize potential of SNSes without adverse consequences.

Future generation of SNSes will definitely add or enhance benefits, as well as reduce or eliminate some disadvantages. As an interesting example, research on haptic interfaces will

reduce physical barriers, e.g., allowing SNS users to shake hands over the Internet.

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