

# SOCIAL NETWORKING AND EXTENDING SOCIAL CAPACITY

*Research-in-Progress*

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## **Abstract**

*This paper explores the phenomenon of social networking that is changing social structures and communication practices around the globe. It draws parallels with the social structures that emerged in the industrial revolution (such as the social clubs, unions and cooperative societies) and discusses some of the far reaching impacts the current phenomenon is having on society: The paper presents the concepts of Social Capacity representing the number and quality of how many people it is possible to know. The paper argues that social networking technology can change people's social capacity. This is likely to be an increasingly important research area for the information systems discipline as technology supported social networking activity becomes more ubiquitous.*

**Keywords:** Social Networking, Social Capacity, Dumbar's Number

## Introduction

This paper examines current social networking activity and how it may be affecting a key aspect of humanity, that of socializing behavior and capability. Social networking activity in a very topical and interesting area of research for technology and social researchers (Patchin and Hinduja 2010). The paper presents the concept of Social Capacity which can be defined as a measure of the number of people an individual can know along with attributes of depths of knowing those people. The contention in the paper is that current social networking activity has the potential of extending social capacity for individuals. The paper will also examine a range of theories and models of social networking and draws upon early examples of technology supported social networking activity. The Industrial Revolution generated new social and business structures in society. The same is true of the current Information Revolution which is generating its own set of new social and business structures. We are currently living through a fascinating time in human history during this Information Revolution. Key themes of these new emergent structures are the impact that technology supported social networking is making in both business activity and socializing activity. For many individuals, technology supported social networking is an important part of their personal information system. Similarly it is becoming a key component of corporate information systems in interacting with customers, employees and potential employees. The paper aims to highlight how one aspect of emerging technology is impacting social processes, and potentially human socializing capabilities. This is likely to be an increasingly important research area for the information systems discipline as technology supported social networking activity becomes more ubiquitous.

The paper is structured as follows. First it will explore social networking from a historical perspective, and then it will explore some of the different attributes of social networking, structures in society and society building, followed by examining relevant theories. These will then be used to develop and define key attributes of social capacity. The paper then raises key emergent questions from a social capacity perspective.

## Social Networking: The Past

Through periods of rapid technological change there are likely to be corresponding significant changes to social structures (Ashton 1986, Deane 1988, Marshall 1982). Marshall (1982, p92) discussing the changes in social structures during the time of the Industrial Revolution notes “It was the Industrial Revolution that first challenged and then shattered the traditional framework and substituted a society based on class. In the eighteenth century political power and the possession of land went hand in hand. With the coming of the new industry this dominance began to crack. Men who were neither landowners nor gentlemen could nevertheless create wealth through the possession of factories and foundries. It was no longer only the landowner and the merchants who could call the political tune.”

Immediately prior to, during and after the Industrial Revolution there were a range of new clubs and societies emerging. New professions, such as engineers developed their own clubs and societies. For instance, in the 1770's a group of the new professionals of civil engineers in Britain headed by John Smeaton, establish a Society of Civil Engineers (Ashton 1986, Watson 1989), or as it later become known as the Smeatonian Society of Civil Engineers, which evolved into the Institution of Civil Engineers in the early 1800's (though the Smeatonian Society of Civil Engineers apparently still existing as an exclusive dining club for senior engineers – so it says on wikipedia). Though of course there were other grouping (including 'civil engineering' type) long before the Industrial Revolution, for instance the various forms of Masons which have been in existence for many centuries.

During the Industrial Revolution new types of merchandise resulted in new merchant guilds. In the ninetieth and early twentieth century the response to factory working conditions and practices saw a growth of union communities emerging in the work place. The message that should be learnt is that new social structures will emerge to meet the needs of the society and local communities as these evolve with the evolving environment and technologies: the technology will be new but the 'social networking process' (i.e. needs, requirements and how they change) is likely be similar.

Before examining the phenomenon of Social Networking over the Internet in the early 21st century in any depth it would be useful to examine the wider background of community, community building and social

networking – this will hopefully provide a base to consider what constitutes a community and a social network within that community.

First from a macro-sociological perspective, new social structures and groups have been evolving continually as the living and working environments have evolved. The concept of community has evolved over time, not least in the scale, size and complexity of communities. In ancient history nomadic peoples lived in relatively small communities of a few hundred or less. Later towns of several thousand emerged and later still larger towns and cities emerged accommodating several tens of thousands or hundreds of thousands of people. More recently we have seen the emergence of large and mega cities with populations of several million. In 2003 City Mayors research estimated that more than 640 million people live in the world's 300 largest cities (that is within the city boundaries), or over 10% of the world's population of 6.3 billion ([http://www.citymayors.com/features/largest\\_cities.html](http://www.citymayors.com/features/largest_cities.html) accessed 7/03/09). In the urban environments around the boundaries of these mega cities the wider city populations can grow a further 5-10% or more. These population centres are mostly still growing; indeed there seem very few exceptions of these massive urban centres growing some of which have been growing quite rapidly over the last half century. The concept of community and the social structures within those communities are likely to change as the size of the population centres increases. Structures such as laws, physical structures, accepted norms, rules and social protocols will emerge to enable the larger number of people to live together in the same city space (e.g. uniforms for people performing society functions – police, fire, medical services; rituals for moving along roads – traffic lights, round-a-bouts; structures and rituals to organize communities – councils, local taxes, and refuse collection). Many sub communities, some quite diverse, will also emerge within the mega population centres.

The same pattern towards growth in size and convergence of a population is core to consider what constitutes a nation and how and we can class a nation as a single unit. For instance, in China's ancient history there were different kingdoms and local feudal dynasties before the unification of China by the Qin Dynasty in about 220 BC. About the same time across Southern Europe, the Middle East and North Africa we saw the emergence of city states such as Troy, Babylonia, Athens and others. In Europe there have been many unifications throughout its history. For example, in ancient Briton there were many local tribes and clans that merged into a smaller number of local kingdoms which eventually merged in four main kingdoms (England, Ireland, Scotland and Wales) which eventually merged into one nation (the UK – United Kingdom). There have been successive empires covering large proportions of Europe – Roman, Ottoman, Persian, Napoleon and others. More recently there are loose knitting 'collaborations' across Asia, wider Europe (the EU) and the Americas.

These unifying processes are all in line with the various convergence theories of populations and societies (Holton 2008; Waters 1995). Societies have tended towards bigger groupings as the population levels increase and the boundaries between different groupings clash. One such convergence theory proposed by Kerr, Dunlop, Harbison and Myers (1973) suggest that industrialized societies are more similar to each other than the non-industrialized societies and, that individual skills become more specialized by function. Kerr et al (1973) argues that industrialized societies will naturally converge to large scale hierarchical and bureaucratic structures. From this perspective societies with substantial areas of commonality are likely converge. There are questions on how similar the dispersed societies are within the global village: they may not be a similar as the Kerr et al's industrialized societies since there are likely to be many dimensions for differences such as culture, language and environment; or there may be a tendency towards more convergence a dispersed groups find they have much more in common that differences, such as using similar technologies, facing similar global crisis (e.g. financial, environmental, security or terrorism threats) and partake of similar popular entertainment (e.g. music, film, TV, news). Clearly society building and emergent structures are complex areas of study with many influences.

Other structural development processes have been suggested by Burt (1992) who develops the concepts of "structural holes" in which certain people have ability, roles or position to connect up other people or groups of people. Structures emerge with different people taking on different roles.

In addition, people are likely to be a part of more than one community, for instance a University graduate is likely to be part of several communities - their local home town communities (e.g. family, friends, schools, work, home town groups), their University communities (e.g. courses, flat mates, sports teams) and their working communities. There may be other wider communities that people will be brought together, say around a common interest or focus, for instance political parties, religion, sport, social

interest or any other common theme to unit people (e.g. protesting against or for a common cause). In a similar light, people that have similarities – or a common focus – have a good base to come together and form a community. In the past this has mostly been based on being in the same place, however with technology support people with common interests can form communities in virtual groups.

## **Hierarchies and social structures**

Throughout most societies there are social structures with different hierarchies – effectively different levels on the social ladder. Marshall (1982) identified the social orders and structures within society before the Industrial Revolution): “The baron gave precedence to the duke. The merchant condescended to the shopkeeper, the attorney to the tenant farmer, the skilled craftsmen looked down on the semi-skilled, he in his turn looked down on the manual worker, who, however humble, could still scorn the pauper and the beggar.” (Marshall ‘s 1982, p90)

These levels or rungs on the social ladder are typically demonstrated and communicated by a variety of symbols such as clothing and profession artifacts. The importance of symbols to show the place people occupy in society is demonstrated by a passage from Marshall ‘s work on the Industrial Revolution in which the pre-Industrial Revolution society is described: “All this was visible for everyone to see. Each order had its rights and its responsibilities; each man knew what was expected of him in relation to his fellows. It was a society in which acceptance almost universal. It was not, and never had been, completely rigid. Men had always been able to move from one order to another, though in practice this was a feat beyond the mental and material resources of the vast majority. In medieval England the serf, with the permission of his lord, could become a priest, the priest a civil servant; the craftsman could become a merchant, the merchant a gentleman, the gentleman a nobleman. .... A nobleman wore his star. Courtiers and men-about-town dressed their part; so did the country squire. The merchant adopted a decent sobriety of garment, the carpenter wore his paper hat, the smith his leather apron, the countryman his smock” (Marshall ‘s 1982, p90). In 17th and 18th Germany it was against the law for women to wear clothing above their social status, punishable by prison. It is unclear what structures there will be in the evolving social networking spaces of the Internet and how these structures will emerge. However, the formal face to face conventions of the strict hierarchical societies of of the 17th and 18th century are difficult to apply in the virtual Internet environment, as demonstrated by the famous cartoon (ref) titled "on the Internet no one knows you are a dog". New Internet 'barons' emerge as blog and twitter leaders who can command large followings from an international audience.

A key issue to consider in the unifying, or globalizing, of societies into larger societies is that the process can often be very dramatic and disruptive, often involving wars and clashes between peoples: Bismarck when talking about the unification of Germany in the 19th century said that unification will not be the result of speeches but of bloodshed and iron. Developing the symbols, rules, structures and functioning bureaucracy to accommodate increasing numbers of people to live together takes time. It is also a process, and likely a dynamic process. As the community size increases then there will be some growing pains as the new rules and norms are developed.

## **An anthropological perspective**

Understanding how the socializing rules emerge within communities can be informed by drawing upon works from anthropology and sociology. A good place to start is Desmond Morris’ ‘Man Watching’ (1977) and ‘The Naked Ape’ (1969) provide a different perspective on social structures within society.

As with the variety of symbols used to distinguish social hierarchy and functions within a community (as discussed above) there are a variety of complex social symbols and gestures that have evolved in the communication between people. Many of these biological symbols have their origins in communication between the sexes and within the same sex: “it is the biological nature of the beast that has moulded the social structure of civilization, rather than the other way round. Yet, although the basic sexual system has been retained in a fairly primitive form (there has been no communalisation of sex to match the enlarged communities), many minor controls and restrictions have been introduced. These have become necessary because of the elaborate set of anatomical and physiological sexual signals and the heightened sexual responsiveness we have acquired during our evolution. But these were designed for use in a small, close knit tribal unit, not in vast metropolis. In the big city we are constantly intermixing with hundreds of

stimulating (and stimulatable) strangers” (Morris 1969, p75). Humans are still predominantly monogamous in their relationships particularly when considering raising children – there is usually ‘strong bonding’ between pairs. Morris argues that humans have developed many cultural rules and restrictions to enable this pair bonding to operate in complex co-operative groupings. Non verbal and particularly verbal communication channels are used to disseminate the social norms. These are enhanced and reinforced in larger communities by having more formalised social norms, rules and laws. Other channels of communication are used such as writing, symbols and defined spaces for different socializing activity. In many societies cultural taboos and social norms get embodied in laws. The larger the grouping then the more formalized the rules and structures.

Morris’ work also brings out a key aspect of current social networking activity – the dating and mating activity. Human society is still (mostly) based on trying to develop strong pairs-bonds between couples so they can raise children: it is human biology. This points to an age dimension in understanding social interaction. As children grow their biological clock moves them to wanting to interact with members of the opposite sex, then to identifying possible life partners with which to develop a strong pair-bond as a prelude to raising offspring. This activity will be a strong influence on any social networking activity for teenagers to young adults. Older people, or already paired people, are likely to have different motivations in social networking which will result in different behavior, focus and social networking activity.

### **Early adopters or laggards in Social Networking: Different roles for different groups**

As discussed above there may be considerably different motivations – and corresponding practices - for social networking activity for different age groups. Studying innovation diffusion patterns could be a useful way to explore social networking activity, and there are different diffusion models to work with (Wejnert 2002). One of the most popular diffusion of innovation models is Rogers’ DoI model which describes how different proportions, or groups of a population adopt a new technology, the pattern of which follows a bell-type curve representing 5 distinct categories of people: innovators, early adopters, early majority, late majority, laggards. DoI argues each of these will have different motivations for adopting the new technological innovation. Rogers’ work also identifies the importance of social systems for communicating information and acceptance about the innovations: Adoption is influenced by the immediate and peer networks. This indicating that where there influential peer networks – such as in teens and young adults – there is likely to be a strong motivation to use the social networking facilities if a large proportion of one’s peers are. The DoI model is likely to need rethinking – and modifying – to accommodate the age dimension in adoption patterns, perhaps requiring different representations for different age groups. The early adopters will also represent a relatively small group (compared with the late majority) with small community motivations and adhering to corresponding ‘small group’ rules and norms. Examining some of the early development of social networking sites (e.g. theglobe.com and classmats.com in the mid 1990s, or friends reunited) these were based on friends – small groups of friends – getting together. The discussion earlier covering the growing problems of communities indicate new rules and norms, and more bureaucracy and even formal laws, are likely to be needed as the social networking community increases.

Also, the discussions earlier on the unifying and globalizing forces in generating larger communities indicate further challenges ahead for social networks on the Internet. Some of the social network sites have already reached the mass of mega communities rivaling (and sometimes even exceeding) the size of the largest of cities. The more activity that takes place in these social networking mega structures indicate the likely need for different roles to emerge – specializing roles to enable the large number of individuals to interact with each other. Different people – or entities- will have different roles representing specialized functions. One such role would be a linking role, say between social networks or between groups of people. Another set of roles emerge around developing trust, so say a trusted entity or person. Feedback systems (e.g. similar to those used on ebay or Amazon) seem to provide mechanisms for embedding trust in individuals. Further trust is embedded in close and trusted friends and their recommendations. Further roles that might emerge are policeman or something similar. There are examples of these in the early hacking community or the ethical hackers.

New symbols and language are already emerging to support the interaction within the virtual social networking communities (e.g. smile faces, acronyms etc). There seems to be some hierarchical structures

emerging based on size of social network, and/or celebrity (which often go hand in hand), influence in topic areas (such as film critics or social/political commentators) and in size and quality of feedback (say star rating on ebay for instance). There may well be other structures that will evolve along with any changing patterns of social network activity – after all social networking in its current sense is really only in its infancy. In a generations time social networking will likely have evolved into a mature set of technologies and practices with a mature set of rules, laws and bureaucracy. There is still the issue of how to make money from Social Networking sites, or should they be a service? The current advertising model does not seem flexible or a sound enough model to accommodate the growth in functionality that is likely to emerge in a mature social networking environment.

## Social Capacity

Perhaps one of the most interesting aspects of social networking is the potential for changing some of the fundamental aspects of human beings, and one of the prime candidates for this is what we call *Social Capacity* - the amount of people that a person can know in both the number of people and the depth of knowing them. There are many different attributes to social capacity. For instance, typically people know other people at different 'levels'. One may have a small group of very close friends and family, a bigger group of more general friends and colleagues, and an even bigger group of passing acquaintances that one might 'know' but only to say hello to. In addition, people will have a further set of people that they know passively, for instance film and TV stars, actors and sports people. Indeed, for many of the celebrities much is known about them and distributed through magazines, news papers, the Internet and TV – down to minute details of their history, relationships, major life events and even thoughts. Celebrity 'twitters' contain much minute personal detail of their daily lives and thoughts (assuming that the celebrities are actually writing all of their twitters). Many of the general public may know more about the personal life and details about select celebrities than of some of their own friends! This can be represented in figure 1. We can define social capacity (SC) as:

$$SC = f\{ [NSL *ISP *f\{LevelKn\}] + [NetGNN*f\{LevelKn\}] - [NetLON*f\{LevelKn\}] \}$$

Where:- NSL = Natural Socializing Limit for humans

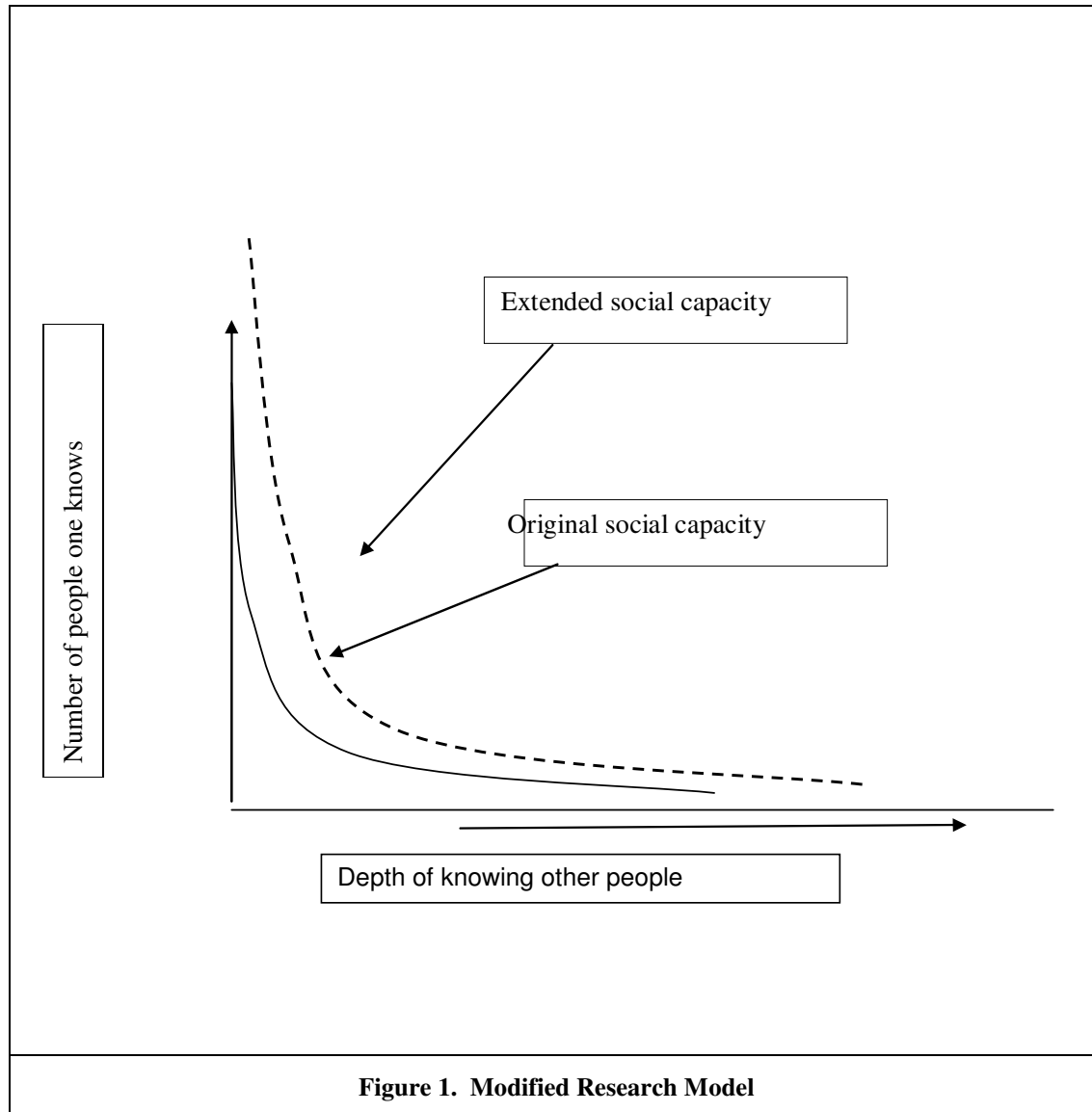
ISP= Individual Socialising Propensity

NetGNN = Net Gain from New Networks

NetLON = Net Loss from Old Networks

LevelKn = function of the level of knowing individual people

The level of knowing another individual (Levelkn) is likely to be related to information one has about that person, such as generated through sharing experiences, thoughts, events with them as well as how strong the social ties between the people (Granovetter 1973). As people move through their life they will join and leave different social groups. As discussed earlier, a child may move from one school to the next, or an adult may move from one job to the next. In each case the individual will gain new friends and associates. Equally, they will start to become distant over time to their previous friends and associates. There is a social capacity gain (NetGNN) for the individual from the new people they meet, but also a loss (NetLON) from the distancing of the previous group as they interact with then less. There is much variety in social skills within a population: some people are natural 'social animals' and seem to be friends with and know everyone within a community; at the other end of the spectrum other people are very private and introvert. Consequently, social capacity is likely to be influenced by an individual's natural level of social skills (ISP). In addition, there may well be some overarching human limit to how many people one can know, possibly influenced by humans memory and cognitive capabilities (NSL).



## Discussion, Future Work and Conclusion

Breaking down social capacity into component attributes enables the phenomenon to be explored, particularly any changes due to technology influences. Many or possibly all of these attributes could be affected and extended by technology. Social networking technologies, or even mobile technologies enable unprecedented access to an unprecedented number of people from anywhere and to anywhere around the globe. People are able to email, participate in blogs and twitters, talk, or generally directly communicate on a one to one, or a one to many basis to more people than they have ever before. People are also able to keep in touch more easily with their previous social groups through social network technologies (along with emails and other technologies) and be able to broadcast simultaneously personal information to many of their friends and colleagues. There is clearly potential for technology to increase social capacity.

Technology may also have an adverse effect on an individual's social capacity, for instance while the person is socialising and interacting in the virtual world they may miss out on more indepth socialising in the physical world. Similarly, some of the most unfriendly places are crowded cities, particularly where there are transient populations with people moving in and out of residences and jobs. In contrast, some of the friendliest places are small communities. Just increasing the access to a wider number of people will not make people more sociable. The virtual world can be very transient.

But how many people can one person actually “know” in any meaningful sense? There is likely to be variation in this as some people are very sociable and others less so. but it is unclear if technology animals and ‘know’ many people, while others are more at home in a smaller circle of friends and associates.

The future work of the author is focused on trying to capture some of the social capacity attributes for different groups of people. So far 15 focus group sessions have been run (predominantly consisting of university students, but also 2 groups of working people) and the results of these have been used to generate the questions for a survey to be targeted at school children, college and university students and working groups. Students are particularly interesting groups for studying social capacity since they have distinct periods where they move between different social groups (for instance going from school to college, or from college to university).

A further avenue the author intends to explore is to simulate different models and scenarios for the social capacity within a population. One of the most promising areas of analysing social networking activity, and attributes of social capacity, is within the relatively new or converged field of Social Network Analysis (SNA) which is attracting interest from computer science, biology, physics, sociology, economics, decision making and other fields of study. There are powerful software tools, such as the freeware VISON and PAJEK, or the commercial systems NETMINER and UCINET, that provide support in mapping the interactions between nodes on the networks. They mostly rely on assumptions that nodes and entities in the dynamic networks follow some simple set of rules or heuristics. A popular outcome of SNA is the Small-World experiments the social psychologist Stanley Milgram (1967)– which have been the basis for the 6 degree of separation hypothesis, i.e. that anyone on the planet is separated from anyone else by the interactions and relationships of only 6 other people.

The historical and theoretical sections covered earlier in the paper show there are many foundations for researching attributes of social capacity within the context of technology supported social networking. A social capacity perspective provides an interesting vista to explore and monitor the impact of technology supported social networking is having on society. This is set to be an increasingly interesting area for IS researchers in the years to come.

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