The Impacts of Social Networking and Its Analysis

Prajna M. R.[1], Savitha C. K.[2], Ujwal U. J.[3]
Department of computer science and engineering, KVGCE Sullia

ABSTRACT: *Social networking sites are playing very significant role in today time; it has a direct impact on all age group people. Though it has many cons but still these are like an effective tool in communicating millions of people and spreading our expressions and view worldwide. We all need a change in the pattern of use, in order to prevent miss-happenings on these sites. If we will be active and aware these sites will serve us their batter and will bring some more revolution in the world of cyber technology. Social network analysis (SNA) is the methodical analysis of social networks. Social network analysis views social relationships in terms of network theory, consisting of nodes (representing individual actors within the network) and ties (which represent relationships between the individuals, such as friendship, kinship, organizational position etc.). These networks are often depicted in a social network diagram, where nodes are represented as points and ties are represented as lines.*

Keywords: Nodes, Social network analysis, Ties.

I.   INTRODUCTION

A social network can be defined as a social structure of interactions between individuals, which are directly or indirectly based on a common thread of interest. It represents networks with vertices as a people or group of people. The advent of online social networks can be considered as a milestone in the web industry.

Whatever may be the country the urge for being social is increasing day-by-day. Social networking is the outcome of this. It can be defined as internet based system designed to facilitate communication, collaboration and information sharing across users. Communication may takes place between computers or mobile devices without the knowledge of the users. Social networking gives control to the users. It is the user to decide what information is shared and how it is shared. Users can form public groups and private groups. In public group access is to everybody. In private group access is restricted. There are many popular social networking services.

- Video sharing- you tube
- Photo management and sharing- flickr
- Microblogs –Twitter
- Social networking of professionals
- Social utility- facebook
- Power point presentations and sharing- slideshare

The popularities of social networking are posting messages, downloading music, downloading videos, posting photos, blogging, polls and surveys.

Benefits of social networking

- These sites give users a platform across the globe to express their feelings and views.
- It helps users to get interact with other users, no matter from where s/he operates these sites in world.
- These sites help users to organize and participate in any events..
- It is a great source of communication between two users, irrespective of the distance between them.
- SNS boosts many organizations and business, through their promotions on these sites.
- It helps in building credibility amongst the customers.
- It helps to make people and community aware of any issue.
- It helps to bring social change in society.
- It helps to be in touch with our interested, loved ones, relevant group or people or community.
- These sites are not only a source of creating social activities but also a great way to participate and enhance our skill through participating in many contests and activities etc.

Disadvantages of social networking

One of the major demerits of these sites are increment in criminal activities, as there is no hard restrictions on creating account on these sites.

- Another important issue is security of our personal data and information, as its free to everyone, most of the users create face accounts and misuse the personal information of other users/celebrities.
- Sometime some non genuine and face account users attacks to some religious communities and political groups.
- These sites unnecessarily waste our valuable time, when user spend time on these sites and get addicted.
- Addictions of these sites can even affect our mental conditions, sometime is became a big reason of depression and tension.
- User's reliability is not sure; it's very hard to trust on any stranger on these sites.
- Many of time it has been seen that it became the reason of one's death, as it becomes the medium to get in touch with the victim.
- It encourages many scamse etc.

II. IMPACTS OF SOCIAL NETWORKING

News- Social media has become an important source of news. While the credibility of some sources can clearly be contested, news channels tweet or give updates on significant happenings all over the world. Their availability on social networks makes news more accessible. Additionally, news quickly gets passed around the networks in ways never experienced before.

Interaction- Social media has furthered interaction by such a massive scale that is hard not to notice it. It allows people to keep in touch in a more regularly, and sometimes, more intimately, than was ever before because of time and space constraints. People cities or continents apart can keep in touch so effortlessly, creating an opportunity to experience different cultures.

Political Landscapes- Social media has enabled greater political awareness and organization, which has in some cases rewritten entire political landscapes. It has particularly played a large part in the Iran elections, and Obama's reelection for a second term as US President, and inspired the political unrests in Egypt.

Learning- Social media has also played a large part in fostering literacy. Children who start using the platforms develop early communication skills, and generally become more literate. This is an encouraging trend, and thanks to the huge availability of information, both simplistic and complex on the internet, anyone can become as smart or intelligent as they desire.

Marketing- The whole dynamics of marketing has been changed, and rather than investing in mass channels ads, companies are becoming more consumer-centered through interactions made over social media. They are able to understand the needs of the market from the market itself, greatly altering the way marketing has been done in the past.

III. SOCIAL NETWORK ANALYSIS

Social network research has come a long way since the notable six degree separation experiment. Social network analysis is the social networking to understand their structure and behavior. Social network analysis dates back to the early 20th century, with initial studies focusing on small group behavior from a sociological perspective. The emergence of the internet and subsequent increase in the use of online social networking application has caused a shift in the approach to this field. Faced with complex, large datasets, researchers need new methods and tools for collecting, processing, and mining social network data. The increasing computing power allows more memory expensive algorithms and statistical methods to analyze large social networks.

Online social networks (OSN) have revolutionized the way we interact and share information over the internet, and social networking applications such as you tube, facebook etc, have millions of active users. While already being enormously popular, these applications only scratch the surface of online social networking possibilities. Networks such as facebook, Twitter and Linkdln have quickly become communication juggernauts, providing a vast and unprecedented record of social interactions. But they have left mathematicians struggling to keep up. It is challenge for researchers to visually convey the intricate system that make up OSNs. Novel mathematical models of how online social networks are formed, and are trying to find creative ways to use the resulting network topologies to efficiently share/distribute information. The models and results provide surprising insights into how and why the social network that we form and use in our everyday life are so important and efficient.

Social network is easy to formulate but difficult to assess. Network analysts like to know what groups of individuals are unusually closely interconnected with each other, relative to the average for the population as a whole and most importantly which are the influential points. Apart from relational concepts, nodes of actors and their actions are as interdependent. Network model focus on individuals and network structure is treated as individual interaction. The attributes of actors are not considered. It focuses on uncovering the pattern of people's interaction. Analysis is based on the intuitive notion that these patterns are features of individuals.

Social networks are self-organizing, emergent, and complex, such that a globally coherent pattern appears from the local interaction of the elements that make up the system. These patterns become more apparent as network size increases. However, a global network analysis of, for example, all interpersonal relationships in the world is not feasible and is likely to contain so much information as to be uninformative. Practical limitations of computing power, ethics and participant recruitment and payment also limit the scope of a social network analysis. The nuances of a local system may be lost in a large network analysis, hence the quality of information may be more important than its scale for understanding network properties. Thus, social networks are analyzed at the scale relevant to the researcher's theoretical question. Although levels of analysis are not necessarily mutually exclusive, there are three general levels into which networks may fall: micro-level, meso-level, and macro-level.

3.1. Micro level

At the micro-level, social network research typically begins with an individual, snowballing as social relationships are traced, or may begin with a small group of individuals in a particular social context.

Figure: Social network diagram, micro-level.

Dyadic level: A dyad is a social relationship between two individuals. Network research on dyads may concentrate on structure of the relationship (e.g. multiplexity, strength), social equality, and tendencies toward reciprocity/mutuality.

Triadic level: Add one individual to a dyad, and you have a triad. Research at this level may concentrate on factors such as balance and transitivity, as well as social equality and tendencies toward reciprocity/mutuality.[36]

Actor level: The smallest unit of analysis in a social network is an individual in their social setting, i.e., an "actor" or "ego". Egonetwork analysis focuses on network characteristics such as size, relationship strength, density, centrality, prestige and roles such as isolates, liaisons, andbridges.[38] Such analyses, are most commonly used in the fields of psychology or social psychology, ethnographic kinship analysis or othergenealogical studies of relationships between individuals.

Subset level: Subset levels of network research problems begin at the micro-level, but may cross over into the meso-level of analysis. Subset level research may focus on distance and reachability, cliques, cohesive subgroups, or other group actions or behavior

3.2. Meso level

In general, meso-level theories begin with a population size that falls between the micro- and macro-levels. However, meso-level may also refer to analyses that are specifically designed to reveal connections between micro- and macro-levels. Meso-level networks are low density and may exhibit causal processes distinct from interpersonal micro-level networks.
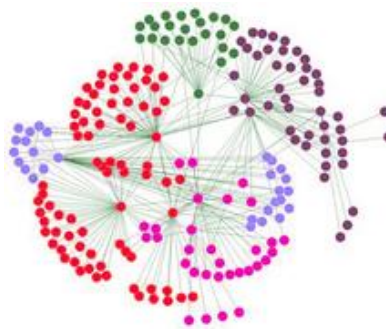

Figure: Social network diagram, meso-level

Organizations: Formal organizations are social groups that distribute tasks for a collective goal. Network research on organizations may focus on either intra-organizational or inter-organizational ties in terms of formal or informal relationships. Intra-organizational networks themselves often contain multiple levels of analysis, especially in larger organizations with multiple branches, franchises or semi-autonomous departments. In these cases, research is often conducted at a workgroup level and organization level, focusing on the interplay between the two structures.

Randomly-distributed networks: Exponential random graph models of social networks became state-of-the-art methods of social network analysis in the 1980s. This framework has the capacity to represent social-structural effects commonly observed in many human social networks, including general degree-based structural effects commonly observed in many human social networks as well as reciprocity and transitivity, and at the node-level, homophily and attribute-based activity and popularity effects, as derived from explicit hypotheses about dependencies among network ties.Parameters are given in terms of the prevalence of small subgraph configurations in the network and can be interpreted as describing the combinations of local social processes from which a given network emerges.
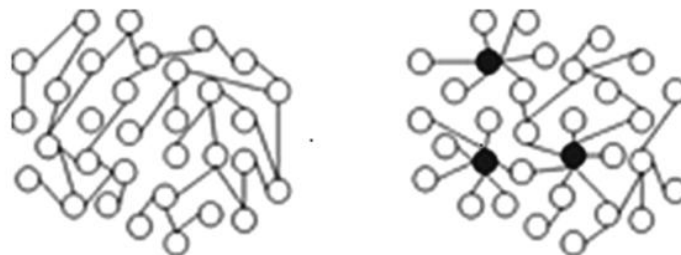

Figure : Examples of a random network and a scale-free network. Each graph has 32 nodes and 32 links. Note the "hubs" in the scale-free diagram (on the right).

Scale-free networks: A scale-free network is a network whose degree distribution follows a power law, at least asymptotically. In network theory a scale-free ideal network is a random network with a degree distribution that unravels the size distribution of social groups. Specific characteristics of scale-free networks vary with the theories and analytical tools used to create them, however, in general, scale-free networks have some common characteristics. One notable characteristic in a scale-free network is the relative commonness of vertices with a degree that greatly exceeds the average. The highest-degree nodes are often called "hubs", and may serve specific purposes in their networks, although this depends greatly on the social context. Another general characteristic of scale-free networks is the clustering

coefficient distribution, which decreases as the node degree increases. This distribution also follows a power law. The Barabási model of network evolution shown above is an example of a scale-free network.

3.3. Macro level

Rather than tracing interpersonal interactions, macro-level analyses generally trace the outcomes of interactions, such as economic or other resource transfer interactions over a large population.
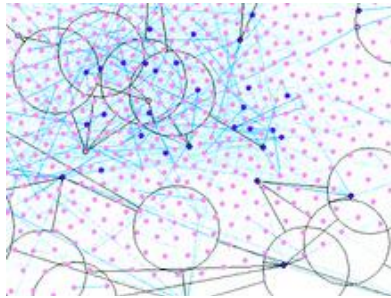

Figure: section of a large-scale social network

Large-scale networks: Large-scale network is a term somewhat synonymous with "macro-level" as used, primarily, in social and behavioral sciences, in economics. Originally, the term was used extensively in the computer sciences (see large-scale network mapping).

Complex networks: Most larger social networks display features of social complexity, which involves substantial non-trivial features of network topology, with patterns of complex connections between elements that are neither purely regular nor purely random (see, complexity science,dynamical system and chaos theory), as do biological, and technological networks. Such complex network features include a heavy tail in the degree distribution, a high clustering coefficient,assortativity or disassortativity among vertices, community structure, and hierarchical structure. In the case of agency-directed networks these features also include reciprocity, triad significance profile (TSP, see network motif), and other features. In contrast, many of the mathematical models of networks that have been studied in the past, such as lattices and random graphs, do not show these features.

IV.   CONCLUSION

Social network analysis has gained significant prominence, largely due to the popularity of the networking and media sharing sites. There has been an increased interest in network analysis in organization studies and information research. There has been many groups working in different areas, still a gap exist between techniques developed by research community and their deployment. This is coming in a big way as a new approach to the problem solving, assuming people are interconnected which has consequences in performance.

REFERENCES

[1].   NETWORKS AN INTRODUCTION: MARK NEWMAN, OXFORD UNIVERSITY PRESS.
[2].   Social network data analytics: Charu C Aggarwal(ed.)
[3].   Pinheiro, Carlos A.R. (2011). Social Network Analysis in Telecommunications. John Wiley & Sons.p.4. ISBN 978-1-118-01094-5.
[4].   D'Andrea, Alessia et al. (2009). "An Overview of Methods for Virtual Social Network Analysis". In Abraham, Ajith et al. Computational Social Network Analysis: Trends, Tools and Research Advances. Springer. p. 8. ISBN 978-1-84882-228-3.
[5].   Senekal, B. A. 2012. Die Afrikaanse literêre sisteem: 'n Eksperimentele benadering met behulp van Sosiale-netwerk-analise (SNA), LitNet Akademies 9(3)
[6].   "Social Network Analysis". Field Manual 3-24: Counterinsurgency. Headquarters,Department of the Army. pp. B–11 – B–12.
[7].   en.wikipedia.org/wiki/Social_network_analysis
[8].   Journal on Introduction to stochastic actor-based models for network dynamics Snijders, T.A.B., van de Bunt, G.G., Steglich, C.E.G.
[9].   www.sciencedirect.com/science/journal/03788733
[10].   lrs.ed.uiuc.edu/tse-portal/analysis/social-network-analysis/
[11].   Using Social Network Analysis to Analyze Relationships Among IS Journals Greta L. Polites, Richard Watson
[12].   Utilization and value of Social Networking relationships in family and nonfamily firms in an African transition economy Original Research Article European Management Journal, Volume 29, Issue 5, October 2011, Pages 347-361 Moses Acquaah
[13].   Social Networking sites and the legal profession: Balancing benefits with navigating minefields Original Research Article Computer Law & Security Review, Volume 29, Issue 2, April 2013, Pages 164-174
[14].   Online Social Networking for Quality of Life Original Research Article Procedia Social and Behavioral Sciences, Volume 35, 2012, Pages 713-718 Noorriati Din, Saadiah Yahya, Raja Suzan, Raja Kassim
[15].   The effect of Social Networking websites on positive self-views: An experimental investigationOriginal Research Article Computers in Human Behavior, Volume 28, Issue 5, September 2012, Pages 1929-1933 Brittany Gentile, Jean M. Twenge, Elise C. Freeman, W. Keith Campbell
[17] .   Article on Understanding social network analysis by Mini Ulanat and K Poulose
[18].   Social network analysis: a powerful strategy, also for the information sciences: Evelien Otte, Ronald Rousseau
[19].   Social network analysis: An approach and technique for the study of information exchange :Library & Information Science Research, Volume 18, Issue 4, Autumn 1996, Pages 323-342
[20].   Article on Social networking –Impact and Ramification by Dr. P Chenna Reddey