Chapter 15
Social Network Analysis Visualization:
A Facebook Case Study

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ABSTRACT

The social network surge has become a mainstream subject of academic study in a myriad of disciplines. This chapter posits the social network literature by highlighting the terminologies of social networks and details the types of tools and methodologies used in prior studies. The list is supplemented by identifying the research gaps for future research of interest to both academics and practitioners. Additionally, the case of Facebook is used to study the elements of a social network analysis. This chapter also highlights past validated models with regards to social networks which are deemed significant for online social network studies. Furthermore, this chapter seeks to enlighten our knowledge on social network analysis and tap into the social network capabilities.

INTRODUCTION

In the late, social network has a higher tendency of outreaching larger social processes compared to all other forms of organization due to its popularity. Social Network Analysis focuses on the structure of relationships ranging from casual acquaintances to close bonds. Social networks are nodes of individuals, groups, organizations, and related systems that tie in one or more types of interdependencies. Social Network sites on the other hand promptly mean that individuals join, establish social links to friends, and leverage their social links to share content, organize events, and search for specific individual or shared resources. However, the nature and classifications of these connections may vary from site to site (Boyd & Ellison, 2008). This social network

provides platforms for organizing events, user to user communication, and is among the Internet's most popular destinations (Wilson, Boe, Sala, Puttaswamy, & Zhao, 2009b). Alternatively, an interactive platform for sharing of information is also made possible with the proliferation of social networking sites. In a recent study (Gilbert & Karahalios, 2009), "strength of ties" has been demonstrated to vary widely, ranging from pairs of users who are best friends to pairs of users who wished they weren't even friends. In relation to this, the Facebook lacks the "network analysis x-ray" which is a significant component in visualizing the degree of node and denseness in social links. With better distributions of nodes, better relationships and knowledge flows can be measured, monitored, and evaluated. Additionally, through this mechanism organizational performance can also be enhanced (Serrat, 2010).

WHAT IS SOCIAL NETWORK ANALYSIS?

A social network is a set of people or organization or other social entities connected by some form of relationships. Analysis of social network broadly elaborates visual and mathematical representation of that relationship. The World Wide Web can also be considered as a social network. A social network is a social structure between actors such as individuals and organizations. Broadly, these networks implicate the possibilities in which they are connected through various social familiarities spreading from casual acquaintances to proximal business associations. Recently, social networks such as Orkut, Ryze and Linkedin have had phenomenal growth and impact on web traffic. The majority of these networks are for personal and socialization purpose, however social network analysis leads to mapping, measuring and modeling the relationships and flow between people, groups, organization or between any living or non living entities. From modeling point of view, the

nodes in the network are the people or community, whereas the link exhibits relationships and flow between the nodes (Al-Fayoumi, Soumya Banerjee, & Mahanti, 2009).

Social network analysis (SNA) is an interdisciplinary methodology developed mainly by sociologists and researchers in social psychology in the 1960s and 1970s. It was further developed in collaboration with mathematics, statistics, and computing that led to a rapid development of formal analyzing techniques which made it an attractive tool for other disciplines like economics, marketing or industrial engineering (Scott, 2000). SNA is based on an assumption of the importance of relationships among interacting units or nodes. These relations defined by linkages among units/nodes are a fundamental component of SNA (Scott, 2000).

Borgatti and Foster (2003) in their perceptive article "The Network Paradigm in Organizational Research" have shown that the exponential growth of the literature in social network research is part of a general shift, beginning in the second half of the 20th century, away from individualist, essentialist and atomistic explanations toward more relational, contextual and systemic understandings. There is definitely a crucial need for a review and classification of studies done in the area of network research in several disciplines like the web-based online social network.

SOCIAL NETWORK ANALYSIS TOOL

Social network analysis software is used to identify, represent, analyze, visualize, or simulate nodes (e.g. agents or organizations) and edges (relationships) from various types of input data (relational and non-relational), including mathematical models of social networks. The output data can be saved in external files. Network analysis tools allow researchers to investigate representations of networks of different size from small to very large ones.

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