Chapter 9
Social Network Construction in the Information Age:
Views and Perspectives

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ABSTRACT

Social scientists have been studying and refining their network data collection instruments for the last number of decades. Data collection in this field traditionally consists of manually conducting interviews and questionnaires on a population of interest to derive a list of ties between the members of the population and which can later be studied from a sociological perspective. Great care and considerable resources are often required during the research design and data collection phases in order to ensure that the final data set is well focused, unbiased and representative of the selected population.

Nowadays electronic network data is becoming widely available and easier to access and this data brings with it a number of advantages over manually collecting data. The ease of data collection, lower cost, large scale, temporal information and the elimination of respondent bias and recall problems are all concrete benefits of electronic data. With these clear advantages, could electronic data be a solution to problems encountered with manual data collection?

Electronic data is often available as a bi-product of other processes (such as phone call logs and email server logs), so often the data is not collected with the explicit purpose of being studied from a social network perspective. This aspect shifts the design decisions on electronic data to a later processing stage once the data is available, rather than before the data is collected. This shift introduces a different set of decisions and processes when dealing with electronic data collection. What are the best ways to process and interpret the data to achieve valid insights into the 'real' social network that the social scientist is interested in?

In this chapter, the authors will discuss the differences between manual data collection and electronic data collection to understand the advantages and the challenges brought by electronic social network data. They will discuss in detail the processes that are used to transform electronic data to social network data and the procedures that can be used to validate the resultant social network.

INTRODUCTION

Generally speaking one's social circle, or more specifically one's social network, includes friends, family, colleagues and acquaintances. Social connectedness however, is a psychological term which describes the duration, frequency, familiarity and reciprocal nature of the relationships people have with others in this circle or network. Both our social network and how connected we feel to people within it are important aspects of one's social wellbeing. Our social circle and how we perceive our degree of social connectedness can be subjective and possibly difficult to articulate.

Classically, social scientists interested in such social networks and connectedness would perform small scale data collection studies. Such data collection traditionally consisted of observation or manually conducting interviews and questionnaires on a population of interest, to derive a list of ties between the members of the population which can later be studied from a sociological perspective. Clearly, this is a time consuming and expensive process. In addition, the ability to document networks and our connectedness over the course of time is limited by the frequency of the data collection activities. The realisation that both human memory and our perception of social connectedness are limited implies that any data collected through such manual processes will inherently contain errors. Regardless of all these problems, such data collection methods have represented the gold standard for some time.

By contrast, consider the rapid expansion of technologies which collect data either explicitly or implicitly about our social networks and connectedness. Social networking services have become part of most people's daily lives. These services support people's connections and interactions while keeping an electronic trace of all these activities. There is also a wealth of electronic data that is available as a bi-product of other processes (sales, travel, phone call logs and email server logs). Within this data are the digital footprints of activity from which social networks and our connectedness can be deduced. In such cases the data is not collected with the explicit purpose of being studied from a social network perspective. This aspect shifts the design decisions on electronic data to a later processing stage once the data is already available, rather than the data collection stage before the data is collected. This shift introduces a different set of decisions and processes when dealing with electronic data collection.

When considering electronic data, from which we wish to extract both social networks and information on connectedness, there are a number of problems to consider. Firstly, records may relate to an entity relevant to the business (customer,

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