introduce the main characteristics of SNA so as to discuss in the final part of this section how it could be effectively integrated in traditional SA approaches.

6.1 WHAT IS SOCIAL NETWORK ANALYSIS?

SNA basically consists of a series of mathematical and computational techniques that, using network and graph theories, can be used to understand the structure and the dynamics of real or artificial networks [64,73,74]. Most of the early work was conducted on data collected from individuals in particular social settings to study a specific phenomenon [16,75]. Nowadays, the huge computational capacity of personal computers and the fact that people increasingly entertain relations on online social networks [23] have made SNA an important tool for psychologists and other social scientists to study interactions between people. SNA adopts a quantitative-relational approach, rather than relying on characteristics and attributes of individuals (eg, number of messages sent and received), and is based on relational data (or links, contacts, or ties) that characterize a group of people or a set of organizations of varying complexity (eg, families, groups of friends, associations). Relationships are represented by interactions of various kinds (friendship, money, flows of information). The potentiality of SNA is essentially twofold: the application of the theory of graphs to data relationships and, consequently, the description of the structure of the interaction though mathematical-algebraic indices [72,76].

Social networks are generally represented through graphs, which have the advantage of making a clear and immediate picture of the social structure. Graphs are the mathematical structure of a sociogram, visually expressed as a network composed of connected nodes. Therefore graphs are the spatial representation of social relationships among individuals. Graphs are useful because they represent graphically the social relationships and above all provide a formal representation of them (see Fig. 2.1). Moreover, it is possible to calculate an index to describe specific structural dimensions, such as density, inclusion, and cohesion.

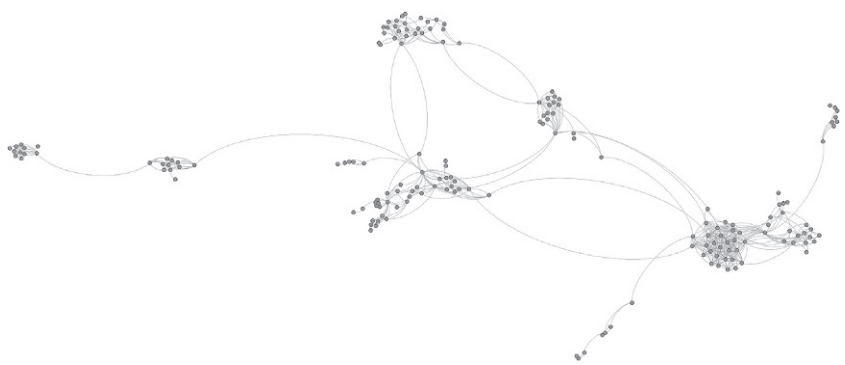

FIG. 2.1

A graph reporting the Facebook connections of an individual and his relationships. A set of subcomponents is clearly observable.