

1 The Social Network Perspective

Social network research has gained popularity in recent decades, and has entered many fields of sociological enquiry (Freeman, 2004). The network perspective is applied in research on migration, organizations, urban studies, etc. Accordingly, the research topics are very diverse: networks of communication, social movements, locale power elites, personal networks, informal networks within organizations, virtual networks, terror networks, and many more (Stegbauer, 2008). The popularity of the concept of social networks in the scientific context coincides with the popularity of the term “network” in public discourse. Individuals ought to be “networking” in order to improve their chances on the labor market; organizations build organizational networks for better outreach; and, of course, people “network” via the Internet. In this chapter, I will shed light on the social network approach and its main concepts, stressing the peculiarities of the approach and its orientation on the interrelatedness of human behavior.

1.1 A Social Network Perspective to Individual Behavior

Although social network research is a relatively new research strand, it builds on classic works by sociologists such as Georg Simmel and Max Weber, who were, in their time, dealing with the interrelation of individual and society and the question of social order. Simmel stresses the primacy of social relations, social interactions, and social influence for the formation of a society:

A collection of human beings does not become a society because each of them has an objectively determined or subjectively impelling life-content. It becomes a society only when the vitality of these contents attains the form of reciprocal influence; only when one individual has an effect, immediate or mediate, upon another, is mere spatial aggregation or temporal succession transformed into society (Simmel, 1971: 24-25).

He proposes the concept of “intersecting social circles” (“*soziale Verkehrskreise*”), and sheds light on individualization processes by describing individuals as living at “the intersection of countless social threads” (“*am*

Kreuzungspunkt unzähliger sozialer Fäden”) (Simmel, 1992: 467). Simmel thus stresses the relevance of social interactions for sociological research, and the need to view individuals as context-bound.

Equally fundamental is Max Weber’s classic definition of social action and social relations:

Action is “social” insofar as its subjective meaning takes account of the behavior of others and is thereby oriented in its course. (...) The term “social relationship” will be used to denote the behavior of a plurality of actors insofar as, in its meaningful content, the action of each takes account of that of the others and is oriented in these terms (Weber, 1978: 4, 26).

Weber places social action as the central interest of sociology. His definition of social action includes the directedness of individual action to the “behavior of others” as a fundamental component. His definition of social relations stresses that individuals anticipate other people’s behavior, and include this awareness into their own reasoning and actions. These early sociologists (also Leopold von Wiese (1954) is often named) were not the initiators of social network research, but in recent years many network researchers have come back to their work. Historically, the social network perspective developed from three main research traditions (for a more detailed description of the historic development of social network analysis see for example Wasserman & Faust, 1994; Freeman, 2004; Scott, 2006): The first research tradition is a sociometric analysis developed in the 1930s by Moreno (1934), Lewin (1936), and others. Sociometric analysis draws on psychological “gestalt” theory and investigates “group dynamics”. The second research tradition builds on the work of the “Harvard structuralists” of the 1930s. Using the work of the British social anthropologist Radcliffe-Brown as a starting point, they studied informal interpersonal relations in factories and communities (e.g., Roethlisberger & Dickson, 1939 on the Hawthorn Studies, Warner & Lunt, 1942). The third tradition goes back to the “Manchester anthropologists”, who were also in the tradition of Radcliffe-Brown, and analyzed African tribal societies as well as rural areas and small towns in Britain (e.g., Barnes, 1954¹, Bott, 1957; Mitchell, 1969). In the 1960s and 1970s, Harrison White and his associates at Harvard brought these traditions together, and social network analysis in its contemporary form was developed (e.g., White, 1963; Granovetter, 1974).

The social network approach builds on other research perspectives, such as group sociology, socialization, and role theory. Network researchers often refer to group sociology and social psychology pointing at findings on processes of

¹ Often the first use of the term “social network” is attributed to John Barnes and his work.

group pressure which can lead to conformity in attitudes and behavior (e.g., referring to Asch, 1951 and Milgram, 1961). But they also stress that, while groups consist of a definable and bounded number of persons, the social integration of individuals in everyday life is rather complex, and that individuals are usually not involved in only one bounded group of persons. The concept of social networks therefore avoids drawing boundaries between certain groups: “structural analysts try to avoid imposing assumptions about the boundaries of aggregates” (Wellman, 1988: 37), concentrating instead on researching the contacts and interactions actually taking place. Groups and organizations are not seen as coteries; they all have various connections to persons and organizations exterior to them (Wellman, 1988: 37). Network researchers also often refer to the concept of socialization. Socialization theories attempt to explain how individuals are integrated into society, how they internalize social norms, and how they form their identities. Parents, teachers, and other persons are agents of socialization: they (try to) shape the child’s personality, interests, and behavior by education; and they introduce the child to life in a specific society and culture. Through interactions with other people, the child learns about the world she lives in and her own place in it. Primary socialization as a young child occurs in the family of origin, while secondary socialization involves the school, and the third stage of socialization takes place in adult life (e.g., Mortimer and Simmons 1978; Berger & Luckmann, 2004). In addition to the family, peer groups are central agents in the socialization process. Peer groups consist of people of the same age who encounter each other in a certain setting, such as in a school class or university. Although network researchers support the focus on social relations for analyzing individual integration into society, they contend that socialization theories adopt an “over socialized” concept of people, focusing too much on fixed role relations, while failing to take into account the individual’s present/specific relationships (Granovetter, 1985). From a network perspective, one would argue that peers are not influential per se, but can become important if they are engaged in frequent contact, build cohesive networks of high density, transmit information quickly, and produce homogenous evaluations and normative pressures (Friedkin, 1982; Coleman, 1990).

1.2 Basic Concepts in Network Research

The fundamental theoretical proposition is that network research explains social actions not on the basis of individual attributes but in the context of social relations (Wellman, 1988: 31). Social relations are the primary focus of study (De-genne & Forsé, 1999: 3) and “the unit of analysis in network analysis is not the

individual, but an entity consisting of a collection of individuals and the linkages among them” (Wasserman & Faust, 1994: 5). Accordingly, the definition of the term social network stresses the relationships between actors:

A social network consists of a finite set or sets of actors and the relation or relations defined on them. The presence of relational information is a critical and defining feature of a social network (Wasserman & Faust, 1994: 20).

Not the actor *per se*, but his social relationships, or his integration into a social structure is at the center of interest. Actors and their actions are viewed as interdependent (Wasserman & Faust, 1994: 5). Social relations (or ties) in network research are defined as linkages between units. These units may be individuals, married couples, families or corporations (Degenne & Forsé, 1999: 3) and are generally referred to as actors, which does not necessarily imply “that these entities have volition or the ability to ‘act’” (Wasserman & Faust, 1994: 17). Social relationships may be of various sorts, such as economic, political, and affective; and relational ties between actors are channels for the transfer of material or immaterial resources (Wasserman & Faust, 1994: 3).

Social relations form regular patterns, which are referred to as network structures (Wasserman & Faust, 1994: 3), and social phenomena are explained in terms of the form or structure of the network (“structural analysis”, Wellman & Berkowitz, 1988). This goes back to the basic proposition of structural thinking that the whole is more than the sum of its parts: i.e., network relations cannot be analyzed separately, but must be considered in the context of the network structure as a whole.

Commonly measured network characteristics are (for details see for example Diaz-Bone, 1997, Degenne & Forsé, 1999):

- size: the number of units (e.g., persons) included in the network;
- density: the proportion of realized relationships to the maximum number of possible relationships between the network partners;
- diversity/heterogeneity: the measurement of differences between network-partners for nominal/metric data;
- multiplexity: the measurement of the existence of multiple ties between nodes, e.g., ties that transact several different kinds of exchanges.

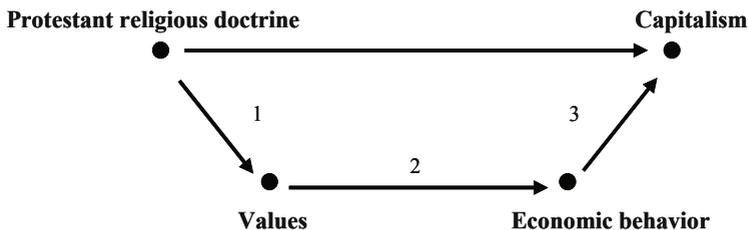
The composition of social networks can be presented by focusing on a large variety of network partners’ characteristics, such as age, sex, education, social status, and ethnicity (Marsden, 1987). The share of kin and non-kin can, for example, also be analyzed. The choice of relevant characteristics depends on the

research question, and on the theoretical assumptions and hypotheses of the researcher.

Mitchell (1969) distinguishes between total and partial networks. The total network of a society is composed of “the general ever-ramifying, ever-reticulating set of linkages that stretches within and beyond the confines of any community or organization” (Mitchell, 1969: 12). In actual research however, Mitchell argues, it is necessary to select particular aspects of total networks, which can be done by focusing on ego-centered networks around particular individuals, or on whole networks concerned with a particular aspect of social activity, such as work relations or political activities (Mitchell, 1969). While whole networks comprise all relationships – e.g., within a firm, an organization, or a classroom – ego-centered networks consist of “relations from the orientation of a particular person” (Breiger, 2004: 509). The analysis focuses on ego and ego’s relationships to other persons, termed alter, as well as on the ties among those alters (Wasserman & Faust, 1994: 42).

Social network research can be seen as one approach to dealing with a central problem in social theory, which is to capture the relationship between the individual and society. While micro-sociological approaches seek to explain individual behavior but cannot explain macro-level outcomes, macro-sociological approaches can explain the development of societies, but cannot relate this development to individual actions, and to how individuals explain their actions. This problem was trenchantly formulated by Coleman (1986), who illustrated the issue with an example from Max Weber: the relationship between religious beliefs and the emergence of a capitalist economic system (see Figure 1).

Figure 1: Coleman’s macro- and micro-level propositions



Source: Coleman, 1990: 8

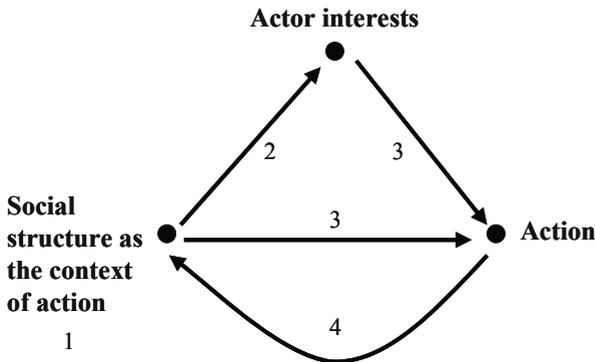
The proposition regarding the macro level of a relationship between Protestant religious doctrine and capitalism is broken into three propositions: first Protestant religious doctrine affects the values individuals hold (1), second individuals

holding certain values adopt certain kinds of orientations to economic behavior (2), and third certain orientations to economic behavior bring about capitalism (3) (Coleman, 1986).

In an effort to integrate the micro and macro perspectives, Burt formulated a “structural theory of action” (Burt, 1982). According to this theory, social actors depend on their structural embedment, but are at the same time capable of changing the structures in which they are embedded (see Figure 2). Social structures influence the interests and values as well as the behavior of social actors by providing or restraining resources:

Actions eventually taken are therefore a joint function of actors pursuing their interests to the limit of their ability where both interests and ability are patterned by social structure (Burt, 1982: 9).

Figure 2: Burt’s components in a structural theory of action



Source: Burt, 1982: 9

In this model, social structure builds the context of action (1). Social structure can designate the social structure of a society, but also of an organization. This social structure can, for example, be captured by ego-centered networks, but also by other types of networks. Social structure affects actors’ action directly because it “constrains actors in their ability to take actions” (Burt, 1982: 9) and indirectly via the interests actors hold (3). Social structure shapes actors’ interests (2), by affecting how individuals perceive “the advantages to be had by taking each of several alternative actions” (Burt, 1982: 9). At the same time, the actions actors take can reproduce or modify social structure (4). This scheme highlights why it is important that individuals not be seen as atomistic units, nor

as fully determined by societal structures. Instead, the embedment of individuals should be viewed in “ongoing systems of social relations” (Granovetter, 1985: 487):

Actors do not behave or decide as atoms outside a social context, nor do they adhere slavishly to a script written for them by the particular intersection of social categories that they happen to occupy. Their attempts at purposive action are instead embedded in concrete, ongoing systems of social relations (Granovetter, 1985: 487).

The concept of social capital also helps to bridge the micro-macro gap. Social capital is one aspect of social structures that facilitates actions for the individual actor embedded in this structure (Coleman, 1988: S98). Social capital can arise from information available in social networks (e.g., Lin, Ensel, & Vaughn, 1981; De Graaf & Flap, 1988), but also refer to structural opportunities and constraints for social action, arising from the actor’s position in the network (e.g., Burt, 1992). This concept includes an actor as well as a structural perspective: on the one hand, the individual actor can strategically use and accumulate social capital; while on the other hand, the social structures she/he is embedded in are to a large extent not changeable, and restrain individual action (Jansen, 2003: 275).

As a consequence, network researchers demand that individual behavior should be interpreted in light of the structural opportunities and constraints for this behavior – i.e., by looking at more than just inner drives, internalized norms, or aims (Wellman, 1988: 20). The social structure of a society is, in turn, not the sum of individual characteristics (such as the distribution of income or the distribution of educational attainment), but comes into existence via the social relations between real actors (Jansen, 2003: 18). This close connection of societal structure and the structure of concrete relations between actors thus encourages researchers to seek to learn more about the current society through an analysis of social networks. For example, processes such as modernization and individualization can be directly linked to changes in network structure. Indeed, modernization is often seen as a development which on the one hand profits from a weakening of “traditional” ties (e.g., Beck-Gernsheim, 2006), and on the other hand puts the *lien social*, or the social bond between individuals, at risk (Berger, 1988).

One example of network research that focuses on modernization processes is Wellman’s (1979) study on the community question, which asks about the consequences of socially differentiated structures on the macro level on social ties, and relationships between individuals on the micro level (p. 1201). Consistent with network theoretical thinking, Wellman understands social integration to be the realized integration by specific structures of social ties – and not integration via a feeling of solidarity, social norms, or spatial proximity. Grounded

on theoretical and empirical insights into modernization processes in the field of urban studies going back to Tönnies (1955), Wellman has formulated three hypotheses on the consequences of modernization processes on social relations/personal networks. The first hypothesis blames modernization processes for weakening or destroying solidarity in communities, which leads to social isolation, a lack of social support, and the dissolution of traditional living arrangements, such as family and neighborhood. According to this hypothesis, personal networks are typically sparsely knit; that is, the network partners of one actor often do not know each other. Ties are weak and mostly uniplex. These structures provide little support (Wellman, 1979: 1204). Wellman termed this hypothesis *community lost*. The second hypothesis counter-argues that solidarity in communities and kinship continues to be relevant. Accordingly, personal networks tend to be dense, based on ties to kin and neighbors, and are supportive. The ties are close and multiplex (Wellman, 1979: 1205). This hypothesis is termed *community saved*. The third hypothesis suggests that communities are changing structurally, but continue to exist. Personal networks are sparse and spatially dispersed; they include strong as well as weak ties, and are prevalent sources of support. Ties are multiplex. The network structure and its supportive function largely depend on the ability of the individual to engage in and to cultivate supportive ties (Wellman, 1979: 1206). Wellman termed this *community liberated*. In Wellman's empirical study on East York, an inner suburb of Toronto, only very few networks support the hypothesis of community lost. Most networks could be considered rather as community saved or liberated. However, most networks cannot be clearly subsumed under either of these categories, but contain elements of both.

Two studies have tried to look at the community question in the German context, focusing on the modernization process of the institution of family. Diaz-Bone (1997) in his research on persons living with children (under 18) in the same household, based on data from the German Youth Institute's family survey from 1988, finds evidence that couples and single persons living with children are rather disintegrated, and sustain few relationships beyond their household (p. 214). Hennig (2006: 145), however, argues that the network generators used in the family survey used by Diaz-Bone do not adequately cover the supportive relationships families with children have, and she therefore developed additional name generators for a study she conducted in three German cities in 2003. Her analysis of the social networks of families living in the same household shows that these families are not isolated, and can rely on various forms of social support. Their networks contain elements from the community saved, as well as the community liberated hypotheses, but cannot clearly be subsumed under either one of them (Hennig, 2006: 196).

As mentioned before, the relationship between individual and network is twofold: on the one hand, the network influences individual behavior; on the other hand, the individuals actively choose and cultivate certain relationships (Pfennig, 1995). From a life-course perspective, network dynamics are especially interesting: networks change with certain life events (moving out of the parental home, becoming a parent, retiring from a job, losing a partner). In turn, they provide the context in which certain life events are more or less likely to happen. For a long time, network research has lacked the instruments to measure the causality in network dynamics, and it is only slowly progressing in this field (Jansen, 2003: 275).

Beyond the shortcomings in dealing with network dynamics, criticism of the network perspective points out a lack of reflection on the “interrelations between social structure, culture and human agency” (Emirbayer & Goodwin, 1994: 1425). Emirbayer and Goodwin (1994) point out that some traditions in network research, such as *structuralist determinism*, neglect “the potential causal role of actors’ beliefs, values, and normative commitments” while *structuralist constructionism* “pays insufficient attention to the structuring influences of cultural and political discourses upon historical actors” (p. 1425). Thus a stronger focus should be placed on the dialectic relationship between subjective meanings, concrete interactions, and institutionalized norms (Jansen, 1999: 258), which is one major concern of the *relational constructivist* strand of social network research (Emirbayer & Goodwin, 1994).

1.3 Processes and Mechanisms of Social Influence

One central concept of social network analysis is that personal relations provide opportunities for, and constraints on, individual action (Burt, 1982; Degenne & Forsé, 1999). Social networks not only have an impact on behavior, but also “influence our values, attitudes and decisions” (Fischer, 1977: 19).

The complexity of the social influence process is based in the dualistic perspective on actors and networks: on the one hand, *individuals select their network partners* according to their interests and needs; while on the other hand, some parts of the network structure cannot easily be changed, and tend to influence the individual’s attitudes and behavior. Conformity between attitudes and behavior of network partners and ego can therefore be caused by selection effects, as well as by social influence, and both are difficult to disentangle. Adding to the complexity is the fact that, from the perspective of the individual, social influence can be *intended*, or it can be *unintentional*: i.e., an individual may intend to influence another person (e.g., persuasion), but social influence can

also take place without being intended (Marsden & Friedkin, 1994: 4), or have a different effect than intended (Zimmerling, 2005: 130). The influenced person may in turn seek to be influenced (e.g., by asking for advice), or be influenced without wanting to be. On the side of the receiver, social influence can be *effective or rejected*: influence is not necessarily effective or successful; the individual may not take up the new attitudes or behavior (Zimmerling, 2005: 130). Additionally, social influence can be perceived by those involved or not: neither the person influencing nor the person being influenced needs to be aware of the influence happening (Zimmerling, 2005: 144).

Although “influence” is such a central term in network research and finds its ways into many publication titles (e.g., Marsden & Friedkin, 1994; Montgomery & Casterline, 1996; Friedkin, 1998; Leenders, 2002; Mason, Conrey, & Smith, 2007), it is rarely defined thoroughly. Most authors rely on a “common sense” understanding (Zimmerling, 2005). One example is Friedkin’s (1998) work on “a structural theory of social influence”. Friedkin states the general nature of social influence (“a causal effect (direct and unmediated) of one actor on another,” p. 56), but does not specify what kind of “causal effect” the term “influence” refers to, and how exactly this effect comes into being. Instead of defining properly what social influence comprises, Friedkin, as along with other authors, indicate what social influence “encompasses” (Marsden & Friedkin, 1994: 4). They refer to socio-psychological research and theories, such as social comparison theory (Festinger, 1954). These theories often draw on experimental settings in laboratories, and are criticized for their lack of applicability to contemporary problems (Moscovici, 2001). Thus, Butera and Mugny (2001) promote social influence research designed to understand “social reality”, and stress that “the nature of the domain (...) with respect to which the social influence situation takes place” has to be taken into account, because it “determines the meaning individuals give to influence relations” (p. 1).

In support of this statement, my presentation strongly draws on approaches used by researchers in the field of family and fertility research – the area I have chosen for my case study – to conceptualize and analyze processes of social influence, while also incorporating insights from other research areas. Previous work on social networks and fertility mainly define three mechanisms for how personal relations and social networks affect fertility intentions and behavior: social learning, social influence, and social support.

Social learning takes place when an individual provides information (or could be asked for information) that shapes another actor’s views and expectations. It may also take place impersonally, for example via mass media (Montgomery & Casterline, 1996: 153). Bongaarts and Watkins (1996) add the relevance of evaluation processes that go beyond sharing information: the

meaning of certain pieces of information are transmitted and negotiated in conversations. The concept of social learning draws on psychological research that shows that learning can occur vicariously by observing other people's behavior and its consequences for them, and that stresses the relevance of models for learning new patterns of behavior: "[B]y observing others, one forms rules of behavior, and on future occasions this coded information serves as a guide for action. Because people can learn approximately what to do through modeling before they perform any behavior, they are spared the costs and pain of faulty effort" (Bandura, 1986: 47). Nevertheless, learning new behavior does not necessarily mean applying this behavior (Bandura, 1986). Via social learning, individuals acquire information about the costs and benefits involved in having children, and base their decision on this information (Montgomery & Casterline, 1996). The concept of social learning has been used to explain the diffusion, acceptance, and use of modern contraceptives in developing countries (Kohler & Bühler, 2001); but is also regarded as appropriate for analyzing low fertility countries (Kohler, Billari, & Ortega, 2002). However, "little is known about learning mechanisms and the formation of perceptions in respect to demographic behavior" (Montgomery & Casterline, 1996: 159). This statement, made in 1996, still holds up today.

Social influence contains processes that derive from the dynamics in social groups: individuals seek to avoid conflict within social groups (Moscovici, 1985) and therefore induce and are open to social influence (Montgomery & Casterline, 1996). This includes being subject to "social pressure", or punishments that "force" an actor to comply; as well as to "social obligations", or situations in which actors do not necessarily feel "forced" to act in a certain way, but act in a conformist way in order to please other people (Barber, 2000: 322). Some qualitative studies register the existence of normative pressure on childbearing decisions by relevant others (Busfield & Paddon, 1977; Campbell, 1985; Gerson, 1985; McAllister & Clarke, 1998). Social pressure and obligations are also found to be relevant for fertility behavior in a qualitative study on personal relations in Italy (Bernardi, 2003).

The concept of social support highlights that individuals are influenced in their behavior and attitudes by the resources they have access to (Granovetter, 1973; Freeman, 1979; Lin, 2001; Flap, 2002, 2004). Studies on social support and fertility mainly deal with two forms of social support: support in childcare and economic support, mainly in non-Western societies. For traditional societies, some empirical studies support the thesis that social support in childcare can foster family formation (e.g., Bereczkei, 1998; Crognier, Baali, & Hilali, 2001). In modern societies, there is little research on the effect of social support on fertility decisions. One exception is the study by Hank and Kreyenfeld (2003),

which found that access to childcare by kin fosters the transition to the first child in western Germany. Studies in Eastern Europe show that receiving support that ameliorates the economic situation of the household fosters fertility (e.g., Bühler & Philipov, 2005), but little is known about how economic support can foster childbirth in Western countries.

These mechanisms of influence are related to the characteristics of social networks in certain ways:

Social learning: In large and sparse networks, new pieces of information can diffuse quickly; weak ties often have a bridging function and can provide access to new pieces of information. In small and dense networks, the information exchanged is redundant (Burt, 1983; Mienieke & Midden, 1991).

Social influence: In small and dense networks, norms and rules are reproduced and network partners can collectively enforce these rules and expel non-conformists (Burt, 1983; Marsden, 1987; Coleman, 1988).

Social support: Here the picture is not so clear. On the one hand, many authors state that the larger and the more heterogeneous (and, generally, the less dense) a network, the better the individual's access to social support (Marsden, 1987; Flap, 2002). On the other hand, researchers have found that strong ties can transfer more valuable goods than weak ties, and that more intense support can be provided in dense networks (Kohler & Bühler, 2001).

Before showing in greater detail how the network perspective has been used in family and fertility research and why this research area is especially interesting for using a network approach, I shall first introduce the research field in the following chapter.