

## Chapter 3

# Sociocognitive Inquiry

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### ABSTRACT

*This chapter describes techniques for sociocognitive inquiry based on conceptual grid elicitation and analysis using web-based tools, such as WebGrid, which are designed to elicit conceptual models from those participating in a networked community. These techniques provide an interactive web-based experience with immediate payback from online graphic analysis, that provides an attractive alternative to, or component of, conventional web-based surveys. In particular, they support targeted follow-up studies based on passive data mining of the by-products of web-based community activities, allowing the phenomena modeled through data mining to be investigated in greater depth. The foundations in cognitive sociology and psychology are briefly surveyed, a case study is provided to illustrate how web-based conceptual modeling services can be customized to integrate with a social networking site and support a focused study, and the implications for future research are discussed.*

### INTRODUCTION

There are many significant aspects of social networks that can only be partially modeled through passive data mining techniques, partly because a high proportion of the members of the network are primarily recipients making infrequent contributions, and partly because many community beliefs and values are tacit, and implicitly embedded in

its *habitus* (Bourdieu, 1989; Gaines, 2003). In order to extend the models developed through passive data mining and to address issues that may be very relevant to the community but have not been adequately covered through its normal processes, some form of *active inquiry* exploring the sociocognitive structure may be required.

Sociocognitive inquiry provokes network activity through the introduction of materials and processes that generate additional data. Asking provocative questions or initiating new topics are

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common techniques for provoking natural community activity used by moderators and others with social capital in the network. Questionnaires provide a more structured technique for obtaining specific data from members but can be unattractive because they require time and effort to complete, usually have no immediate payback to the individuals completing them, and do not allow the emergence of topics beyond those originally conceived in the questionnaire design.

This chapter presents computer-based *conceptual modeling* techniques (Gaines & Shaw, 1989; Gaines & Shaw, 2010) as a means of exploring the sociocognitive structure of networked communities on the Internet in a way that is socially acceptable and supportive of the communities and those studying them. It demonstrates how the modeling process is itself interesting and stimulating, and how the ongoing online analysis provides an immediate payback to individual members by reflecting back to them their personal conceptual models.

It describes and illustrates techniques for comparing models, and the graphic output presenting individual models, pairwise comparisons, and sociocognitive networks derived from them that can be analyzed by standard social network analysis techniques. It exemplifies the way in which the technology may be used to support networked communities, and discusses the issues involved in using it in this way, and the outcomes both in targeted studies and in long-term community support. It shows how active sociocognitive inquiry can enhance and complement existing social mining techniques, and be used to follow-up preliminary models from data mining with more detailed models based on, and refining, that research.

## BACKGROUND

Empirical study of social networks has been based primarily on behavioral data, on observing what and how members of a community are interact-

ing. However social action also has cognitive connotations of being interpreted as *meaningful*. For example, Weber (1968, p.4) defines *action* as human behavior to which the acting individual attaches subjective meaning, and *social action* as that whose subjective meaning takes account of the behavior of others. Weber's definition captures the cognitive aspects constitutive of all social interaction, but is not in itself sufficient to guarantee that the interaction will take place in the context of a social group or community. One person could be acting socially with respect to one or more others, without those others being aware of it, attributing similar meaning, or reciprocating.

Gilbert (1992, p.153) captured the essential cognitive nature of social interaction in a community, drawing upon Simmel's (1910, p.374) notion that members' consciousness of being a unity is what constitutes that unity, and proposing that "*We* refers to a set of people each of whom shares, with oneself, in some action, belief, attitude, or other such attribute." That is cognitive commonality is constitutive of a social group or community. Again, the commonality does not guarantee the existence of the social group—there could be commonality among people who have never met but share a culture—but is what constitutes the *meaning* of membership to those in a social group or community.

Cognitive commonality is itself a difficult notion, with connotations of collective cognition (Gaines, 1994; Resnick, Levine, & Teasley, 1991), collective rationality (Gaines, 2010; Goldberg, 2010), organizational knowledge (Gaines, 2003; Weick, 1995) and the extent to which we do actually use what we regard as shared concepts in the same way (Shaw & Gaines, 1989). Hattiangadi (1987, p.15) notes that "our understanding of language is approximate—I do not believe that we ever do understand the *same* language, but only *largely similar* ones." A miracle of human social existence is that we manage to "muddle through" despite major lack of cognitive commonality (Fortun & Bernstein, 1998). Computer tools for

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