Intercultural Networks

Network analysis is used to investigate and compare cultures and involves notions of network boundaries and membership, obligation links, network transitivity, cultural divergence and convergence, and network parameters and their measurement.

A culture is a set of shared meanings, such as values, norms, beliefs, attitudes, and behaviors that are transmitted across generations. An intercultural network is a network for which information or other resources are exchanged across at least two cultures, and the nodes are entities (e.g., semantic elements, persons, groups, or organizations) that can be identified as belonging to a particular culture.

If all the nodes of a network represent entities from within a single culture, the network is *intracultural*; a comparison of two or more intracultural networks constitutes a *cross-cultural* comparison. In a cross-cultural comparison, several elements of two or more cultures may be compared. These include network parameters, including size, density, centrality, and radiality; processes, which is evolution of the network as indicated by network parameters; or other attributes, such as attitudes of network members.

Cross-cultural network comparisons are a way to understand cultural differences that have been labeled but not explained. In other words, these network parameters become intervening variables between a cultural characteristic, such as the presence or absence of Confucianism; the Protestant ethic; the culture of honor; or outcomes, such as the degree of providing social support and the types of social support provided.

Boundaries and Membership

All network studies involve questions of network boundaries and eligible network members. In some studies, the network may comprise an entire population, such as members of a monastery; the use of a complete population is quite rare and usually not possible or convenient. When an entire population is used for network analysis, the issue of network boundaries is assumed to be inconsequential.

For most network studies that deal with cultural differences, the nodes of each network that is investigated must be identifiable as from a particular culture. For example, if a snowball sample crosses a cultural boundary, that cultural boundary needs to be identified. Further, because membership in a given culture may be more a matter of degree rather than of kind, the usual difficulty of identifying nodes for investigation becomes even more difficult and requires decisions that are often arbitrary.

The difficulty of identifying who is appropriately considered a member of a given culture is seen in the various methods that are used for this purpose. Network members' culture of origin has been assessed by asking about birth origins, such as the country of birth of one's parents, one's own country of birth, or the country of birth of one's maternal grandmother; by classifying individuals based on ethnically or culturally identifiable surnames; or by simply asking the individual's nationality or ethnicity.

Links Based on Obligation

In typical network studies, the link between nodes may be a sentiment relation (e.g., node_1 likes node_2) or an exchange relation (e.g., node_1 provides resources to node_2). In studying intracultural or intercultural networks with an interest in cultural attributes, other types of links are of importance. Most significantly, links in such networks can represent obligations, a sense of responsibility to another that reflects the norms of the culture. These links may be reciprocal and hence symmetric, such as siblings obligated to help their siblings; or asymmetric, such as a daughter-in law obligated to help her mother-in-law, but the obligation may not exist or may be different from the mother-in-law to the daughter-in-law. Any given relation may be multiplex: the daughter-in-law and mother-in-law may have a symmetric link with regard to liking as well as an asymmetric link with regard to obligation. Such compounds of links may be associated with role strain, role conflict, and sociological ambivalence found within the culture. Quantifying network dissimilarity based on type of link and comparing these results cross-culturally allows prediction and explanation of these sources of strain and conflict.

Network Transitivity and Culture

A distinguishing characteristic of cultures is the critical role of network transitivity. The relationship of members of a triad located within a network is said to be transitive when $A \rightarrow B$, $B \rightarrow C$, and $A \rightarrow C$, where A, B, and C are nodes and $\rightarrow$ is a link between the nodes. The original notion of transitive networks has been

associated with sentiment, so that if *A* likes *B* and *B* likes *C*, then, if *A* likes *C*, the relation is transitive (and balanced). There is no clear evidence as to whether this type of sentiment transitivity differs across cultures.

In contrast to sentiment transitivity, obligation transitivity differentiates cultures that are frequently characterized as individualistic or collectivistic. Obligation transitivity is a feature that explains the added responsibility and the strength of extended ties that operate in cultures often characterized as collectivistic.

Obligation transitivity directs attention to the implicit requirements within a culture that if *A* has obligations to *B* and *B* has obligations to *C*, then *A* has obligations to *C*. *C* has obligations to *A* as well because of *C*'s obligations to *B*. In other words, obligation transitivity structures are characterized by extended relational links that carry responsibility and expectations beyond those of the direct ties between one individual and another; significant ties exist between an individual and another who is indirectly tied to that individual through someone else. Further, these transitive networks are symmetric.

Cultures in which obligation transitivity predominate require that responsibilities and obligations afforded to those in one's network ($A \rightarrow B$) are extended to those who are in the extended network ($B \rightarrow C$). Thus, individuals are embedded in an extended web of links. Although the definition of transitivity directs attention to *A* and the connections that *A* has to others, norms regarding obligation expand the network: multiple *A*s are connected to multiple *B*s that are connected to multiple *C*s connected to multiple *D*s and so on. In a sense, the obligation network shows the strength of no ties: there is only an indirect link between *A* and *C*, but by the checker jump of a transitive triadic relation, *A* becomes obligated to a large number of others.

In cultures that are characterized by the general absence of obligation transitivity, *A* may have links to corresponding *B*s, but these links carry almost no obligations for *A* to the array of others connected to *B*; such cultures are often characterized as individualistic, in which the focus is on the individual as the central node to which others are connected. In this type of culture, the more links people have in their network, the more individuals are considered to be well connected. Thus, cultures can be differentiated based on the obligations that are managed across the network of direct and indirect relations.

Cultural Convergence or Divergence

When the links in the network represent communication, either treated dichotomously (*A* does or does not communicate with *B*) or continuously (the amount of communication between *A* and *B*), there are several ways to assess the extent to which members of different cultures (and hence the cultures themselves) converge or diverge. Convergence means that network members become more similar with regard to some prespecified attributes; divergence means that network members become more dissimilar.

Suppose an intercultural network is created, with the nodes being members of different cultures. With longitudinal data, the extent to which the members of different cultures change their communication patterns to adjust to cross-cultural barriers can be assessed, such as forming cliques with members in another culture. If the initial cultural communication pattern changes so that members' communications become based less on cultural membership, such as cliques that were initially segregated based on culture becoming more integrated, then the cultures themselves are likely to become more similar through processes of making cognitions balanced and information flow. Such communication patterns also can indicate no change or an increase in segregation, which would be a form of divergence.

A second way to assess cultural convergence or divergence is to create networks that represent concepts for the domain of meaning that is of interest. Such concepts can be elements of culture, such as values, norms, beliefs, attitudes, and behaviors, as well as emotions, roles, narrative elements, or cultural icons. If a conceptual network is generated for each culture, then the concepts in these networks may be examined over time to see the extent that their relative locations in the network become similar (converge) or different (diverge). This form of network analysis allows data to be obtained from existing documents, such as archival sources, newspapers, film scripts, or from documents generated by members of each culture as part of a research task or as part of the members' everyday lives, such as school assignments, memoranda from organizations, or questionnaires.

Using these techniques, the social network analyst can investigate the diffusion of ideas, cultural stereotypes, and socialization patterns, both within and across cultures.

Network Parameters and Their Measurement

Network studies have examined how cultures differ with regard to density, diversity and homogeneity, size, multiplexity, roles of network members, strength of ties of network members (such as emotional ties), and patterns of intracultural versus intercultural friendships. In these studies, links are defined by questions about communication; friendship, such as asking about friends or best friends; common activities with others; feelings of closeness ("with whom are you close?"); discussion partners, such as asking "with whom do you discuss (a particular topic)?"; or frequency of contact or communication. The number of individuals named by a person as links may or may not be limited by the investigator. The linked others may or may not be asked directly as to whether the link is reciprocal; in some research, the focal individual is asked whether the link is reciprocal for each network member whom the focal individual nominated.

The statistical treatment of the network data is typically straightforward, although there are two concerns that apply in general to network data: first, the lack of independence of some network information; and second, the likelihood that these data do not meet the statistical assumptions of the general linear model—that is, that they be relatively normal and homoscedastic and have patternless residuals.

Investigations of intercultural and cross-cultural networks increasingly gather data that can be used as independent variables, intervening variables, and dependent variables in hypotheses that emerge from theories about the role that culture plays for individuals and for society. The greater the number and diversity of cultures studied, the more these network data have the power to elucidate the significance of culture.

Deborah A. Cai
Temple University
Edward L. Fink
University of Maryland

See Also: Anthropological Networks; Cognitive Networks; Communication Networks; Longitudinal Networks, Network Clusters and Communities; Network Evolution; Reciprocity; Semantic Networks; Word Networks.

Further Readings

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Interdepartmental Networks

Interdepartmental networks have been defined as the system of organizational actors working together within departments and interconnected through formal and informal relations. The term is frequently found in literature associated with matrix and project organizations and refers to a cross-functional structure bringing members together from separate functional areas to take on tasks on a temporary basis or on a relatively permanent basis.

The organizational science literature often relates matrix and project-based structures with interdepartmental networks, described as a channel through which good ideas flow and an information-processing problem is solved through the creation of lateral communication channels. Cross-functional structures are described in the management literature as a governance model able to build a flexible organization, promote individual and team entrepreneurship, and allow quick decision making based on a multidisciplinary approach to problem solving. The network perspective on innovation is associated with a horizontal management style that emphasizes participation and open communication rather than formal directives and a command-and-control style. Since the 1960s, studies have demonstrated the innovative potential of a style that emphasizes the flow of information not only upward but also downward and outward from the center.

Interdepartmental networks often can take the form of project teams, communities of practice, or task forces. Despite differences in terms of goals or volunteer participation, the common characteristic of these social networks is the facilitation of knowledge sharing between individuals conducting practice-related tasks. Each member brings his or her special knowledge, capabilities, and interpersonal relationships with the rest of the organization as well as with external actors.