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The application of network analysis to certain issues in sociology requires measurement of individuals' personal networks. These issues generally involve the impact of structural locations on persons' social lives. One such case is the Northern California Community Study of the personal consequences of residential environments. This article describes and illustrates the methodology we have developed for studying personal networks by mass survey. It reviews the conceptual problems in network definition and measurement, assesses earlier efforts, presents our technique, and illustrates its applications.

A PROCEDURE FOR SURVEYING PERSONAL NETWORKS

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Although mass survey data is often used in network analysis, the methods available for generating this data have received relatively little attention. In this article, we present a survey technique that we believe produces more accurate and efficient descriptions of personal social networks than the procedures currently in use. We go on to discuss one of the most important aspects of methodological choice in network analysis—the impact of the operational definition of network on substantive research findings.

The methodology and research this paper presents will be most useful to researchers concerned with studying the "social worlds"

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of individuals and their connections to social structure. Because mass surveys produce data on individual members of the general population, the survey methods we discuss are less appropriate for "structural" network analysis (à la White, Breiger, and Burt) or traditional sociometry than for research in the tradition of the British anthropologists such as Mitchell, Bott, and Gutkind, who use the network metaphor to understand individuals' social milieux. Research in the latter tradition proceeds on the assumption that individuals are influenced by and integrated into society through their personal networks (see Fisher et al., 1977: ch. 2). Mass surveys in general, and the procedures offered here in particular, permit researchers to supplement the qualitative, in-depth research on which this tradition has relied with data on more varied and representative populations. Therefore, it is especially useful to those working in the "social world" tradition of network analysis. (The discussion may also be useful to researchers who study egocentric networks for other purposes.)

The bulk of this article describes the procedure we have developed and illustrates its applications in data from a small pilot survey. Our discussion is organized as follows: (1) a brief outline of the theoretical purposes to which the method is being put; (2) a review of the limitations of earlier techniques; (3) the conceptual assumptions underlying our procedure; (4) an outline of the method; (5) two illustrations of applications, one on the topic of homophily, the other on community differences. We hope that the procedure we present here can be usefully modified to serve other network analysts' research. (A much fuller presentation of the method, its rationale, and its empirical properties is available in Jones and Fischer, 1978.)

THEORETICAL CONCERNS AND PRACTICAL NEEDS

The methodology presented in this paper was developed for the Northern California Community Study (NCCS) to study the personal consequences of residential environments. Network analysis is used in the NCCS to ask two questions: how do the
communities people live in affect aspects of their social milieux such as supportiveness, homogeneity, cohesion, and geographical dispersal? And, how do the attributes of social milieux affect psychological well-being? To answer these questions, we use a mass survey that permits us to compare the environmental experiences, social relations and feelings of well-being of respondents in many communities of various types, controlling for other structural variables such as age and occupation. We have chosen to think of respondents' social milieux as personal social networks composed of actors linked to egos and of the relations involved in those links. The method presented here was designed to elicit descriptions of the members of these egocentric networks and of their relations with respondents.2

In order to address questions about respondents' social milieux, we needed to study respondents' whole network (and not just limited sectors of the networks such as kin, friends, or neighbors). The restrictions of the mass survey format—the high cost of household interviews and respondents' limited patience—forced us to develop a technique for eliciting descriptions of respondents' networks in 20 minutes of interview time. Therefore, a primary concern was to elicit information as efficiently as possible and to consider carefully the trade-offs between the accuracy and extent of the data.

EARLIER METHODS

Several previous mass survey studies have elicited information on respondents' social networks, notably Laumann's Altenstadt study, Laumann (1973), Wellman (1978), Erickson and Yancey (1976), and Kleiner and Parker (1976). Typically, they ask one basic question that calls on the respondent to name his or her "best friends" (e.g., Laumann, 1973) or the people he or she "feels closes to" (Wellman, 1978). (Or the investigator might [as Kleiner and Parker, 1976, do] as the respondent to name people in each of a few roles, such as friend or coworker.)
We follow their general strategy—asking respondents to name people and then having them describe these people and how they are related. We developed new techniques, however, for eliciting the names of the people in respondents' networks. This is, in our minds, the critical issue in network surveys: the technique used to elicit names determines what kinds of people are included in the network membership and, therefore, the operational definition of "network" used in the subsequent analysis.

We rejected the name-eliciting methods used in previous studies for two major reasons. First, they tend to sample certain sectors of networks at the expense of the rest. For example, asking for "friends" tends to undersample significant associates who are kin; or, asking for the people respondents "see socially" (Irving, 1977) loses significant others who live far away. Second, these questions seem especially vulnerable to measurement error. People interpret terms such as "best friend" and "close" in varying ways. Some think of kin as friends, others do not; some define closeness in terms of behavior, such as sharing confidences, others in terms of roles, such as kinship. Error also results from the poor recall respondents have of the people they know; without extensive probing they are likely to forget important network members. Finally, error is likely to result from respondents' exaggeration when they lengthen lists of associates to avoid seeming unpopular. These sorts of errors are especially troublesome when they are unlikely to be randomly distributed. For example, lonely people probably exaggerate more; well-educated people are probably more able or willing to separate affective feelings from role expectations.  

No mass survey of networks is likely to be immune from such problems. However, we felt that some significant improvements could be made that would minimize the difficulties.

UNDERLYING ASSUMPTIONS

Most people know hundreds of other people in very many different ways—from intimate kin to nodding acquaintances to
vaguely familiar store clerks. Survey researchers can only hope to learn about a fraction of that population. Which fraction will determine the descriptions of the networks that are ultimately obtained. Data show that if it is the fraction involving frequent face-to-face meetings, the description will disproportionately include neighbors; if it is the fraction respondents think of often, it will lean toward kin. Therefore, one ought to be explicit about the part of the network to be described.4

We wanted, for our own purposes to tap the part of respondents' networks that most influenced their attitudes, behavior, and well-being. We call this the “core” network.

Based on both methodological and theoretical considerations, we defined the core network as the set of people who are most likely to be sources of a variety of rewarding interactions, such as discussing a personal problem, borrowing money, or social recreation. Thus, we elicited the names of members of respondents' networks with questions such as the following.

Often people rely on the judgement of someone they know in making important decisions about their lives—for example, decisions about their family or their work. Is there anyone whose opinion you consider seriously in making important decisions? (IF YES:) Whose opinion do you consider?

An exchange theory of relations (Homans, 1974; Thibaut and Kelly, 1959) leads us to believe that people who are sources of rewarding interactions will be particularly important in shaping respondents' attitudes and behavior. In addition, we found in informal pretesting that questions about such behaviors elicited more consistent and complete sets of names than questions about categories of relations (such as requests for lists of “relatives” or “people you feel close to”).

This operational measure of respondents' networks follows a decision to define “relation” as an exchange: an interdependence between two actors where the actions of each directly affects the outcomes (rewards or punishments) of the other. In choosing an exchange definition of relation, we rejected two other commonly
used bases for defining relations: (1) affective content—a subjective orientation, or feeling (Laumann, 1973; Wellman, 1978); and (2) normative content—a specific, culturally defined set of expectations, obligations, and rights between incumbents of two reciprocal social positions, such as father-son (see Kleiner and Parker, 1976). Thus we chose to exclude relations with purely affective or normative content, no matter how important respondents perceived them to be.5

In one hour-long pilot survey devoted exclusively to network questions, we tested about 30 items that were designed to identify respondents’ core networks. In a second pilot, we tested about half that many. In the final survey of 50 communities, we used ten items that analysis of the pilots indicated would elicit a major and representative subset of the larger “core network” (see the next section).6

THE PROCEDURE

Based on the considerations discussed above, we attempted to design a survey procedure that would, in 20 minutes, identify and elicit descriptions of respondents’ associates who were likely to be sources of rewarding exchanges.7

Our solution to this problem has four parts: first, we developed questions asking the respondent to give the first names of people with whom they were likely to engage in highly valued interactions. For example, we ask, “When you are concerned about a personal matter—for example, about someone you are close to or something you are worried about—how often do you talk about it with someone—usually, sometimes, or hardly ever? When you do talk with someone about personal matters, whom do you talk with?”

Second, we selected a set of questions that identified network members from a full variety of social context (such as work, the neighborhood, and the family) as efficiently as possible. That is, we tried to choose questions that produced (1) as many names as
possible; (2) a substantial number of names that were not elicited from other questions in the set; and (3) names from context that were not tapped by other questions in the set. The ten name-eliciting questions we used cover the following topics:

1. who would care for the respondents' homes if they went out of town;
2. if they work, with whom they talk about work decisions;
3. who, if anyone, had helped with household tasks in the last three months;
4. with whom they engaged in social activities (like inviting home for dinner, or going to a movie);
5. who they talk with about hobbies;
6. if unmarried, who their fiancé(e) or "best friend" is;
7. with whom they talk about personal worries;
8. whose advice they consider in making important decisions;
9. from whom they would or could they borrow a large sum of money;
10. enumeration of adult members of the respondents' households.

Respondents can name as many people as they wish in response to each question. However, interviewers record only the first eight names for each (actually, ten for question 4 and four for question 9).

Third, we obtained descriptions of respondents networks by asking them to look at a list the interviewer had compiled of all the names elicited in the interview and to select those people who fit a series of criteria. The process of making a list of all the people the respondent named permits the interviewer to check for redundancies (for example, the same person called by two names) and to supplement the list of names by giving the respondent a copy of the list and asking, "Is there anyone who is important to you who doesn't show up on this list?" (In the end, most respondents have between 10 and 30 names on their lists.)

With these lists, the interviewer finds out:

1. the sex of each person;
2. all the role relations of ego with the named people (e.g., cousin, coworker, fellow union member, "friend");
(3) which persons respondents “feel especially close” to;
(4) which persons live within a five-minute drive;
(5) which live more than an hour’s drive away;
(6) which they see at a favorite “hang-out”;
(7) (for homemakers) which are also full-time homemakers;
(8) (for workers) which are in the same line of work;
(9) (for respondents with an ethnic identity) which are of the same ethnicity;
(10) (for respondents with a religious affiliation) which share the same religion;
(11) (for respondents with a favorite pasttime) which share the favorite pasttime.

In addition, we know from the name-eliciting questions which exchanges the respondents claim to receive from each person named. The technique of asking respondents to select names from a list permits us to obtain a much greater variety of descriptions than would be permitted by asking about each name directly (the usual procedure in network surveys). We choose to accept the potential inaccuracies of this approach (in the form of names the respondents may fail to mention) in return for its greater efficiency.

Finally, we obtained further information about a subsample of the elicited names (up to five names, and usually no less than three), by having respondents fill out self-administered questionnaires about each person. (The respondent was asked to fill out the questionnaire while the interviewer was involved in compiling the entire list of names.) The questionnaires ask respondents:

(1) how they had met the person;
(2) how many years they have known each other;
(3) what city the person lives in;
(4) how often they “get together”;
(5) the person’s age;
(6) the person’s employment status;
(7) the person’s marital status; and
(8) whether the person has children and how old they are.
In addition, the interviewer obtains a crude index of network density for this subsample by asking respondents, for each pair of names, whether the two "know each other well."

The primary advantage of this procedure is that it permits us to focus on the segment of respondents' networks that is most appropriate for our theoretical concerns—the full variety of people who are important sources of valued exchanges. Our evaluation of the method suggests that it identifies these people reliably (Jones and Fischer, 1978). If respondents had selected the names for a complete list of their network membership, they would have replaced a maximum of one in five names. (The names we miss tend to be "specialists," sources of only one kind of exchange.) As a result, we are confident that the networks we identify are comparable across respondents. The illustrations of the method presented in the next section demonstrate the importance the definition of network has in determining research findings.  

APPLICATIONS

By generating data about the individuals in respondents' networks, our survey procedure permits us to conduct analyses at two levels: the level of dyadic relations, in which each respondent-nominee pair is treated as a unit of analysis; and the level of whole networks, in which the set of relations is the unit of analysis. The first level of analysis speaks primarily to social psychological concerns, while the second permits us to look at relationships between personal and structural variables.

RELATIONS AS THE UNIT OF ANALYSIS

A perennial topic in the study of dyadic relations is homophily: the similarity between two persons in a relation tends to be far greater than chance. Verbrugge's (1977) reanalysis of the Laumann (1973) and Alteneustadt data provides the latest statement of the topic. She writes of two principles that underlie
homophily: "meeting"—the structural circumstances that influence who will meet—and "mating"—the social psychological factors that influence the choice of associates from among available pools. However, she cannot, in her analysis, distinguish between the two processes. (For an analysis of the Laumann data that does distinguish somewhat between the two, see Jackson, 1977.) One limitation Verbrugge faced was the data: each respondent provided up to only three names and these of people loosely called "best friends." Perhaps our method can do better.

We will present results from our second pilot program. Although the sample of respondents is small (N = 78) and not very representative of the general population, the survey can serve as an illustration. Respondents were randomly selected from four neighborhoods in the San Francisco Bay Area: an innercity district, a working-class suburb, a planned suburban community, and a very affluent "ex-urb."10

The "dependent variables" in the analysis are the percentage of respondent-associate pairs who are similar (according to respondent report) on each of several dimensions. Respondents were asked to characterize all named associates on five dimensions: sex, ethnicity, religion, line of work, and favorite leisure activity. (The last four were asked only of respondents who claimed such an identity; see notes to Table 1.) In addition, we asked about four other characteristics—age, marital status, child-rearing status, and labor-force status—on the self-administered questionnaires concerning a subsample of the networks.

The analysis presented in Table 1 shows that the method used affects findings about homophily. Column 1 displays the percentages of respondent-alter pairs who are similar—only for the names elicited by the question, "Who do you think of as your closest friend?"11 This question resembles the one that generated Verbrugge's network data. We observe high rates of similarity, no doubt higher than chance. Column 2 displays the same data for all the names elicited on all the questions. Rates of similarity are still high, but notably lower than those in column 1, especially with respect to sex and life-cycle attributes. We draw the implication that a single, "best friends" probe is likely to overestimate
TABLE 1

Percentage of Network Members Similar to Respondents, for "Closest Friends" and Overall

<table>
<thead>
<tr>
<th>Similarity Dimension</th>
<th>Only Names Elicited on &quot;Closest Friends&quot;</th>
<th>All Names</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same Sex</td>
<td>77% (308)</td>
<td>59% (1306)</td>
<td>18</td>
</tr>
<tr>
<td>Same Age (≥5 yrs.)</td>
<td>62% (143)</td>
<td>44% (308)</td>
<td>18</td>
</tr>
<tr>
<td>Same Marital Status</td>
<td>68% (148)</td>
<td>61% (324)</td>
<td>7</td>
</tr>
<tr>
<td>Same Child Status</td>
<td>61% (148)</td>
<td>53% (324)</td>
<td>8</td>
</tr>
<tr>
<td>Same Ethnicity</td>
<td>44% (139)</td>
<td>47% (592)</td>
<td>-3</td>
</tr>
<tr>
<td>Same Religion</td>
<td>49% (230)</td>
<td>44% (996)</td>
<td>5</td>
</tr>
<tr>
<td>Same Labor Force Status</td>
<td>53% (148)</td>
<td>49% (324)</td>
<td>4</td>
</tr>
<tr>
<td>Same Line of Work</td>
<td>22% (222)</td>
<td>17% (943)</td>
<td>5</td>
</tr>
<tr>
<td>Same Leisure Activity</td>
<td>31% (203)</td>
<td>20% (876)</td>
<td>11</td>
</tr>
</tbody>
</table>

a. Asked only of subsample names.
b. Asked only of subsample names; three categories: married; separated, divorced, or widowed; never married.
c. Asked only of subsample names; two categories: has no children or has children.
d. Asked only of respondents who profess a (non-American) ethnicity.
e. Asked only of respondents who profess a religion, for Protestants, read "Same Denomination."
f. Asked only of subsample names; three categories: full-time, part-time, not working.
g. Asked only of respondents who are currently employed, looking for work, or retired.
h. Asked only of respondents who have one special hobby or activity.

systematically ego-alter similarity compared to a more diversified method of eliciting network membership.12

The reason for this becomes evident when we look at Table 2. In that table, the respondent-alter relations are distinguished by the primary "social context" in which they exist. This categorization is based on the reported role-relations between the respondent and each person he or she named. Since any link could involve more than one role-relation (e.g., neighbor and friend), a hierarchical rule was applied, with primacy running from left to right across the table.13 This variable is strongly related to the answers to the question, "How did you meet this person?" and
might therefore be read as a proxy for the origin of the relation (see Fischer, 1978, for discussion of “context”).

The differences in degrees of similarity across context are striking. For example, over 80% of coworkers named are of the same sex as ego, but only about 50% of kin are; the latter figure does not differ from chance. Almost 60% of named neighbors are the same age as respondents, but less than 10% of them share an ethnicity or a line of work with respondents. These variations reflect the differential segregations of social settings in American society. Neighborhoods, for example, are much more stratified by life-cycle than by specific occupation or white ethnicity (this was not true of preindustrial cities). With regard to Verbrugge’s concern over “meeting and mating,” these data suggest that much homophily is produced by the social structuring of meeting contexts before homophilic “mating” processes (e.g., “like is attracted to like”) even begin.

NETWORKS AND UNITS OF ANALYSIS

While the ability to study the social psychology of interpersonal relations is a major benefit of this method, our main purpose in developing it was to be able to categorize the networks of respondents. Since the Northern California Community Study is focused on intercommunity differences, it is fitting to draw an illustration from that area of study: how do the four neighborhoods we interviewed in vary in the “local-Gemeinschaft-ness” of their residents’ networks?

The independent variable is composed of the four locales: “Barrio,” “Old Suburb,” “new Suburb,” “Elite Suburb.” The dependent variables fall into two categories generally associated with the concept of Gemeinschaft: (1) how local the network is, in terms of the residences of the network members, and (2) the network density of the subsample network. Table 3 presents the results. Note, first, that there is little difference among the four locales in geographic dispersal of the network. An average of 27% of each respondent’s network members live within a five-minute drive of him or her; and an average of 30% of those members live
<table>
<thead>
<tr>
<th>Similarity Dimension</th>
<th>Spouse/Surrog(^{a})</th>
<th>Parent/Child</th>
<th>Other Kin</th>
<th>Neighbor</th>
<th>Co-Worker</th>
<th>Organizational</th>
<th>Just Friend</th>
<th>Other</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same Sex</td>
<td>02% (54)</td>
<td>49% (150)</td>
<td>51% (326)</td>
<td>66% (82)</td>
<td>82% (92)</td>
<td>86% (58)</td>
<td>68% (502)</td>
<td>41% (32)</td>
<td>59% (1306)</td>
</tr>
<tr>
<td>Same Age (45 yrs.)(^{b})</td>
<td>-- (2)</td>
<td>32 (69)</td>
<td>59 (34)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>59 (133)</td>
<td>--</td>
<td>44</td>
</tr>
<tr>
<td>Same Marital Status(^{c})</td>
<td>-- (43)</td>
<td>58 (71)</td>
<td>71 (35)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>65 (141)</td>
<td>--</td>
<td>61</td>
</tr>
<tr>
<td>Same Child Status(^{d})</td>
<td>-- (43)</td>
<td>39 (71)</td>
<td>63 (35)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>58 (141)</td>
<td>--</td>
<td>53</td>
</tr>
<tr>
<td>Same Ethnicity(^{e})</td>
<td>52% (21)</td>
<td>73 (62)</td>
<td>67 (170)</td>
<td>09 (33)</td>
<td>20 (41)</td>
<td>19 (26)</td>
<td>42 (214)</td>
<td>--</td>
<td>47</td>
</tr>
<tr>
<td>Same Religion(^{c})</td>
<td>56% (39)</td>
<td>62 (122)</td>
<td>55 (255)</td>
<td>38 (66)</td>
<td>16 (61)</td>
<td>64 (361)</td>
<td>33 (30)</td>
<td>10</td>
<td>44</td>
</tr>
<tr>
<td>Same Labor Force St.(^{b})</td>
<td>-- (43)</td>
<td>45 (71)</td>
<td>57 (35)</td>
<td>--</td>
<td>--</td>
<td>45 (141)</td>
<td>-- (324)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same Line of Work(^{c})</td>
<td>08% (38)</td>
<td>09 (104)</td>
<td>06 (231)</td>
<td>08 (60)</td>
<td>68 (91)</td>
<td>20 (46)</td>
<td>15 (351)</td>
<td>--</td>
<td>17</td>
</tr>
<tr>
<td>Same Leisure Activ.(^{c})</td>
<td>21% (38)</td>
<td>13 (39)</td>
<td>09 (205)</td>
<td>20 (44)</td>
<td>07 (55)</td>
<td>70 (37)</td>
<td>25 (371)</td>
<td>--</td>
<td>20</td>
</tr>
</tbody>
</table>

NOTE: --. N under 20.

a. Spouses or “living together” spouse-surrogate; includes one gay couple.
b. Asked only of subsample names; total N = 324.
c. Asked only of respondents who have an ethnic, religious, occupational, or hobby identity; N varies.
over one hour's drive away, irrespective of community. (There does seem to be, however, some difference between the lower and higher status locales in individual variability on these dimensions.) Second, there is still a notable difference in the percentage of network members who are called "neighbors," with New Suburb residents including more neighbors in the networks than other respondents. From readings of the interview protocols, we might attribute this to the fervent organizational activity in this "semiplanned" community, a phenomena common to new suburbs (see Gans, 1967). Yet, third, the data on network density seem to contradict this pattern. Typical Gemeinschaft formulations imply that neighbor involvement and network density go together. But, the New Suburbanites have the lowest average (perceived) density, while Barrio residents, whose percentage of neighbors is the least of the four locales, have the highest average (perceived) density—probably because of the high representation of kin in their networks.

This is not the place to unravel and explain the pattern of data reported in Table 3. We note only that the method we have described permits elaborations of the analysis in various directions. For example, we could distinguish among respondents by controlling for class. The Barrio group is composed of both working-class, middle-aged Mexican-Americans and of upper-middle class, young Anglos. Or, we could elaborate the analysis by distinguishing among network members in creating other network measures. For instance, some clarification might be achieved by recalculating the indices for kin and nonkin separately. It may be that localization of nonkin ties concorns more closely to the density pattern. In any case, we have great flexibility in aggregating descriptions of separate relations into descriptions of whole networks.

**CONCLUSION**

The method we have presented and illustrated here was designed to elicit and describe respondents' "social worlds."
### TABLE 3
Local Gemeinschaft Measures by Neighborhood

<table>
<thead>
<tr>
<th>Measures</th>
<th>Lower Status</th>
<th>Neighborhood</th>
<th>Upper Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Barrio</td>
<td>Old Suburb</td>
<td>New Suburb</td>
</tr>
<tr>
<td>(N = )</td>
<td>(20)</td>
<td>(20)</td>
<td>(19)</td>
</tr>
<tr>
<td>(1) Percent Neighbors(^a)</td>
<td>M = 02%</td>
<td>06%</td>
<td>10%</td>
</tr>
<tr>
<td>(SD = )</td>
<td>(±04)</td>
<td>(±08)</td>
<td>(±14)</td>
</tr>
<tr>
<td>(2) Percent within 5 min.(^b)</td>
<td>28</td>
<td>28</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>(±24)</td>
<td>(±29)</td>
<td>(±17)</td>
</tr>
<tr>
<td>(3) Percent over 1 hr. away(^c)</td>
<td>34</td>
<td>26</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>(±25)</td>
<td>(±19)</td>
<td>(±17)</td>
</tr>
<tr>
<td>(4) Network Density(^d)</td>
<td>.64</td>
<td>.46</td>
<td>.31</td>
</tr>
<tr>
<td></td>
<td>(±.30)</td>
<td>(±.33)</td>
<td>(±.24)</td>
</tr>
<tr>
<td>[TOTAL NETWORK SIZE]</td>
<td>14.4</td>
<td>15.2</td>
<td>19.8</td>
</tr>
<tr>
<td></td>
<td>(±5.6)</td>
<td>(±7.9)</td>
<td>(±4.9)</td>
</tr>
</tbody>
</table>

\(^a\) Of all names provided by each respondent, the percentage called "neighbor."

\(^b\) The percentage the respondent identifies as living within a five-minute drive.

\(^c\) The percentage living over an hour away.

\(^d\) Density = \( T^{\frac{1}{2}} \cdot (N(N-1)/2) \), where \( N \) equals the number of subsample names and \( T \) equals the number of ties ("knows each other well") among the names identified by the respondent.
However, it is flexible enough to be adapted to other purposes. For example, a researcher interested in interpersonal influence on political behavior might do the following: define a relation as a connection between two persons in which politically relevant information is regularly passed; identify a set of questions that elicit the names of many people who may have such a relation with respondents (e.g., the questions might ask for those persons who “you argue politics with,” “you watch the evening news with,” “you see at neighborhood meetings,” “belong to the same organizations you do,” and the like); and with the compiled list ask the respondents detailed questions about the named people’s personal and political characteristics. This would yield descriptions, at the relational level, of the characteristics of respondents’ political ties, and at the network level, of respondents’ political milieus.

The method we have presented is adaptable in many such ways. But we would stress one conceptual issue that applies to any technical adaptation: it is important that network researchers consciously and clearly specify what they need to know about networks and what they mean theoretically by “relation.” The findings of network research can be strongly influenced by the measures of “relation” used to define the network. Therefore, researchers should pay as much attention to the methods they use to identify network memberships as they do to the analysis of data describing those networks.

NOTES

1. Reports from the project are available, at cost, from Publications, Institute of Urban and Regional Development, University of California, Berkeley 94720.

2. We have concluded from our analysis of the Laumann (1973) network data that the structure of relations among respondents’ primary ties has little influence on intimacy once the specific content of their relations has been taken into account (Fischer et al., 1977; see also Wellman, 1978). Therefore, we have not focused very much attention on second-order relations, excepting a rough measure of network density.

3. These conclusions are based on our reanalysis of the network survey used by Laumann (1973)—see Fischer et al. (1977)—and on extensive pretesting of our own method.
4. A researcher might, for heuristic purposes, wish to sample the whole network proportionately. Could that task be accomplished—it would require a "census" of all relations—it would likely be filled with trivial acquaintances.

5. In practice, we used a few questions about roles and emotions to elicit names when we found them to be efficient substitutes for questions about sources of rewarding exchanges.

6. The first pilot elicited an average of 20.3 names, while the final survey elicited an average of 18.5 names.

7. The procedure described here is the one used in the final, full survey of the NCCS; the data presented later are from our second pilot survey (the questions there differed somewhat).

8. The procedure used to sample the list tends to yield names with the same distribution of traits as the entire set (Jones and Fischer, 1978).

9. In terms of administering such an instrument, our experience suggests that people can answer almost an hour's worth of questions about their networks, but many do tire of the need to think of names and the repetitiveness of the names. It seems that the 20-minute version suffices to capture most of what we have called the "core network."

10. Sampling and interviewing were done by the Survey Research Center, University of California, Berkeley.

11. The question was asked only in the pilots, not in the final survey.

12. A different way to interpret this finding is that the "best friends" network is more homophilous than other networks. We do not see it in such terms because it reifies "best friend," treats friendship as if everyone knew and agreed about what it was, which is not the case. Instead, we see "best friend" probes as crude efforts to measure the core network.

13. The major impact of using this procedure, one that creates mutually exclusive categories, and using the multiple classification categorization where the relation can appear twice, is to distribute about 200 "friends" into other categories, leaving about 500 "just friends" for whom no context was identified.

REFERENCES


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