

Attitude Techniques in Action

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This paper serves as an introduction to the utilization of attitude assessment techniques in urban transportation planning. The importance of appropriate sampling and description of sampling strategies is discussed. The elements of attitude questionnaire development, the techniques that can be utilized, the selection and training of interviewers, and the maintenance of the field office are also discussed. Specific examples of the utilization and application of these techniques in planning studies are cited.

•THE UTILIZATION of attitude assessment techniques in transportation planning has generated much talk and a little action. Some attitude studies have left much to be desired, and some of these studies have contributed to the "why bother" attitude that is widespread. Questions of validity are raised, as are other important questions such as "What can I expect to find out that I don't already know?" and "How do I use the results of these studies?" For, without proper implementation and the discovery of new dimensions or new ways of looking at old dimensions, the attitude study is, admittedly, unwarranted. Contributing to a report that is never used or providing information that is of no practical use is an exercise in futility.

One of the most disturbing aspects of much "people" work has been that, by and large, no matter how much it thinks it knows about a given group of people through the eyes of leaders, through windshield surveys, and physical analyses, an agency often knows very little. When one considers that much money is spent and many facilities are built based on this information, the picture is not very bright. For example, attempts to develop a stratified sampling strategy based on information possessed by several agencies—ordinarily, well-informed and well-studied agencies—were thwarted by discovery that their socioeconomic data were not good enough for establishing the strata.

Census data are now 9 years old, and it is likely that the 1970 census data will be less than optimum for many planning purposes. If the consideration of people receives only lip service in all but a few political jurisdictions, the social situation in cities and towns will continue to deteriorate. The attitude survey is one means for providing valid, reliable information regarding the socioeconomic status of people and their attitudes toward this status. It can also provide valuable insights into the type of innovations that, if implemented, would be acceptable to the residents.

Factual data regarding the actual social and economic situations are relatively easily obtained. By utilizing direct questions, asked in the appropriate manner, an agency can do an excellent job of drawing a social and economic profile at both the individual and the aggregate level. However, factual data, no matter how complete and valid, can only provide a one-sided picture of the "people problem." The subjective view of the social situation, as seen through the eyes of the people themselves, is extremely important. In many cases, the residents' subjective evaluation of the situation is every bit as important to transportation planning as the objective reality of the situation. For example, stating that a given street is inadequate because it has potholes may be, to the engineer, a very logical statement, and he may wonder why citizens in a given area rebel at the idea of upgrading it. The fact may be that to these citizens the attitudes toward rearing

children are quite strong; hence, as long as the street is inadequate, there will be little traffic or at least the traffic will move slowly. The present status quo, although undesirable to transportation planners, is very desirable to the housewife who feels her children are safer when playing near the street.

The question of satisfaction and dissatisfaction with facilities on the part of the citizenry should then be raised. Many officials have unwittingly assumed that reducing dissatisfaction regarding a transportation facility is sufficient to produce satisfaction with that facility. In the field of job and personnel research, however, Herzberg, Mausner, and Snyderman (1) have demonstrated that job satisfaction is a function of the presence of sets of variables different from those that are present in job dissatisfaction, and correction of the dissatisfying elements is not sufficient to produce satisfaction. At present, the author knows of no comprehensive attempts to evaluate whether the same phenomena exist in the applied transportation system context and, if so, what elements are satisfiers and what elements are dissatisfiers. Much attention and money, however, are directed toward mitigation of dissatisfiers with little or no concern for the satisfiers. The proper utilization of attitude data could result in the emerging of some indications of potential satisfiers.

Another application of attitude surveys to the problems of transportation planning is in their utilization regarding facilities with which the public has had no prior experience. It is here that attitudinal data appear to be most useful. Suppose a highway is being planned through a given neighborhood and information regarding the physical characteristics this highway should possess to be most acceptable to the population is needed. Knowing that aesthetics, child-rearing, and recreation, for example, are extremely important in the neighborhood is helpful in expressing in quantitative terms the need for a depressed highway, which is well separated from any area where children play or travel to school. It also gives some important insights into the type of joint development that is most capable of being implemented.

Knowing that recreation is important to a given group of people gives some insights into predicting the utilization of a proposed rapid transit line that runs to a recreation facility, even though the people have never had one before. Such was the finding in an eastern metropolitan area (2) where recreation and recreation access emerged as an area of significant concern to residents. When asked to rate the accessibility aspect of transportation, i. e., how easy it was to get from one place to another by private or public transportation, the mean rating on a 5-point scale was 3.5 (where 1.0 = very poor; 2.0 = poor; 3.0 = adequate; 4.0 = good; and 5.0 = very good). As might be expected, those without automobiles for whom dependence on public transportation was a reality tended to rate transportation accessibility less than adequate. When information regarding such variables as convenience, comfort, and prestige are added to this knowledge, some very meaningful insights are obtained. Such information can pinpoint groups of individuals for whom there exist specific problems. These problems can then be dealt with in a more meaningful and appropriate manner by the public agencies.

To obtain these data via attitude surveys requires the application of social science technology, not only to the actual conduct of the survey but also to the analysis and implementation of study findings.

SAMPLING

One of the most critical elements of attitude surveys is sampling. The validity and reliability of the study are directly dependent on the sampling strategy used. One often hears the comment, "A 10 percent sample was used; the study must be good." Nothing could be more misleading. A 10 percent sample, or even a 50 percent sample, is only as good as the means used to select those 10 or 50 percent. A sampling procedure is accurate if it is unbiased, i. e., if the sample is not overbalanced in persons of one kind or another. The precision of a sample is determined directly by the number of persons sampled. If the sampling procedure is accurate, the true population results will be approximated more and more closely as the number of individuals in the sample is increased. Statistical tests are then used to calculate the likelihood or probability that the results obtained differ from those that would have been obtained if the total population

had been surveyed. However, there is a point of diminishing returns at which the added precision of the sample tends to increase in proportion to the square root of the number of people sampled (3). Hence, if survey costs double when sample size is doubled, the sample size must be increased by 4 times to double the precision. The question as to the level of precision necessary to accomplish the goals of the study must, therefore, be addressed.

Several strategies are available for sampling. First is the simple random sample. In this method, each resident (or family, depending on the sampling base) in the study area is assigned at random a number, and a table of random numbers is utilized to select the residents who will be interviewed. Each resident, therefore, has a chance equal to each other resident's chance of being selected. This method ensures that there is no systematic bias introduced by the researcher in sample selection. It also ensures that, because there has been no method for selectively choosing one individual over another, the group of individuals actually interviewed is representative of the general population, and study findings may validly be generalized to the total population.

A second method is the stratified random sample in which strata are identified and individuals selected at random from within each stratum. It is preferable, in this method, for the numbers in each stratum to be proportionate to the total number of people in that category within the entire population. Additionally, this type of sampling technique is desirable in areas where there are subgroups of a more homogeneous composition within the larger population that is being studied. For example, many cities contain subpopulations with different ethnic, racial, and religious backgrounds. These strata or subgroups can also be defined by such variables as income or age. In some cases, combinations of variables such as income and race or income and age may have to be used to define strata. In these cases, the variables must be operationally defined, i. e., defined in terms of the operations used to measure the categories. An operational definition of low income would state the income range in dollars or, if meaningful, the per capita income in dollars considered to be low.

Establishing the proportion of each stratum within the population, which is needed to utilize a stratified random sample, requires much a priori information regarding the characteristics of the population. Many political jurisdictions do not possess sufficient information to determine even the stratification strategy that would be appropriate, not to mention the proportion of the strata within the population.

In order to provide these data in a study in a metropolitan county, an innovation known as a "demographic data bank" was used. This provided enumeration data regarding the demographic characteristics of the population within a specified radius of selected street intersections in a given standard metropolitan statistical area (SMSA). The data bank utilizes census information regarding characteristics such as income, type and condition of dwelling, race, residential mobility, age, and occupation; this information was updated utilizing aerial photographs, special census information, and land use information. Although a number of assumptions about the updated information limit the universal utilization of such a technique, it is extremely helpful in providing some much-needed data to aid in stratifying the sample population. The stratified random sample, although it requires a priori knowledge of the population, has an advantage over the simple random sample in that the numbers of people sampled may be fewer for a stratified random sample yet still provide the same level of accuracy and precision. Its utilization, however, is only as valid as the data used for establishing the strata.

Third, an area random sample may be utilized in which specific geographic areas within the political jurisdiction are selected to be representative of a segment of that jurisdiction, and individuals are selected at random from within it. The validity of this method rests with the validity of the criteria by which the specific areas are selected. This method might be used in a situation in which a single geographic area will be affected by the proposed facility more than other areas. Results obtained by this method can be generalized to the general population only if the areas selected are truly representative of the total population.

A final technique for sampling is the "problem group" sample in which specific types of people who represent specific types of problems are identified. This technique is applicable only in situations where the findings need not be generalized to the population

at large. It is applicable, however, in situations where policies or programs are being generated to meet the needs of a specific group of people who have a specific problem and for whom data are not available. Such a group might be "freeway dissenters" or elderly or ghetto residents not owning automobiles.

One problem occurs irrespective of the specific type of sampling strategy that is used. Obtaining the names or addresses of all the people in a given population is extremely difficult. Phone books limit the selection to those individuals who possess listed telephones; mailing lists selectively eliminate various groups; address coding guides are still incomplete and inaccurate; and voter registration rolls eliminate recent arrivals and those who do not vote. Although no method is completely free of bias, random selection of streets from up-to-date maps and random selection of residents from those streets is probably less biased than many other methods. All possible sources of listings of the population should be investigated before final selection of the method is made. In some jurisdictions, one method may be more valid than another, and the decision should be made based on the best information available in that jurisdiction.

QUESTIONNAIRE DEVELOPMENT

A second critical element of attitude survey methodology is the development of the questionnaire. It is a more complex task to develop a valid and reliable questionnaire, i. e., one that measures what the study objectives demand, than to simply write questions.

First, specific hypotheses that will be tested must be generated. In many cases, planners do not have a priori hypotheses and simply desire to know what the socioeconomic-psychological real world is like. Under these conditions, they must at least identify the subject areas that they feel are interrelated with the main objective of the study. For example, What is the effect of the economic status of community X on the attitudes toward transportation corridor A? and How does the transportation situation influence the utilization of facilities P and Q? These hypotheses or subject areas must be developed by the public agency utilizing a multidisciplinary team as broad-based as possible.

Once the hypotheses are generated, the decision as to the most appropriate techniques that should be utilized to obtain the necessary information from the specific sample must be made. The techniques that can be utilized with some groups of people may be inappropriate for other groups. For example, rating scales often utilized to determine residents' feelings toward facilities or issues are not valid for residents with low levels of education. Hence, other techniques, such as the paired-comparison technique, should be used and ratings derived from the findings. In a similar manner, the techniques used in many surveys to determine the income of the respondent are inadequate. In one study (4), an underestimation of income was found to be an average of \$1,000 among those respondents in the below \$4,000 income category. This is, on the average, a 25 percent underestimation—indeed, a significant consideration in studies where income is a particularly important variable. Therefore, the specific techniques utilized to extract the information are extremely important, so much so that utilizing improper techniques could result in obtaining no valid information at all.

The techniques for attitude assessment are designed to determine the definitions and relative importance of various elements of human activity to a given individual. Attitudes exist toward rather abstract elements, such as time, comfort, convenience, money, prestige, aesthetics, education, and rearing of children. As such, they are not tied to a particular facility or plan; rather, they cut across all aspects or facets of the individuals' activities. The attitude techniques can be grouped as to their degree of directness of questioning into projective and objective techniques (5).

Projective techniques, such as word association, sentence completion, and semantic differential, are unique in their approach in that questions are designed to determine basic attitudes without revealing to the respondent what the "right" answer is. In some cases, the item may not appear to be related to the attitude that is actually being measured. Research has shown, however, that, as indirect and unrelated as these techniques may appear, they are quite useful in determining prevailing attitudes and predicting behavior. The projective technique, however, requires the expertise of a trained

behavioral scientist for creating, administering, scoring, and analyzing. Utilized by the untrained or uninitiated, its results are suspect and could lead to gross misrepresentations of the facts.

The projective techniques, which vary according to the nature of the stimulus material, present a simulated situation to which the subject responds. The word association technique, for example, presents a list of words to which the individual responds with the first word or association that enters his mind. If a word, such as "traffic," is presented to a subject and he replies "noise," some indication of his attitude toward traffic is displayed. When this procedure is continued with other related words, analysis of the responses can indicate his attitude toward a host of related subject areas. The associated word may have a positive, neutral, or negative valence to the subject. A single response to a single stimulus word from a single individual gives the researcher little information on which to base decisions. When many associations are made to many words by many individuals, however, some valuable insights regarding prevailing attitudes may emerge. When one projective technique, such as word association, is used in combination with other techniques, such as sentence completion or semantic differential or both, it provides an even more valid profile of attitudes.

The sentence completion technique differs from the word association only in the degree of freedom that it affords the individual for association. The sentence completion technique presents a frame of reference for the individual's response more clearly defined than that presented by the word association technique. For example, the individual might be asked to complete the following sentence: "I consider my neighborhood to be. . . ." Hence, the response is limited to a specific subject area, neighborhood, but the response that he can give to this is completely open. As with the word association, it must be emphasized that the insight into attitudes is provided by the pattern of response to many items by many individuals. Little or nothing can be learned from examining a single item by a single respondent.

The semantic differential technique developed by Osgood and others (6) requires the subject to scale each noun, such as transportation, highway, bus, or park, on a number of dimensions, each of which is described by a pair of bipolar adjectives, as follows:

Highway	
Active	Passive
Harmonious	Dissonant
Meaningful	Meaningless
Negative	Positive
Large	Small

Some of the dimensions are obviously related to the subject noun, other dimensions are more obscure. The clustering of nouns that are described in a specific manner by specific adjectives and the groups of individuals who respond similarly to these nouns reveal the attitudes. Studies conducted by Osgood, and later applied to other areas, show that individuals who respond to semantic differential items in a similar manner tend to behave in a similar manner when confronted with a real-life situation. The technique has been applied successfully to determination of attitudes toward elements of recreation and the concomitant needs by Heath at the University of Illinois (7). It is reasonable to assert that this technique could be equally applicable to problems that plague the transportation system planner and, hence, utilized in the perplexing determination of community values.

One important consideration in the choice of techniques is the degree of depth that is required to obtain the desired information. This degree of depth is represented as a continuum ranging from opinions that reflect simple beliefs or views to attitudes that reflect deeper motivations. To predict future behavior requires that attitudes be examined. Opinion surveys can be used to measure the public's reaction to a specific facility at a specific time but, because opinions change and often very radically over a period of time, they cannot be used to predict future feelings or behavior.

For example, John Q. Public may express the opinion that the city needs subways; however, when confronted with a choice, he may vote against it if such a program requires a tax increase. In that case, Mr. Public's attitude toward money motivates his action to vote against subways even though his opinion of subways is favorable.

The objective attitude techniques differ from their objective opinion counterparts in the development process and the method of evaluating but not in their degree of directness. The development of objective attitude items, as described by Edwards (8), requires an elaborate pretest of potential items that comprise an item pool. This item pool is constructed of items that appear to cover a wide range of positively and negatively valenced items in a number of predefined dimensions. This item pool is administered to a pretest sample of individuals using the method of paired-comparison. In this method, each item is compared with each other item of like dimension, and the individual is asked which item he considers to be most favorable. A psychological scale of favorability is developed from these data for each dimension. Scale values are then assigned to each item by compiling the scale values obtained from the objective responses of many pretest subjects. When these items are actually administered, the test subjects are asked only to indicate if they agree or disagree with each item. The score for a given individual on a given dimension is the composite of the scale values of the endorsed items. This technique is currently being considered in a study in San Diego County (9) in which an examination is made of the interrelationships between transportation and the utilization of other social service facilities.

After techniques appropriate for both the subject matter and the sample are selected, the actual items must be constructed. Semantics and communications, 2 disciplines that are finally being recognized as important to some planning efforts, are critical in this stage of questionnaire development. To some groups, there are emotionally charged phrases or words that, if used, not only could invalidate study results but could set off a community reaction that could destroy the potential for effectively working with the community, i. e., cause a riot. Hence, item construction and wording requires a familiarity with the subcultural milieu in order to be effective at all. The middle-class orientation of most survey items will be no problem as long as the sample is also middle-class; however, as the sample deviates more and more from the concept of middle-classness, the study results will be less and less valid.

An integral part of the wording of items is the selection of alternative responses, which will be utilized for coding the questionnaires. For example, a sentence completion item may include alternative ways of completing the sentence, the respondent's task being to select from the alternatives the one that is most applicable to his situation or feeling. The selection of these alternatives can easily bias the study results by making some alternatives appear more socially acceptable or by weighting one class of responses more heavily than another. Several guidelines should be followed in developing alternatives. First, and foremost, they should be based on empirically established data. Open-ended free response items should be given a small representative number for the sample in a pretest. Alternatives should then be developed based on the actual responses that were given by these individuals. Second, the alternatives should be mutually exclusive such that respondents cannot indicate that their choice is embodied in parts of 2 alternatives. Third, they should cover as wide a range of responses as possible within the context of the item. Finally, there should always be an option that none of the alternatives is appropriate, giving the respondent the option to state in a free response what his feelings are. These free responses are evaluated during the analysis phase, are subjected to content analysis, and may be coded at a later time.

Built into the questionnaire should be some reliability checks that permit the research team to indicate the reliability of both the interviewer and the respondent. This can be accomplished by carefully constructing different forms of the same item and inserting them into the questionnaire.

The coding scheme and format of the questionnaire must then be developed. At this juncture, it is necessary to know what type of data processing equipment will be utilized because this will establish the type of coding and formatting that is appropriate. Because the format and codes that are applied will limit to some extent the tabulated output, all aspects thought to be important should be built into the coding scheme. Data that are

not properly coded or formatted may be lost data unless recoded at a later date—a very expensive luxury.

The final step in the process of questionnaire design is the pretest. No matter how carefully the questionnaire is designed, it should be pretested with a small sample of respondents representative of the total population being studied in order to identify any problems in interviewing procedures, in wording or ordering of items, in the selection of alternatives, or in formatting. The questionnaire should then be modified and put in final form for the study.

SELECTION AND TRAINING OF INTERVIEWERS

The link between the transportation planning agency and the real world is the field team of interviewers whose job it is to faithfully record what they see and hear during the process of the interview. An interviewer who is biased can completely invalidate study results. Hence, extreme caution should be taken to ensure that interviewer bias is kept at an irreducible minimum. Careful selection of interviewers is critical and should follow selection criteria developed within the framework of the study objective. Utilizing available personnel is often not good enough to ensure a quality interview team.

No matter how intrinsically good and knowledgeable the interviewers are, they must be thoroughly trained to perform the study in a prescribed fashion. This training period should include both classroom instruction and on-the-job training, and should cover all aspects of the study, all interview materials, and all procedures. The less sophisticated the interviewers are at the onset, the more comprehensive the training program must be. An even more careful selection procedure and more comprehensive training program are required for indigenous residents who are used as interviewers because of their rapport with respondents, especially in areas consisting primarily of one ethnic group.

CONDUCT OF THE SURVEY

During the field operation, a field supervisor must perform a constant monitoring function. His job is to ensure that interviewer procedures and the sampling strategy are assiduously followed. He reviews each questionnaire as it is returned to ensure that the coding is properly performed and that the reliability checks are not violated. A conscientious field supervisor who highly motivates and demands the highest quality work possible from his interview team is an absolute necessity. The field supervisor should make validity checks to be sure that the interviewer is actually interviewing subjects and not just randomly filling out the interview forms. Failure to make such a check allows for the possibility of drastic bias of the study results. Implementing a program based on study results in which this type of bias is present could be disastrous because the study findings may have little relationship to the real world.

During the planning of the field survey, it is important to consider the problems of respondent bias introduced by the times of day and the day of the week on which the interviewing takes place. If a predominance of the data collection takes place at any one particular time of day, such as morning or evening, the sample could become over-balanced with nonworking or working respondents. The field supervisor must ensure that interviewing is conducted at all times of day by all interviewers. He must also make interviewer assignments such that no interviewer works exclusively in a given area or with a given stratum and thus introduces a possible biasing variable. In short, the field supervisor should be in complete control of the research team and the research endeavor at all times. He provides an important link between the field and the agency.

ANALYSIS

Once the data have been collected, a comprehensive analysis program is initiated. The program begins with the development of an analysis plan that outlines the type of analysis that should be conducted. The first step is to obtain a tabulation (or straight tab) of all the questionnaire items, i. e., a summary of the total numbers of people who respond to each item in a prescribed manner. Based on these straight tabs, a listing

of cross tabulations that are meaningful is developed. A cross tab provides a summary of all those respondents who indicated a specific attitude with those who do a specific thing. Based on these cross tabs, statistical tests of significance are applied to establish whether one group defined in a specific manner is significantly different from another group, i. e., the probability that the differences found could have occurred by chance alone.

By studying the interrelationships among a host of social, economic, and demographic variables, one can derive a social profile that provides valuable insights into the social situation of the population. If 2 sets of measurements on the same set of variables are performed, each under its own set of conditions, the analysis of variance may be used to determine any significant differences among the sets. This may identify differences that occur in the same population over time or in a neighborhood before and after a given program or facility is built.

A factor analysis can be utilized when a series of different measures are being administered to a particular group. This process identifies the smallest number of factors that explain the variations of scores. From the factor analysis, the amount of variation caused by each factor is estimated for each measure. The identification of such factors can aid in the interpretation of study findings and thus improve the quality of conclusions and recommendations that can be derived.

IMPLEMENTATION

Even the best study, if not properly implemented, is a useless exercise. Citizens abhor being "studied to death," never seeing the results of any of these studies or changes that are recommended as part of these studies. The public agency, not the consultant, has the responsibility to implement, i. e., to put into practice or instigate, changes based on study findings. A consultant, no matter how good or how progressive, should only fulfill his role of consultant. He can and should recommend an implementation program, but he cannot and should not attempt to become involved in the implementation as such. His program may include presentations of findings to other public agencies as a means for involving them in the implementation, but the actual policy decisions are political and must remain as such in a democracy. Recent success has been experienced in the implementation plan developed for an eastern metropolitan county. In this study (2), research findings were discussed with all agencies that were affected by the study effort and whose job it was to implement policy change, and the consultant was available to answer the questions and to interpret the results. Because agencies participated in the discussion of study results before publication and were permitted to make comments and observations regarding study findings before the conclusions and recommendations portion of the report was written, their insights became an integral part of the study report. Although their input was not permitted to modify the study findings themselves or the presentation of these findings in the report, their insights and comments were presented in addition to the usual study results. This added both to the understanding of the study results by the various agencies and to the comprehensiveness of the report on these findings. Because interagency cooperation is critical to effective implementation, such a program was quite useful in improving the quality of implementation that was possible. Because the agency personnel are personally involved in even a small portion of the study effort and the study results are presented both in verbal and in written form, the study results can receive more widespread utilization.

APPLICATIONS

Transportation planning has, for a long time, been concerned primarily with the direct costs and benefits derived from a given facility. A logical question has been, "Why be concerned with health?" The only obvious relationship is related to the pollution problem. This is one of the most serious problems with the "people" part of transportation planning and, in particular, with many current efforts to deal with it. People cannot be fragmented into subject areas, such as health, education, recreation, transportation, and housing. People exist with a combination of interrelated needs and their attitudes and values regarding one of these is inextricably interwoven with the others.

It makes little sense to have a transportation attitude study; rather, it is appropriate to perform a general attitude survey with emphasis on transportation items. The effects of transportation alternatives on the long-term mental and physical health of a population, to mention only one, are very important and should be considered by a political jurisdiction involved in decision-making. Hence, the approach should be toward the general attitude survey designed to learn a great deal about many aspects of the population and the interrelationship of these aspects with transportation issues involved.

The present requirements for citizen participation, which are being questioned by many, is probably an honest attempt to consider people as a system of integrated values. However, the "leaders" who are often consulted and the "verbally fluent" who often participate represent a loud minority of the people. If, however, the loud minority can be assuaged, the necessity for considering others' views may be questioned by some officials.

A recent study in a midwestern industrial city (4) revealed that some of the most vocal leaders were doing as poor a job of representing the people and their attitudes and values as the so-called establishment. For example, some of these "leaders" were considered as potential interviewees and were given the usual training. During the training sessions, they expounded vocally regarding the feelings of their supposed constituents toward education. Because of the strong biases they evidenced, these individuals were not permitted to interview, but their views were noted by the field supervisor. Upon the completion of the study, results showed that the feelings of the citizens were diametrically opposed to those expressed by the so-called leaders. The leaders expressed the feeling that citizens were quite concerned about education and were adamant about specific improvements. The study indicated, however, that the citizens were not particularly interested in education, did not see it as a means for upgrading the quality of their lives, and were quite satisfied (as measured on a rating scale) with the status quo. Had a program been developed based on the leaders' evaluation alone, it would have been a failure; however, knowledge that citizens were not particularly concerned with education modified the approach taken by officials to make some much-needed changes (as determined by a subjective outsider's evaluation).

The nature of the "credibility gap" that exists between vocal leaders and their constituents is extremely difficult to establish. In many cases, the power these leaders have and their ability to, in some cases, intimidate the average citizen makes it extremely difficult to determine the true feelings of citizens. This underscores the need for an attitude survey conducted under conditions where residents feel no threat from their leaders. These changes and improvements can then be successfully implemented.

Although the evidence presented here is not sufficient to generalize in other situations and subject areas, it should give pause to thoughts regarding the purpose, direction, and utilization of citizen participation as presently conceived. There is no pretext to say that these findings are universally applicable and that all leaders or all loud minorities present inaccurate views of the people. These findings do indicate, however, a need for examining the current philosophy regarding citizen participation and minority spokesmen. One point is often raised in this regard by the minority spokesmen themselves. They say, "We do not pretend to represent everyone in the minority, but at least we care." The fact is, however, that in many cases the "institution" acts as though it thinks these minority spokesmen are truly representative. In addition, it may be said that, if, as the minority spokesmen say, what is important is caring, then the institution has a tremendous opportunity and responsibility to show that it too cares.

Attitude surveys can be a useful tool for obtaining participation from individuals who often are not civic-minded but who nonetheless have a deep concern for their own welfare. These individuals, although they probably would not sit in front of bulldozers or picket the highway department, could swell the numbers on welfare, increase the demand for social services, and get into trouble with the police. Although, at present, the author knows of no comprehensive studies that have demonstrated the relationship between relocation disorientation and incidence of crime, the possibility of such a relationship cannot be ignored.

When such techniques are applied specifically to problems faced by transportation planners, a very useful tool emerges. For example, in a midwestern metropolitan city

(4), an attitude survey was conducted of certain identified groups of people within the city. The definitions of the groups were selected by "city hall" to represent certain problems with which the city had to cope. There was a need for information about specific aspects of these people because programs and plans being developed would differentially affect these groups. One of the most significant findings of the study, however, was the overwhelming importance of the neighborhood orientation. Neighborhood was considered by most of these groups to be the most important single determiner of housing location. The need for recreational facilities was expressed within the framework of the neighborhood, i. e., recreation facilities and social service facilities were desired within the neighborhood but not on a citywide basis. Given the desire to build a highway through certain sections of the city, it is predictable that retention of neighborhood character and ties would figure heavily in motivating citizen resistance. In public hearings, the citizens may voice many other complaints, some of which might be very accurately represented; nonetheless, rectifying the host of other complaints will not be sufficient to satisfy the residents unless the neighborhood character and ties are retained.

Another example in this same midwestern city concerns the dominant housing unit—the single-family dwelling. The feelings of residents toward this are mixed up in attitudes of land ownership, privacy, tradition, and a host of other things. Any highway project, however, no matter how sophisticated in joint development concepts or land use evaluation concepts, will surely be rejected by the populace if the single-family dwellings are threatened and replacement housing is not also single-family construction. If large amounts of land are acquired by the highway project, this obviously causes a replacement problem. Attitudinal data show that this will, indeed, be a critical issue and must be considered.

Attitudes of satisfaction with the status quo can also be important indicators of problems that might be encountered in attempts to implement a new program or plan. Knowledge that the residents feel threatened by actions that are new can help officials structure educational programs that deal directly with the reduction of that threat. In many cases, fear of the unknown on the part of the residents is enough to cause them to vote against bond issues, to picket planned highways, or to flood the news media with objections. Prior knowledge by the transportation planners of the nature of objections before the citizenry becomes upset and angry can prevent many expensive and time-consuming problems from developing. Properly used, educational programs can encourage positive citizen participation and improve the probability of reaching a satisfactory agreement between citizens with their needs and values and transportation planners with their planned innovation.

The interrelationships between transportation and the quality of life possible in a political jurisdiction are extremely important. Transportation planners at an HRB conference (10) discussed some of these issues, but in many cases they still treated transportation problems as though they had little impact on the host of other social problems facing municipalities.

An example will serve to illustrate the extreme effect that transportation can have, if permitted to reach the stage of crisis. A study was conducted on an American Indian reservation (11) in the Midwest where the poverty is extreme and owning an automobile is an economic impossibility for the majority. There is no public transportation system and, because of the decentralization of living and service facilities, obtaining medical attention or surplus food allotments is a severe problem. Opportunists often charge residents as much as \$15 for a trip to the Public Health hospital. When this charge is viewed in light of the current family cash income, which is an average of \$1,170 per year, it represents approximately 1 percent of the yearly income! Although this example is extreme and does not represent a situation found in most large cities, it serves to illustrate the extreme hardship that transportation can place on the social and economic situation of people.

To illustrate further, in many cities where public transportation is highly inadequate, driving an automobile, even for the very poor, has become an absolute necessity. This means that money, which is needed for food and shelter, must be diverted to pay for transportation. The question may be raised, if these individuals did not have to own an automobile, would that money be spent on food or housing? The point should be rather

that the poor should have a choice as to whether to invest large amounts of money in a personal transportation system. If a reasonable alternative exists, then incentives can be developed to encourage people to utilize their personal income for social services and housing, thereby releasing large amounts of money for dealing with additional social problems.

If transportation is viewed as one subsystem of a community system with people at the center, great strides can be made in improving the social situation. In order to accomplish this, more information about people, their attitudes, values, and socioeconomic situation is needed. Attitude studies are being utilized effectively to aid planners in developing alternatives, evaluating alternatives, and dealing effectively with citizens. If properly utilized, they can aid transportation planners in their job of being responsive to the community. Only when attitude surveys are made one of the integral elements in the transportation planning process will dealing with community values be realistically accomplished.

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