Analysis of Judgment Policy: A New Approach for Citizen Participation in Planning

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Analysis of judgment policy is a technique for obtaining priorities and trade-offs among several issues considered in combination. This procedure was used in an illustrative study of the judgments of city council members and members of local interest groups. The analysis resulted in mathematical and pictorial descriptions of several points of view. The points of view differed with regard to the relative importance of issues and the form of the rela-

tion between individual issues and overall judgments.

It was found that the city council members were not able to predict the judgments of even the most vocal interest group members. This finding, consistent with laboratory studies, suggests that traditional means for communication between citizens and public officials are inadequate. It is proposed that analysis of judgment policy can be used to obtain improved citizen input for planning.

Meaningful public participation in planning requires effective communication among planners, public officials, and citizens. Meeting this requirement presents a problem, however. Presently available means for communication are inadequate; they provide information that is frequently misleading, vague, distorted, biased, or incomplete. They all too often generate more heat than light. This article describes a procedure which can be the basis for a new approach to citizen participation in planning. The procedure is an outgrowth of research on the human judgment process conducted at the University of Colorado and elsewhere.

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Summary of social judgment theory and basic research

When a city councilman evaluates a proposed city budget, when a citizen votes on a proposed bond issue, when a city planner projects the future needs of his community, important judgments are being made. In exercising his judgment, each of these people must utilize a number of items of information—each of which has uncertain validity, and each of which is entangled in some way with every other item.

The process which governs the way each person integrates the various items of information into a single judgment is called his judgment policy. The judgment policies of government officials and citizens help shape the character of a community and influence the quality of life in that community.

Knowledge of a person's judgment policy provides a

basis for understanding why he makes certain judgments with respect to particular problems. Ordinarily, however, it is difficult to obtain such knowledge. One cannot discover a person's judgment policy simply by asking him to describe it. Because such policies are frequently the result of intuitive processes, they are difficult to describe.

Moreover, research has shown that subjective reports about such processes are often erroneous (e.g., Hoffman 1960, Slovic 1969, Cook and Stewart 1975). For example, in a study of labor-management negotiations, Balke, Hammond, and Meyer (1973) found that two issues were in fact sufficient to explain the actual judgments of the acceptability of labor contracts even though the participants in the study insisted that at least four issues were important to them.

The best, and perhaps the only, way to obtain an accurate description of judgment policy is through an empirical analysis of actual judgments (see Slovic and Lichtenstein 1973 for a review of studies involving such techniques). In general terms, analyzing a person's judgment policy means constructing a description of that policy which can be used both to predict future judgments and to understand them.

Hammond (1965, Hammond and Brehmer 1973) has shown that differences in judgment are a major source of conflict and misunderstanding. Indeed, differences in judgment can produce conflict even when men of good will with mutual aims are engaged in a cooperative effort. Conflict occurs in these circumstances because people emphasize different means for achieving the same ends.

Unfortunately, conflicts arising from differences in judgment are not easily resolved because of the difficulty in discovering the implicit characteristics of a person's judgment policy and thus in understanding the real reasons for the conflict. Failure to understand leads rapidly to mistrust and hostility. Mathematical analyses of judgments, on the other hand, can exhibit and clarify the differing policies that are the causes of differing judgments.

Showing people that conflict is the result of honest differences in judgment policy, rather than competing self-interest, increases understanding and promotes conditions favorable to conflict reduction and management, if not conflict resolution. For a more complete statement of social judgment theory and review of ten years of relevant research, see Hammond, Stewart, Brehmer, and Steinmann (1975).

Application of analysis of judgment policy to citizen participation

Citizens periodically exercise their judgment by voting on issues and candidates. But while the outcomes of elections are always clear, the *reasons* for

those outcomes are often obscure. For example, when a bond issue fails, there is usually wide speculation as to why it failed, but little if anything is done to discover where the truth lies. Consequently, when alternatives to the defeated bond issue are designed, little additional information about citizen judgments is available.

Present wasteful and frustrating procedures might be avoided by the use of new procedures which encourage citizens to exercise their judgment often, particularly in the early stages of planning. Such procedures must provide information for city officials and planners not only about what the people's judgments are but *why* they are what they are. Furthermore, this information must come in a precise and usable form.

The following study illustrates an approach to citizen participation in planning that involves analysis of judgment policy. In addition to illustrating the kind of information that can be obtained through this method, the study shows that, even in a community where traditional means for communication are utilized often and well, public officials do not have a clear understanding of the judgment policies of leading citizens.

Research site

This study was conducted in Boulder, Colorado, a city of 71,000 (at the time of the study), located twenty-five miles northwest of Denver. The population is small enough to allow a high degree of personal contact between citizens and government, yet large enough to produce serious planning problems. The city government seeks citizen input through the usual public hearings, study commissions made up of citizens, as well as less formal channels.

Boulder has a nine-member, nonpartisan city council, which serves without pay, and an appointed city manager. All council members are elected at large. The city council meets bimonthly throughout the year; its meetings are broadcast by a local radio station. Public hearings are frequently held to invite public opinion on controversial issues before the council.

Participants

Boulder's nine city council members and the city manager consented to participate in this study. In addition, four citizens' groups were chosen to participate—two groups representing business interests in the community (the Chamber of Commerce and the Board of Realtors) and two groups concerned primarily with the environment of Boulder (People United to Restore the Environment—PURE—and Plan Boulder County—PLAN). All of these interest groups claim to be seeking the best future for the city.

They disagree, however, in public discussion as to the means for achieving this goal.

These four groups were chosen because they were active, articulate, and likely to be familiar to the city councilmen. All had participated in public hearings in the city preceding the study and had taken positions on a variety of issues in the community. PURE has a weekly column in the local newspaper and a monthly newsletter. The city council sends a non-voting delegate to the Chamber of Commerce meetings; the Chamber has a weekly newspaper column as well. In summary, there is much communication between these groups and the council.

Officers of the interest groups were asked to take part in the research; it was felt that they were more influential in shaping group policy than were randomly selected members. Four officers from each group were selected. All four persons from PURE completed the task, two persons from the Chamber of Commerce, and one from the Board of Realtors. The officers of Plan Boulder County declined to participate.

Judgment problem

The study focused on judgments about alternative ways of allocating funds among five spending categories. The five categories selected for the study were streets (new streets, improvement of existing streets, and matters pertaining to transportation by vehicle or pedestrian), community development (low- and moderate-income housing, cultural and recreational programs, human relations programs, and other functions designed to improve the quality of life in Boulder), greenbelt (purchase of lands for greenbelt purposes, park land and open space expenditures), sewer and water expansion (construction, extension, and maintenance of facilities relating to the disposal of sewage and distribution of water) and public information (informing residents and municipal employees about programs, policies, and projects which affect the entire community).

It was assumed that a fixed amount of money was available to be distributed among these five categories. Thirty different allocation plans for distributing funds, i.e., thirty alternative budgets, were generated randomly. Each of the thirty different budgets represented a different combination of levels of spending in the five categories.

Each budget was represented by a bar graph; one such budget is represented in Figure 1. The height of the bar corresponding to a spending category indicates the percentage of total funds to be allocated to that category. According to the example budget (Figure 1), 42 percent of funds would be allocated to streets, 18 percent to community development, 10 percent to greenbelt, 29 percent to water and sewer, and .7 percent to public information.

Figure 1. Sample budget allocation

The horizontal line across each bar represents the actual 1971 level of expenditure for that category. The bars were scaled according to this level, hence the differences in the ranges of percentages on each bar. The range of variation in each spending category was selected so that the resulting allocation plans would vary widely, yet each plan would be a reasonable one which the city might actually consider adopting.

The budget allocation problem was selected for this study because it is concrete, easily understood by the participants, and important to both city officials and interest groups. The five categories were selected because they represent major areas of spending and relate to some of the important issues affecting the future of the community. It should be emphasized that the method is not restricted to the analysis of judgment of budget allocation plans. One could just as well elicit judgments about alternative futures for the city, the various features of a neighborhood development project, alternative locations for a new highway, or alternative configurations of community goals.

Procedure

Each participant received a packet containing instructions and bar graphs representing the thirty different allocation plans. He was asked to indicate his judgment about each plan by rating it on a twenty-point scale of desirability. A low rating indicated that the plan was highly undesirable, and a high rating indicated that the plan was highly desirable. Thus, each respondent evaluated each allocation plan. They made judgments at their convenience; most respondents reported taking thirty to sixty minutes to complete the thirty judgments.

Two weeks later, the councilmen and city manager were asked to *predict* the judgments of the same allocation plans for two of the interest groups—one representing business concerns (either the Chamber of Commerce or the Board of Realtors) and the other

Figure 2. Example of a nonlinear relation

representing environmental concerns (either PURE or PLAN). That is, the councilmen and city manager judged the same thirty alternative budgets a second time.

On the second occasion they were predicting the reactions—the judgments—of the members of the interest groups. This task is important because implicit in the designing, modifying, and approving of a budget are the predictions of city officials as to how citizens will react to a given budget.

Analysis of judgment policy

Linear analysis. The judgment policies of each participant were analyzed using regression and correlation techniques (Hammond 1955; Hoffman 1960; Hursch, Hammond, and Hursch 1964). In the regression analysis of the judgments of each participant, the levels of spending in the categories are the independent variables and the judgment is the dependent variable. A model of the following form is fit separately for each participant:

$$Y_{ij} = b_1X_{i1} + b_2X_{i2} + b_3X_{i3} + b_4X_{i4} + b_5X_{i5} + c_j + e_i$$

where

Y_{ij} is the judgment made by person j about budget allocation plan i ,

X_{ik} is the percent of budget allocation plan i allocated to spending category k ,

b_k are least squares regression weights for the person,

c_j is a constant, and

e_i is the residual error.

Since there is a linear constraint on the five predictor variables (they sum to 100), a stepwise re-

gression procedure was used to select the best subset of predictors for each individual (Draper and Smith 1966).

Curvilinear analysis. Models, such as the above, involving only linear functions have provided good representations of judgment policy in a variety of situations (Slovic and Lichtenstein 1973). However, in the present study, inspection of plots of the relation between the levels of spending in each category and the judgments of some participants indicated that the relation between spending levels and judgments is not always linear.

Figure 2 illustrates a hypothetical case of a nonlinear relation between greenbelt expenditures (X_3) and desirability judgments (Y). Each point on the graph represents a judgment of one of the thirty plans. The percent of the budget allocated to Greenbelt expenditures on that plan is represented on the horizontal axis and the judgment of the plan by an individual is represented on the vertical axis.

Note that the line which fits the points best is curved. It is a section of a parabola and its equation involves both the value of X_3 and its square. (The deviation of the points from the best-fitting line is due to variation in the other spending categories and unreliability of the individual's judgments.) This pattern, which was observed in the judgments of many of the participants, suggests the addition of squared terms to the model. Therefore, the analysis of the judgments of each participant was based on a model of the following form:

$$Y_{ij} = b_1X_{i1} + b_2X_{i2} + b_3X_{i3} + b_4X_{i4} + b_5X_{i5} + b_6X_{i1}^2 + b_7X_{i2}^2 + b_8X_{i3}^2 + b_9X_{i4}^2 + b_{10}X_{i5}^2 + c_j + e_i$$

Note that the resulting model is still additive (the effect of one independent variable is independent of the values of all other independent variables), but it is no longer linear with respect to the independent variables since squared terms are involved. Stepwise regression was used to determine the best subset of the independent variables for predicting the judgments of each participant.

Function forms. When an equation containing second-degree terms is fit, the function relating a particular spending category to the judgment depends on the coefficients of the first- and second-degree terms involving that spending category. For example, suppose that an analysis of the judgments of one individual by stepwise multiple regression resulted in the following model:

$$Y_{ij} = .07X_{i1} + .10X_{i2} + .22X_{i3} + .00X_{i4} + .00X_{i5}^2 - .02X_{i2}^2 - .04X_{i3}^2 - .02X_{i4}^2 + .00X_{i5}^2 + 10.70 + e_i$$

We can isolate the function which relates a particular spending category to the individual's judgments by picking out the terms which involve that spending category. For example, the function re-

lating spending category 2 to the judgment would be

$$f_2(X_{i2}) = .10X_{i2} - .02X_{i2}^2$$

A plot of this function would show the form of the relation between spending category 2 and the judgment. Such plots are called function forms. Function form plots are included in Figure 4 to be discussed below.

Weights. The functions relating each spending category to the judgments provide a basis for constructing a new set of predictors for the regression analysis. Specifically, the levels of spending in each category for the thirty plans are transformed according to the function for that category. These new transformed values are standardized to have a mean of 0.0 and a variance of 1.0 and then are entered into the regression. The weights for these standardized, transformed values reflect the relative importance of each spending category. Thus, the final model derived for each participant takes the following form:

$$Y_{ij} = w_1 f_1^*(X_{i1}) + w_2 f_2^*(X_{i2}) + w_3 f_3^*(X_{i3}) \\ + w_4 f_4^*(X_{i4}) + w_5 f_5^*(X_{i5}) + c_j^* + e_i$$

where

w_k is the weight for spending category k
 $f_k^*(X_{ik})$ is the standardized function for spending category k
 c_j^* is a constant

The procedure described above was used to analyze the judgments of each participant into weights and function forms. A discussion of this procedure and a presentation of an alternative procedure is included in Hammond, Stewart, Brehmer, and Steinman (1975).

Validity of model. The validity of the model (as well as the individual parameters in the model) as a representation of the individual's judgment policy should always be tested. In the present example, two tests were applied:

1. Does the model explain a substantial proportion of the variation in the participant's judgments?
2. Does the model make sense? Is it interpretable?

The models for all participants passed both tests. A more precise test is available when participants judge some of the profiles more than once (Draper and Smith 1966, pp. 26-31). Of course, these tests can only confirm or deny the adequacy of the model as a representation of judgments. They do not address the validity of the judgments themselves. That can only be insured by careful design of the study.

Example results. Figure 3 presents the results of the analysis of weights for one of the participants—a Chamber of Commerce member. The graph indi-

cates the relative importance (weights) of each spending category to the person in making his judgments. A large weight indicates that the level of spending in that category has a large effect on his judgments of desirability for the total budget. A small weight indicates that the person is relatively indifferent to the amount of spending in that category.

Note that the amount of funds spent on water and sewer expansion was the most important determinant of the desirability of an alternative budget for this Chamber of Commerce member. Spending for community development, public information, and

Figure 3. Weights for a Chamber of Commerce member

Figure 4. Function forms for a Chamber of Commerce member

streets was of moderate importance to him. The level of spending for greenbelts had the least influence on his desirability judgments.

Weights are an important aspect of judgments, as is well known. Not so well known is the fact that *functions* relating levels of spending in each category to overall judgments are equally, if not more, important. Such functions are plotted in Figure 4 for the same Chamber of Commerce member represented in Figure 3.

The *negative* slope of the function relating water and sewer expansion to overall judgments indicates that the Chamber of Commerce member represented in Figure 4 regards increased funding for water and sewer expansion to be undesirable. The higher the funding for water and sewers in a budget, the less he likes it.

The *curvilinear* relation between spending for community development and this person's judgments shows that in this case his policy is more complex than a simple linear function would indicate. The curve shows that the most desirable level of funding for this category is near the middle of the scale (20–25 percent of the budget), and that levels of spending both above and below this level are undesirable.

This Chamber of Commerce member's judgment policy has been described in terms of two sets of parameters:

1. *Relative weights*. These specify the *importance* of each spending category to the person.
2. *Function forms*. These show the form of the relation between the information used to make judgments (levels of spending) and the judgments (desirability of budgets). Function forms may be either *linear*, as was the case for water and sewer expansion in the example above, or *curvilinear*, as was the case for community development.

Summary of the results for city council members

The judgments of all participants were subjected to the same type of analysis. The results show the specific weights and function forms that produced the differing judgments. For example, within the city council three groups emerged with distinctly different policies with respect to the budget allocation task. One group was characterized by a large weight for greenbelt expenditures, a second was characterized by a large weight for community development, and the third group exhibited moderate weights and curvilinear function forms for all the categories. The judgment policies of the councilmen were consistent with their public stands and voting records.

Note that the analysis of judgment policy makes explicit the priorities and trade-offs among the spending categories. Precise calculation of the amount of

increase in category X needed to compensate exactly for a given decrease in category Y is possible (McMillan 1975, appendix E).

Furthermore, the discovery of curvilinear function forms implies that trade-offs would not be constant across all levels of spending. The fact that trade-offs among spending categories vary with levels of spending would be difficult to make explicit in public hearings or in written budget recommendations, yet this fact is of great importance in making budget decisions.

Predictive accuracy. We now address ourselves to the critical question of whether the judgment policy analysis procedure yielded information not already known to the councilmen through their contacts with the interest groups. Since it would be unfair to ask councilmen to predict such abstractions as weights and function forms, they were assigned the concrete task of predicting how members of the various interest groups would rate the budgets. Success in this task requires an understanding of the policies of the interest groups.

On the whole, councilmen made poor predictions of the judgments of the interest group members. Correlations between councilmen's predictions and the actual judgments of members of the groups they were predicting ranged from $-.08$ to $.75$ with a median of $.44$. There are three possible explanations for this finding:

1. The judgment policies of the interest group members were so inconsistent, so variable from judgment to judgment, that accurate prediction is impossible. There is, in fact, always inconsistency in judgments which makes perfect prediction impossible, but judgment policy analysis techniques could have predicted the judgments of the interest group members with an accuracy (correlation) ranging from $.71$ to $.94$ with a median of $.81$ (compared to a median of $.44$ for the councilmen's predictions). The figures for accuracy of predictions based on judgment policy analysis reflect the limits of predictability for the interest group members. They show that there is considerable room for improvement in the councilmen's predictions.
2. Members of the same interest group have different judgment policies. Consequently, it is difficult to predict the typical member of an interest group. However, it must be remembered that the participants in this study were the most prominent and vocal members of the interest groups. Therefore, their views are those most likely to be associated with the group as a whole and should have been easiest to predict. The fact is that, even though there were considerable differences among the interest group members, no member's judgments were predicted consistently well.

3. City councilmen do not understand the judgment policies of the prominent members of active interest groups. Given the inadequacy of present forms of communication and the complexity of the task of predicting the judgments of another person, this is the most likely explanation.

An example of the lack of understanding of another person's judgment policy is presented in Figure 5 where the weights for the Chamber of Commerce member described earlier are compared with the weights indicated by an analysis of one councilman's predictions of the judgments of a Chamber of Commerce member. The graph shows that, in predicting the judgments of a Chamber of Commerce member, the councilman overestimates the importance of streets and greenbelts and underestimates the importance of water and sewer. In other words, this councilman's predictions were poor because he did not understand the relative importance of various spending categories to the Chamber of Commerce member. Other councilmen's predictions were poor because they did not match the function forms of the interest group members.

The inability of city councilmen to predict the judgments of the interest group members in no way reflects on the Boulder city council. The research on human judgment conducted during the last ten years suggests that similar results could have been obtained in any community. Social judgment theory attributes the inability to predict to the complexity of the task of understanding another person's judgment policy.

Apparently, repeated contact between city councilmen and prominent interest group members has not resulted in an understanding of the interest group's views on basic issues confronting the city. This implies that the views of citizens who are not represented by a vocal interest group are even less well understood. Contrary to the usual assumptions, increased contact is not likely to result in deeper understanding; it may lead to continued misunderstanding and a hardening of positions.

The results of this study are purely illustrative. However, they are consistent with the results of other laboratory and field studies (Slovic and Lichtenstein 1973; Hammond, Stewart, Brehmer and Steinmann 1975). Several studies (e.g., Miller 1971; Balke, Hammond, and Meyer 1973; Hammond 1971) strongly suggest that if the councilmen were shown descriptions of the judgment policies of interest group members, in terms of weights and function forms, then their ability to predict how the interest group members would react to various budget allocation plans would increase dramatically.

Figure 5. Comparison of the weights of a Chamber of Commerce member and weights implied by predictions of a city council member

Judgment policy analysis procedures as an aid to citizen participation

Extensive research and theoretical development by K. R. Hammond and his associates at the University of Colorado indicate that the procedures illustrated above may provide aid in problems involving judgment. Applications of the procedures to community problems and university planning which are completed or underway tend to confirm this hypothesis, but more research is needed.

One procedure which could be useful in community planning would allow citizens to exercise their judgment about planning alternatives and would analyze those judgments so as to provide potentially useful information for planners. Six steps are required:

- Step 1. Define the problem area of interest, e.g., budget planning, public works projects, social programs, neighborhood development, mass transit.
- Step 2. Identify the important dimensions of the problem area. These dimensions should include all the variables that are likely to be important to citizens. To insure this, citizens should be invited to suggest important dimensions. Obviously, all the dimensions should be described in nontechnical terms.

For example, in the budget allocation problem, the dimensions of the problem were the spending categories. For a public transportation problem, the important dimensions

would include frequency of service, speed of service, cost of service, and quality of ride.

- Step 3. Construct a number of alternatives, each consisting of different combinations of levels of the dimensions. For example, the alternative budgets were constructed by allotting varying amounts of money to the spending categories. Alternative public transportation plans can be represented by different combinations of levels of frequency of service, speed of service, cost of service.

If the dimensions of the problem are carefully chosen, then these representations provide all the information needed for citizens to evaluate the alternatives. The alternatives need not be represented in bar graph form. Drawings, photographs, or even motion pictures could be used when appropriate, provided that perceptual unreliability does not become a factor.

The alternatives may be generated in a number of ways, but care must be taken to see that all the alternatives are realistic. Thus, the technical and physical constraints which both planners and citizens must face are built into the procedure.

- Step 4. Obtain judgments of each alternative from a sample of citizens and from planners and elected officials. More than one type of judgment may be obtained. For example, people can be asked to evaluate alternatives both from their own personal standpoint and from the standpoint of benefit to the entire community.
- Step 5. Compute each person's weights and function forms for the dimensions through a statistical analysis of judgments. Standard multiple regression analysis computer programs can be used for this analysis. Further analysis of the data can lead to the identification of subgroups which clarify the major points of view within the community.
- Step 6. The information from the analysis of judgments might be used in a number of ways. In its raw form it can provide a basis for increased understanding of points of view within the community. The information can also be used as a basis for further computation. For example, assuming that a valid model of public judgment is obtained (an assumption which can be tested), one could possibly predict public reaction to any proposed plan which can be related to the dimensions used in the judgment analysis.

Furthermore, mathematical programming could be used to derive the characteristics of alternatives which maximize the collective

desirability of the community (McMillan 1975). By selection of various weights for individual judgment policies, other types of optimal or compromise alternatives can be derived.

Extending usefulness of analysis of judgment policy—computer graphics

The potential of the analysis of judgment policy can be increased with the aid of an interactive computer graphics device. The development and application of such techniques is another area where research is needed. Interactive graphics devices are computer terminals consisting of a screen for output display, a keyboard, and perhaps a light pen for input. Such a device makes it possible to analyze the judgment policies of one or more people and to display the results immediately.

After a person finishes making judgments, a display summarizing the results of an analysis of his policy appears. If he finds that his judgments have unintended implications, e.g., if a dimension which he feels is unimportant actually has a large influence on his judgments, then he may change his judgment policy. A change in policy may be accomplished either by making a new set of judgments while attempting to apply the new policy or by allowing the computer to execute the new policy with perfect consistency. Setting the computer to execute a new policy is accomplished easily with a light pen.

If two persons have been making judgments, then a display comparing their policies can be generated. This display will graphically show the policy differences which underlie differences in judgments. The participants may wish to change their policies in order to reduce conflict. This readjustment may be accomplished directly and immediately by use of the light pen. The combination of analysis of judgment policy and interactive computer graphics hardware may provide a powerful tool for increasing interpersonal understanding and reducing conflict.

The advantages of computer graphics could be extended to citizens by means of a portable computer graphics terminal which can be located in public areas. People would come to the terminals to record their judgments about a number of issues and would receive immediate feedback about their policy.¹ Since judgments would be made continually over a period of weeks or months and would be stored and analyzed immediately, this procedure could result in a dynamic model of public judgment which reflects changes over time.

A computer graphics program designed for interactive analysis of judgment policy has been developed at the University of Colorado. The program operates with inexpensive, alphanumeric computer terminals

(linked by telephone to a large time-sharing network). More information about the program can be obtained from the senior author.

Conclusion

The major advantages of the analysis of judgment policy can be summarized as follows:

1. The information is in a precise numerical form which can be presented graphically, is easily understood, and can be used in further computation.
2. The analysis is based on a number of judgments and clarifies the consistent policy which underlies those judgments. The analysis is insensitive to the random, unpredictable elements which result in unreliability of individual judgments. The validity of the analysis can be objectively tested.
3. The analysis may be carried out in any desired degree of depth, from a limited study such as the one reported here to an extensive study involving a variety of procedures and objectives.

4. The relative importance of the various problem dimensions, and the trade-offs among them, are made explicit. The analysis applies whether trade-offs are constant or vary with levels of the dimensions.

While the study presented is purely illustrative and does not justify generalizations, the results are consistent with a substantial body of research. The research to date shows that the method provides useful descriptions of judgment policy in a variety of judgment areas. More research in applied settings is needed to determine the potential value and best uses of the method.

Many of the drawbacks to citizen participation in planning are really only drawbacks to the primitive mechanisms presently available for such participation. We have suggested investigation of a new approach, based on the judgments of citizens and their representatives.

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Notes

1. On an experimental basis, a computer terminal was located in a shopping center, a public library, a university student union, and a retirement home in Boulder. Passersby were invited to make judgments about the desirability of various combinations of community characteristics and received immediate feedback about their judgment policies via the computer terminal. Generally, the participants found the procedure interesting and meaningful. Analysis of the judgments of the participants provided useful information about trade-offs among community goals.

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