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QUALITY OF LIFE

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QUALITY OF LIFE

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INTRODUCTION

The phrase "quality of life" has almost supplanted the older words "happiness" and "welfare" in contemporary discussions of policy in the urban and domestic areas.** The phrase does have a fine ring to it and is somewhat less maudlin than "happiness" and somewhat less shop-worn than "welfare." However there is some question whether the brave new phrase is any less vague.

The expression is most often encountered as a slogan—a call to think bigger. There is nothing particularly objectionable in the sloganistic use; except that the term is rarely defined and one suspects that it contributes its bit of soot to the verbal smog—most of the users are careful not to pause for definition, but hurry on to more operational problems, like setting performance goals.

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**"These goals cannot be measured by the size of our bank balances. They can only be measured in the quality of the lives that our people lead." (Remarks of the President (Johnson), Madison Square Garden, October 31, 1964.) "But no one has compared the two modes of transport (SST, public urban transit) in terms which might reflect how they improve the quality of life." (System Science, Congress and the Quality of Life, feature article by Murray E. Kamross, IDA, for WORC Newsletter, Sept. 1967.)

This is not the place to examine goal-oriented decision-making. And I am going to make a further simplification, which is to accept the restriction of social programs as aimed at doing something for the individual. Whether that is a reasonable attitude is, I believe, a wide open question, but I won't open it here. (What is involved is the question whether there are group interests which transcend the interests of the individual members of the group. It is my impression that there are—beside the standard ones of national security—but discussion of this issue would lead too far afield.)

There is a final simplification I would like to make before proceeding. The notion of "quality" has two elements: it can refer to state or condition, or it can refer to excellence. The difference is probably subtle, and mainly semantic; but life becomes a little simpler if we start off with a descriptive, rather than a prescriptive notion. This boils down to considering the aim to be the characterization of the factors which are relevant and important to the well-being of individuals, and not to prescribing what is socially good. (In my own framework, these two are not really distinct; but other frameworks exist, and I don't want to get tangled up in them at this stage.)

As you will observe I tend to be rather bullish about the feasibility of getting somewhere in the attempt to make the notion of QOL* useful to planners (as more than a handy

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*This abbreviation of Quality of Life will be used intermittantly below.

slogan). My reasons are pretty diffuse. There is a small but growing body of information in psychology that is relevant; there have been several studies by social scientists that are applicable; and there is a fair amount of agreement between armchair thinkers on the factors which are significant. This is not a sufficient basis for optimism—but it is a little better than an excuse.

I remarked earlier that few users of the phrase QOL bother to define it; however, some have attempted to give content to the notion, and it is worth examining these characterizations.

These attempts have taken two* forms, (a) armchair "analyses," and (b) public surveys.

The armchair approach generally consists of devising a list of general factors which are important to the quality of life of an individual. Representative samples are to be found in Bauer (2), Berelson (1), Lynd (3), SRI (4). A kind of super-armchair procedure is that of the prestigious commission, most notably the President's Commission on National Goals and Values (5). Again, the output is a list of items deemed (in this case) most important for the well-being of nation, and hence, derivately, for the individual. The report of the President's Commission has become a sort of bible in the

*I am excluding the host of ethical, aesthetic, and religious essays in this area, as well as the mass of clinical material in the psycho-analytic and mental hygiene areas; the first three because of lack of empirical claims, and the last two because of extreme miscellaneity.

national area (6) (7). One investigator, Wilson (8), has used the list of goals as a structure to rank the 50 states in the order of the quality of life they offer their residents.

The public survey approach is well represented by two investigations, reported in (9) and (10). These are analyses of the results of extensive interviews with cross-sectional samples of the American public. Despite the somewhat Reader's Digest air lent these studies by their unabashed use of words like "happiness," "feelings," etc., they have the virtue that they at least ask the relevant questions, rather than imposing a-priori assumptions.

Following a brief discussion of the armchair and public survey efforts, a research strategy is suggested that appears to go well beyond these two with respect to coherence and comprehensiveness.

ARMCHAIR EFFORTS

As noted above, the armchair approach consists in devising a list of general factors which are presumed to be significant in determining the well-being of humans. The lists referred to are, of course, not capricious. They are distilled from clinical lore, sociological think pieces, some psychological and

social psychological experimentation, and the like. There is a great deal of overlap among the lists—in general the shorter lists tend to be contained bodily in the longer ones. The shortest list I have run across is that of SRI, which involves three basic factors:

Safety

Belongingness

Self-esteem

A fourth item is appended, self-realization, but this is treated on a different level than the basic three.

The oldest list of this genre I have run across is dated 1923 (Thomas, quoted in Berelson, p. 257) and is next to the shortest. Thomas adds "new experience". I cooked up a list semi-independently of the ones mentioned, and I suppose it is only fair that I use it as an example. The list contains nine items: Health, Activity, Freedom, Security, Novelty, Status, Sociality, Affluence, Aggression.

Strictly physiological items such as food, sleep, shelter, etc., have been omitted primarily on the grounds that, in the U.S., at least, these are pretty well taken care of at better than subsistence levels.

A number of dubieties arise at once concerning any attempt to set down a list of the significant factors in the quality of life. The lists are intended to be

comprehensive, but the varying lengths of those in the literature indicate that there is no trustworthy stop rule for the multiplication of items. Again, the items are presumably distinct, but there is no good way of telling whether they overlap, or in fact refer to the same thing. Finally, the items are extremely difficult to relate on the one hand, to human behavior, and, on the other, to policy.

In an attempt to introduce a somewhat more systematic treatment (but still within the armchair tradition) I conducted a preliminary Delphi (14) exercise, using twelve RAND staff as a panel. They were asked to judge three things concerning the nine factors listed above: whether the items were a) meaningful, b) measurable, and the relative weight of the factors for the quality of life of the average American.* They were also asked to add any new factors which they thought were significant.

There was good agreement that the items were meaningful, and good agreement that all were measurable except for Freedom, Novelty, and Aggression. There was considerable diversity on the values of the relative weights, but reasonable agreement on the ranking. In terms of proportionate parts of 100, the median relative weights were those in Table I.

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*The questionnaire used for this exercise is included as an appendix.

TABLE I

Median Relative Weights of 12 Respondents for Nine Factors in Quality of Life

Factor	Median Weight
1. Health	20
2. Status	14
3. Affluence	14
4. Activity	12.25
5. Sociality	9.8
6. Freedom	8.2
7. Security	8.2
8. Novelty	7.2
9. Aggression	6.1

As can be seen, the items break up into three main groups, (1) Health, (2) Status, Affluence, Activity, (3) Freedom, Security, Novelty, with Sociality midway between (2) and (3) and Aggression rather by itself at the bottom.

How much this table reflects the RAND environment, I don't know. I had intended to pursue the exercise for at least another round, feeding back the results of the first round to the panel for further consideration; but I gave up for two reasons: 1) no procedure suggested itself for dealing with the overlap problem. The clustering of 2, 3, 4 and 5, 6, 7 indicated they might be describing one single factor each. 2) No procedure suggested itself for dealing with the completeness problem.

The only two items suggested for addition by more than one member of the panel were sexual activity, and care of children (including education).

GENERAL CONSIDERATIONS

Without a good deal more empirical study than now exists, the armchair lists are probably only suggestive. However, they are in agreement on one general proposition: Whatever QOL is, it is determined mainly by some very general features of the individual and his environment, and not by specifics. What this means is that two different individuals who score about the same in a "factor space" should, for example, report about the same degree of contentment with their lot, irrespective of the special circumstances that make up the score. This is a very strong statement. Providing the factors are measurable, it is testable, and one of the problems to be tackled is how we can go about testing it.

A great deal of the issue is whether we are looking for a "single thing" that can be called QOL, or whether we presume it is a congeries of incomparable elements. There are several levels possible here: If we consider the factors to be—as Lynd (3) does—motivations, or forces, we can ask whether there are trade-offs among them. If so, there is a reasonable sense in which "equi-motivating" curves can be drawn and a general "desirability" index defined. A somewhat different notion is involved in use of terms such as "happiness" to describe an overall

"feeling-tone" to which the various status variables "contribute." A third point of view is that of the mental hygienist which apparently would include some notion of the effectiveness of the individual, as well as his "feeling-tone."

In the present discussion I vacillate between the three. My prejudices lead me to favor the mental health approach, but the difficulties of implementing this approach for purposes of systems analysis in domestic problems nudge me toward the simpler structures.

In addition to the very general postulate that QOL is determined by some highly abstract properties of the living space of the individual, there are two other propositions for which there seems to be a fair amount of evidence: The first is that the influence of factors on QOL are a rapidly decreasing function of distance away, either in space or time. The statement with respect to time is very similar to the notion of discount rate in economics. The opportunity of obtaining a dollar one year from now is much less motivating than the opportunity to obtain a dollar this afternoon. With regard to space, there has been a fairly rich experimental program with animals, and especially with rats, demonstrating the properties of what the psychologist Clark L. Hull called the <u>goal gradient</u>. If any of several indicators of motivation are employed (velocity with which the rat runs toward a goal, the physical tug the rat exerts against

a restraint, which can be measured by a harness and a spring balance, etc., the general relationship of this measure and distance from the goal is that of an exponential decrease (see Fig. 1).

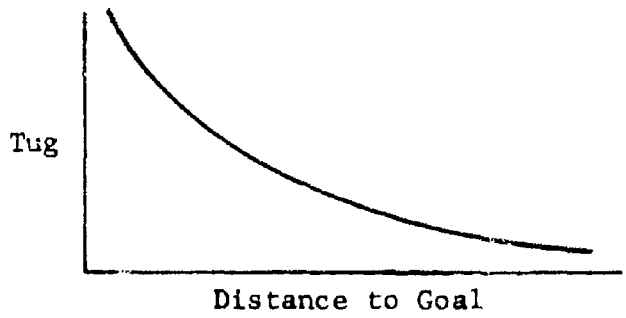

Fig. 1

One of the most beautiful sets of experiments in all psychology demonstrates the interaction of positive and negative goal gradients (11). In a given maze, the positive goal gradient, e.g., for food, can be measured. Suppose for the same maze, a negative goal gradient is measured, e.g., for an electric shock. The curve will again look like Fig. 1, except, of course, the effect is a push away from the "goal" rather than a tug. Now, suppose the rat is faced with the situation where there is food and an electric shock at the goal position. It appears to be the case that the decline of the negative "force" is more rapid than the decline of the positive force, hence the two curves will cross, as in Fig. 2.

The remarkable thing is that although

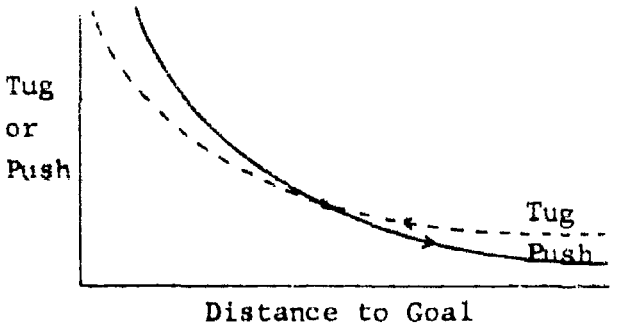

Fig. 2

the two curves were measured independently, when the goal is mixed, the rat will approach the goal until he reaches the crossover point, and then stop. If he is placed closer to the goal than the crossover point, he will retreat to the crossover and again stop. If he is placed precisely at the crossover, he will remain there. In short, the reality of the equality of the push and the tug is elegantly borne out.

Probably, even for rats, but certainly for humans, the goal gradient would need modification in terms of psychological distance, as well as physical distance; although it is striking that sheer physical distance appears to be sufficient for many psychological and sociological phenomena. In particular, Zipf (12) has found some surprising relationships between distance and social interactions.

The other general proposition is that human beings probably live much more "in the future" than lower animals. Hope, anticipation, ambition, aspiration level, anxiety, etc. are clearly important elements of QOL. But it seems reasonable

to assume that events of the distant future are much less influential than near events. It also seems reasonable that the "discount rate" depends on the kind of event and the amount of uncertainty surrounding it, I don't know of any experiments in which the time-wise goal gradient for animals has been systematically investigated, but it looks like a tractable subject.

SURVEYS

A somewhat more empirical approach is furnished by the cross-sectional survey. The two studies "Americans View Their Mental Health" (1960)(9) and "Reports on Happiness" (1966) (10) are among the more complete and recent such surveys. The procedure is reasonable, if a little uninspired. Lengthy interviews (of the order of two hours involving over a hundred questions) were held with cross-sectional samples of the population. Questions ranged from the subjective and global (Taking all things together, how would you say things are these days—would you say you're very happy, pretty happy, or not too happy these days?) to the objective and specific (About what do you think your total income will be this year for yourself and your immediate family? ... list of income brackets.)

Such surveys are subject to a host of well-known objections. These were recognized by the investigators, but, of course, are hard to deal with. It is difficult to check the reliability of verbal reports; they are hard to relate to behavior; subjective evaluations are subject to bias and cultural distortion, etc. In addition, the survey approach has very little in the way of conceptual framework to suggest hypotheses and structure the results.

Nevertheless the survey results are not empty. For one thing, they overturned several well-entrenched bits of popular sociology. A good example is the myth of the carefree bachelor. Standard lore has it that the single man enjoys his freedom, while the single woman is anxiously awaiting the loss of hers. Something like the opposite appears to be the case. The unmarried male is much more likely to rate himself as "not very happy" than the unmarried female.

An interesting result from the "Reports on Happiness" study is that a succession of events, some with positive and some with negative feeling tones do not smear into an intermediate shade of emotional grey, but make distinct contributions to a self-evaluation. Persons reporting being very or pretty happy are likely to report a greater number of both unpleasant and pleasant events in the recent past than those reporting being not very happy.

For those interested in urban affairs, the surveys raise somewhat of a puzzle. In comparing self-evaluations of urban and rural dwellers, no measurable difference could be found when respondents were matched for other obvious variables—age, sex, education, income, married or not. Admittedly, the measuring stick is crude, but at least the other variables mentioned did make a distinct difference.

A RESEARCH PROPOSAL

In this section a research proposal will be outlined that represents an attempt to be somewhat more systematic

in studying the quality of life than either the armchair or survey approaches. The pros and cons will be left to a later section.

The basic idea is quite straightforward, namely, to prepare a comprehensive set of scales relevant to the quality of life; let a large, representative sample of Americans rate thenselves on these scales via confidential interview; and employ factor analysis to summarize the interrelations between the ratings. With any luck at all, many of the factors derived in the analysis would be interpretable and could replace the armchair lists with something more solid. However, this felicitous result is not vital to the usefulness of the study.

The scales would consist of three sorts: a) relatively objective measures such as income, age, amount of communication with friends, etc., b) subjective ratings such as job satisfaction, perceived social status, degree of excitement in daily activities, etc., c) global subjective scales like happiness, amount of worry, number of times thought of suicide, optimistic about future, etc.

Since one expectation would be that the results of such a study would be relevant to policy in the urban and domestic areas, several blocks of scales should be allocated to issues directly involved in these, e.g., amount of time spent in parks and places of public recreation, satisfaction with neighborhood, amount of income from welfare payments,

and so on. In light of the large role that aesthetic and "cultural" considerations play in the deliberations of many urban planners it would seem reasonable to include a number of scales relevant to this dimension.

Obviously, one of the great difficulties with the study would be to include the "dark" areas—aggression, anti-social behavior, bigotry, and the like. The presumption that the quality of life is determined solely by "acceptable" items is, of course, false; but probably on a first go round, the dark items would have to be underemphasized. On the other hand, there is no reason to leave them out—the President's Commission on Crime (13) had no difficulty in pursuing the question whether respondents had committed one or more serious crimes. 90% had.

The most critical part of the study, and the one that would probably consume a majority of the elapsed time is the construction and selection of the set of primary scales. There is an essentially limitless potential set of such indices. A large proportion of the items could probably be derived from the extensive literature on sociometrics. The armchair lists can be used for some guidance. However, an intensive pre-examination by a panel of social psychologists would undoubtedly be required. In addition, several pilot runs to test the reliability and where feasible, the "validity", of the items would be needed.

An extremely useful substudy would be to combine the quality of life questionnaire with a personality inventory

and an intelligence test. The problem here would be to find a meaningful small group of respondents—it obviously would be of limited value to use only college graduate students.

The less difficult part would be conducting the survey and initial analysis of the data. The interviewing would doubtless be done most efficiently by one of the established survey groups, and computer routines exist to carry out the very large amount of computation required for the factor analysis. Summative analysis and drawing conclusions would certainly not be routine.

PROS AND CONS

There are a number of negative considerations with regard to the research proposal sketched above. All of the difficulties with using "verbal behavior" previously noted in connection with public surveys still apply. It is likely that some increase in reliability will accrue from the statistical aggregation in the factor analysis, but this is not a large effect compared with the questionable aspects of relying on verbal reports. In addition, it is easy to oversell the significance of factor analysis. The technique itself has some formal drawbacks—principally that it is not independent of irrelevant indices—and the question whether the derived factors are "real" or simply statistical artifacts is generally an open one. In the case of the quality of life analysis there is a form of internal

criterion of meaningfulness, in that it is possible to include a number of "global" scales, and the degree to which the derived factors can be used to estimate the global indices can be assessed. However, this internal criterion is of limited weight with respect to the question whether the derived factors are related to behavior or to the effects of varying the environment of an individual. There is, in fact, a nondismissable question whether all the analysis is doing for you is shortening your dictionary.

Not to be overlooked is the fact that a study of this scope would be expensive.

Despite these reservations, there are several reasons for urging that the study be undertaken. Above all, the factor analytic approach—whatever the ultimate significance of the derived factor structure—furnishes a systematic framework for tying together a vast amount of information about the perceived well-being of present day Americans. It should be a fertile source of hypotheses concerning the interrelation of various influences on the quality of life. It clearly is several steps beyond the armchair approach in both empirical content and in rationale for assessing the importance of various factors. (In this respect, "shortening the dictionary" has by itself a nontrivial payoff.)

The discipline imposed by the analysis on the basic scales should result in a much sharper set of measures. And, of course, one would expect to cut through at least parts of the great mass of common misunderstandings concerning the interrelations of these measures. There is a reasonable expectation that for many of the derived factors, there would be a high enough correlation with objective measures so that relating public programs to the quality of life could be accomplished via these indices.

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APPENDIX

MEMORANDUM

TO: List

FROM: N. Dalkey,

SUBJECT: "QUALITY OF LIFE" QUESTIONNAIRE

This is a preliminary exercise for a study in the methodology of identifying and assessing the factors involved in "Quality of Life." The follow-on will be relevant to investigations in the areas of Urban Transportation, Civil Order, Housing and Welfare, and other "domestic" problems.

There will be at least two rounds to the present exercise. The first will consist of filling out Questionnaire 1, below. For the second round, you will be furnished a summary of the results of the first round, and a request to take another whack at an amended questionnaire. Additional runs will depend on the apparent payoff after the second round.

In the Questionnaire there is a list of factors culled from the literature. The list is a composite of what various social scientists have considered basic and important in determining the quality of life (QOL). The items are quite abstract and suffer from a great deal of vagueness. However, for this exercise we have not attempted a sharp definition, but have appended a list of cognate terms much in the spirit of a thesaurus. You are being asked to assess each item on the list in terms of whether it is meaningful, important, and measurable. In addition you are being asked whether the list is complete, and if not to suggest further factors that are important, and to give a rough estimate of the relative importance of the factors in your expanded list. (Incidentally, this is not a search for moral judgments, but an attempt to identify those aspects of the social "condition" that play a major role in human affairs whether or not they are desirable. Hopefully, the factors are not products of a particular culture, but are ingredients in any.)

We are excluding from the list a large number of physical and biological considerations such as food, shelter and clothing, light, air, water, sex, stimulus,* and the like. The reason is not that these are not important—they obviously are—but for <u>most</u> of the items in the U.S., basic levels are pretty well guaranteed (the only individuals who die of exposure, e.g., are those who are either adventuring, or are the victims of rare accidents.) Clearly these items

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*In the sense that a minimal stream of stimuli is essential for proper functioning of the organism, as sensory deprivation experiments have demonstrated.

enter in a more subtle fashion at other than subsistance levels. Hopefully the list of factors given includes these additional roles of the biological items—e.g., health will include "proper" diet, novelty will include the effect of "heightened" stimulation, etc.

Proposed Factors Important in Quality of Life

A. Health. well being, longevity, survival.

B. Meaningful activity. employment, work, accomplishment.

C. Freedom. range of options, correspondence in time between interests and activities, leisure.

D. Security. stability, freedom from threat, peace of mind.

E. Novelty. variety, stimulation, excitement, richness of experience.

F. Status. influence, social standing, dominance, power, respect.

G. Sociality. affection, participation, mutuality, response, friendship, love, belonging.

H. Consumption. comfort, income, good things, wealth.

I. Aggression. self assertion, anger, release of frustration, competition.

In addition to these factors there is a global item that is usually given prominence:

Balance. coherence, self fullfillment, harmony.

In what follows we will assume (unless you object) that this element has to do with the relative weighting of the other sort of factors; i.e., it is a "second-level" consideration.

Instructions for Questionnaire

In the accompanying questionnaire,"meaningful?" involves two considerations: (a) is the notion sufficiently clear to be useful? and (b) is the item sufficiently distinct from the remaining items to be worth a separate listing? A "yes" answer means both, a "no" answer means one or the other doesn't hold.

The question "measurable?" refers to whether the item is a quantity (or is related to a quantity) that admits of a scale. A "yes" answer is acceptable here, even if you do not have a suggested scale if, in your judgment, a scale is possible. "Suggested scale(s)" refers to quantities which are clearly measureable and which, in your judgment are sufficiently closely related to the factor in question to act either as direct measures, or as useful stand-ins.

"Relative weight" refers to the comparative importance of the factors for an "average American citizen"--not how important he perceives it, but how important it actually is, in your judgment. It is clear that at least some of the factors may have an over-riding importance under some circumstances, e.g., the situation of complete deprivation. An individual close to death may consider health absolutely dominant; an individual in a situation that is utterly lacking in novelty may find the escape from boredom overpowering, etc. At some later iteration, we may want to explore these limits. For the time being, we are only exploring the trade-offs in the area of some "representative" situation. If the notion of an average or representative situation escapes you, use your own trade-offs. Answer this part of the questionnaire after you have added further factors that you think are important, or after you have decided that none need be added. The relative weight should be expressed by allocating some part of 100 to each factor. The relative weights should add up to 100. (The miscellaneous "other" factor is included to indicate that you feel something is missing but not identifiable.) You may want to give a zero weight to factors that you have assessed meaningless.

The blanks K, L, M have been left for additional factors that you think important.

You need not sign the questionnaire. All we ask is that you remember your identification mark so that we can correlate answers on the two rounds.

Name or Identification _____

QOL: Questionnaire I

Factor	Meaningful?	Measurable?	Suggested Scale(S)	Relative Weight
A. HEALTH				
B. ACTIVITY				
C. FREEDOM				
D. SECURITY				
E. NOVELTY				
F. STATUS				
G. SOCIALITY				
H. AFFLUENCE				
I. AGGRESSION				
J. OTHER				
K.				
L.				
M.				
X. BALANCE				