

A MULTIDIMENSIONAL SCALING ANALYSIS OF ASCRIPTIVE AND
TESTIMONIAL CONCEPTUALIZATIONS OF "QUALITY OF LIFE"

by Paul de Lotbinière Harwood

Thesis presented to the Faculty
of Psychology of the University
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of the requirements for the
degree of Doctor of Philosophy.



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ABSTRACT OF

A Multidimensional Scaling Analysis of Ascriptive and Testimonial Conceptualizations of "Quality of Life".¹

The study is an attempt to ascertain conceptualizations of "Quality of Life" (QOL) in the public mind. The development of a comprehensive conceptual model is viewed as an empirical base and a prerequisite for subsequent valid measurement of the QOL domain. Three conceptual approaches were reviewed: ascriptive (objective, social indicator, in vitro) models; testimonial (subjective, survey, in vivo) models of perceived QOL; and importance (hierarchical or value) models.

Hypotheses in this exploratory investigation were in the form of postulated dimensions within two representative models: the three-dimensional Economic Council of Canada (1971) model (Social, Political and Economic) and the five-dimensional Dalkey (1972) model (Security, Comfort, Novelty, Achievement, Dominance). In order to determine whether these configurations are valid, i.e., exist in the public mind, the dimensions necessary to define QOL were obtained from the respondents, and compared with the postulated dimensions.

A rapprochement between strategies was sought by showing the congruency between these "expert" and "popular" views. Implications concerning whether or not existing QOL components are articulated by citizens, whether their conceptualizations

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are reflected in actual value hierarchies, and whether there are common, basic reference points in both conceptual and value space, were examined. In addition to these specific contributions, the study is conceived of as policy research which seeks to provide empirical input into the decision-making and policy-formation process. Implications for the objectification of policy, in terms of increased problem visibility, are discussed.

The sample consisted of 150 graduate level teachers who responded to three sets of rating scales for both the ascriptive and testimonial parts of the study. The methods involved the pair comparison technique for similarity judgments, and priority rankings in terms of both absolute and relative importance of the QOL items. Construction of testimonial items was achieved by using independent judges for categorization. All possible pairs of ascriptive (n=20) and testimonial (n=10) items were randomly presented for similarity rating: a nine-point importance scale was used for priority ranking. A non-metric multidimensional scaling routine was used, along with a principal axes factor analysis and factor matching program. Comparisons between the scaling and factor structure in both data sets were undertaken to illustrate important differences between them.

The results indicated that, in the ascriptive mode, respondents perceived QOL in three dimensions which were largely uninterpretable, but approximate a personal/collective structure.

In the testimonial case, a unidimensional structure - Comfort - was found, substantiating one of the original hypotheses. Seven ascriptive factors were found, which included Political and Economic, suggesting some agreement with the original model. Two testimonial factors - Security and Economic - strengthened the commonality of an economic component in QOL. The Health component was consistently of highest priority; when items common to both approaches were considered, the hierarchy for this sample was Freedom, Education, Employment.

These results compared favorably with several of the studies reviewed. Suggestions for future research were made in the context of improved policy-making. A multi-phasic, systematic research program was proposed, consisting of large-scale conceptualization and measurement studies, followed by multi-level comparisons, prediction of social change (inferring social trends), and QOL optimization using simulation and social experimentation.

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CURRICULUM STUDIORUM

Paul de Lotbinière Harwood was born on August 17, 1946 in Montreal, Quebec. In 1967, he received the Bachelor of Arts degree in Biology-Chemistry (Pre-Medical) from Loyola College, Montreal. He completed a qualifying year in Genetics at McGill University in 1968, and in Psychology at Loyola College in 1969. He received the Master of Arts degree in Psychology (Clinical) from the University of Ottawa in 1973. The title of his Master's thesis was Construct Validity of Rorschach Animal and Popular Hypotheses.

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INTRODUCTION

What is "quality of life"? The phrase has currently received much attention from diverse quarters of society: the media, policy-makers, citizens in several roles. Is the concept merely a catchword or cliché, about which one can only say that it differs for people in various socio-economic levels? The reader has no doubt observed references made to "quality of life"; rarely do definitions agree, and seldom does one hear of more detailed description. Can "quality of life" be measured, can it be changed, and how so?

These questions have lately been answered by two bodies of social scientists: economists who prefer to devise econometric models emphasizing measurable aspects of the system of goods and services, and a diffuse body of sociologists, psychologists and philosophers who introduce a distinctly human or subjective element into their investigations. The first approach, which is here named "ascriptive", reflects the views of "experts" who seek to create a model conforming to institutional realities, by using social indicators as reference points in their frameworks. The second "testimonial" approach is concerned with how individuals perceive QOL in terms of their subjective experiences, and deals with components not yet fully exploited by policy-makers, such as family life, social acceptance, the needs for freedom and privacy.

The controversy over the merits of both schools continues with little apparent or overt rapprochement. There is

a desperate need for this integration at an applied level. One way of attaining some measure of unity is by inviting the public, which is affected by decisions based on national priorities and goal systems, to articulate its views. The value of this input for deciding policy questions cannot be underestimated, given the current state of policy formation: centralization, lack of background data on several issues, the substitution of intuition and informal guesswork for scientific data, financial restraints on applied policy research, and so on.

Several studies have been underway in the U.S. and elsewhere, attempting to answer these urgent questions. It is the author's opinion that these analyses must be duplicated within and adapted for the Canadian context. At least the basic groundwork deserves completion, before the numerous objections and political difficulties can be addressed. QOL research is a new, far-reaching enterprise, with abundant promise for the application of psychological knowledge: clinical insight, theories and tools. Policy research and policy science have also emerged as new multidisciplinary forums for resolving social problems and issues. The cross-fertilization of these two courses of endeavor can result in significant, original ways of conceiving problems such as labour strikes, inflation, unemployment, etc., at all levels of government.

The present research is directed at evaluating QOL models, as well as discovering the latent organization of QOL components for a limited sample of Canadians. It represents a highly exploratory analysis of the first stage of a program, providing insights into subsequent stages: QOL measurement, prediction and optimization. The study is exploratory because of the nature of the sample, and financial and temporal limitations. The methodology involves multidimensional scaling, a relatively recent innovation which is especially applicable to data of unknown structure such as QOL conceptualizations. If the work appears repetitious or inconclusive at times, the reader will note that several points deserve re-emphasis, and that definitive conclusions have a higher probability of being produced in well-funded, large-scale multidisciplinary efforts. These caveats need not detract from any evaluation based on the total gestalt or policy context in which the investigation is set.

The first chapter contains a review of the literature, wherein the hypotheses to be explored are set forth. Several examples of ascriptive, testimonial and importance models are reviewed, including a discussion of their advantages and disadvantages. The broader purposes and contributions are stated succinctly at the closing of the chapter.

Chapter two presents a description of the sample, the questionnaires and their design, the comparisons made and

statistical methods used in the analysis of the data.

Results of these analyses are provided in chapter III, and are interpreted and discussed in relation to previous research in chapter IV, along with a systematic series of further research suggestions.

CHAPTER I

REVIEW OF THE LITERATURE

This chapter presents the review of the literature. Section 1 begins with a consideration of some theoretical definitions of Quality of Life (QOL). This is followed by a review and comparison of several existing models in section 2. The theoretical relevance of this investigation for a conceptual model of QOL in the public mind, based on refined statistical techniques, is then discussed in section 3. The chapter concludes with a statement of the purposes in section 4, and the specific problems to be investigated in section 5.

1. The Quality of Life (QOL) Concept.

Much has been written concerning the concept "Quality of Life", principally in terms of definition, and more recently QOL measurement. The phrase has received attention as an alternative to viewing the level of general welfare in society in terms of purely economic or demographic indicators, for example, the gross national product. In some cases, it represents an attempt to place more emphasis on the social and possibly psychological aspects of well-being.

A great deal of controversy has recently been generated on the nature, meaning and definition of this construct and related issues, such as social indicators. Alternate terms

for QOL have included welfare, well-being, human resource development, levels of living, standards of living, etc. (Harland, 1972). QOL has been defined as "...the totality of those goods, services, situations and states-of-affairs which are delineated as constituting the basic nature of human life - the essential properties of life which are articulated as being needed or wanted." (Harland, 1972, p. 17) Bossard (1927) has considered adequacy of income, condition of bodily health and state of mind to be the prime reference points of QOL. The foundations of social well-being were viewed as identical with the bases of individual well-being.

Liu (1974a) has considered QOL as a concept which varies across time, place and individuals. It is defined as the output of two aggregate input factors: physical (quantifiable goods, services, material wealth, etc.) and spiritual ("nonmeasurable" psychological factors such as community belongingness, esteem, self-actualization, etc.) Essentially an economic model which allows that there may be as many QOL factors as there are people, it is symbolized as follows: (Liu, 1974a, p. 133)

$$QOL = f(PS, PH)$$

$$PH = f(S, E, P)$$

$$S = f(IS, IE, LC)$$

$$E = f(ES, TD, AP)$$

$$P = f(HW, ED, SG)$$

PS and PH are psychological and physical inputs, respectively. The latter is comprised of S (socioenvironmental), E (economic) and P (political) components. S includes IS (individual status), IE (individual equality), LC (living conditions). E is composed of ES (economic status), TD (technological development), and AP (agricultural production), while P is a function of HW (health and welfare), ED (educational development), and SG (state and local government).

Liu (1975a) summed up the model by noting that it "...reflects a combination of the subjective feelings and objective status of the well-being of people and the environment in which they live at a particular point in time." (p. 2). His work is more fully described in the next section.

Maslove (1975), however, has made the point that we do not yet have at our disposal any viable social system theories within which a QOL model (such as Liu's) would fit adequately. In this connection, Bunge (1975) states that a reasonably defined theoretical model (or science) of well-being does not yet exist:

Since no such thing has been constructed so far, we are forced to use our treacherous common sense to an extent that is uncommon in science. Which is a polite way of saying that, so far, the study of the quality of life has not been thoroughly scientific. This observation is not meant to disparage the extremely important field of quality of life research, but rather to stress the need for more

theoretical work there. One should be able to build a model, or at least a theoretical framework, within which discussions of well-being (or quality of life) could be conducted in as exact a manner as the engineer studies the performance - optimal, satisfactory, or defective - of a machine or a factory. So long as no such framework is available we shall continue to argue about the quality of life and its indicators guided only occasionally by expert knowledge... For example, how are we to evaluate the contention that no well-being is conceivable for anyone without a car and a couple of hours of TV a day? (p. 75-76)

The defining properties of QOL (welfare commodities or social goals) comprise goods, services or situations that are implied in nominal definitions. These may include social goals such as job satisfaction, adequate housing, or other less complex indices such as the percentage of unemployment or the cost of living index. Approaches to defining QOL such as these constitute the social indicator movement (Wilcox et al., 1972; Henderson, 1974). A number of indicators or indices, believed to represent the salient aspects of QOL are listed and defined, and measures are proposed. The social indicator approach seeks to isolate, define and measure the weighted components of QOL, using the relatively objective and technical concepts of economics, and to forecast and monitor them according to preconceived standards. These standards represent the output of attributive processes. Often, the criteria used to identify the QOL variables are vague, or simply stated in terms of "generalized government activ-

ities" or departments (e.g., Dillman and Christenson, 1971). Reasons for adopting these criteria center on the designation of items which encompass both current and potential government programs.

A social indicator may thus be defined as "...a statistical proposition about the quality of a person's life, based upon the measurement of an operational definition of a basic/essential need or want." (Harland, 1972, p.79) These time-series social statistics describe general welfare measured in terms of commodities, within a social system model which may have a mathematical form (Land, 1971). QOL may then be considered as a master social indicator, a theoretical construct reflecting numerous subindicators, forming a complex multivariate model (Stanford Research Institute, 1961).

It is important to note that the statistics generated by the various agencies are based on an ascriptive selection of indicators, often by a committee of experts, often primarily composed of economists and those from the public sector. There is no degree of direct consultation with the public, either individuals or groups such as communities, in the form of a survey of opinion as to what should be considered as part of "Quality of Life". QOL is broadly conceived of as a bank of separate yet interlocking indices, advanced operationally by

consensus decisions of several policy planners, or developed through reviews of currently used indicators. The measurement of QOL in this approach is given precedence over a detailed examination of the meaning of the term in the minds of the planners, and more importantly, in the minds of those who are ultimately affected by these policies.

Christian (1974) has further delineated the methods used in defining and choosing QOL components ascriptively. They include (1) theoretical: hypothesizing a hierarchy of needs and values; (2) intuitive: "everyone knows what ends are the most important"; (3) political: the judgments of government officers; (4) analytic: reviews of the literature, space devoted to various problems in the news media and/or parliamentary debates. (p. 179)

In contrast to these objective conceptualizations of QOL are other approaches which are social psychological in nature, and which emphasize the multidimensionality of QOL from a different angle. Recognizing that QOL means different things to different types of individuals, this "testimonial" or in vivo approach treats QOL subjectively. Perceived QOL is determined by an individual's "life perceptions", or sources of identity, such as work, family, community and recreation (Burke et al., 1972a). Personal characteristics, behaviors and perceived outcomes in life situations may be included. In contrast to the social indicator doctrine, which

seeks to define the weighted statistical components of QOL, the behavioural position underlines personal experiences which comprise QOL. Values, satisfaction, needs and wants replace the objective standards from the data banks of government census bureaus. Surveys of the attitudes and perceptions of a population are used either to define social concerns (the basic elements of well-being), or , more recently, to gauge the levels of satisfaction in each concern.¹

The relative merits of both the ascriptive and testimonial strategies will be examined in section 3, as these questions relate to the aims of this study. In the following section, the seminal examples of research in all three types of models (ascriptive, testimonial, and importance) are presented. As the salient works relating to the ascriptive approach demonstrate many similarities, only a sample of models is considered, which cannot be viewed as exhaustive.

2. Review of Existing QOL Models.

(a) Ascriptive models.

Perhaps the most comprehensive framework, which could encompass all or most of the other lists, is the scheme of goal indicators proposed by the Economic Council of Canada (1971). Under the specified dimensions (Political, Economic

1. The latter involves QOL measurement, with which the present investigation is not directly concerned.

and Social), a group of QOL components is listed as follows:

I. Political

A. Individual Rights and Responsibilities

1. Basic freedoms:

- a) expression (religious, political,
cultural, conscience)
- b) privacy and silence
- c) assembly and association

2. Legal rights:

- a) equality before and under the law
- b) security of life, freedom and property
(public safety, consumer protection)

3. Political and participatory rights and responsibilities:

- a) electoral rights (information, recourse)
- b) participation in public decision-making

B. National Identity

1. Domestic affairs:

- a) protection of group rights (regional
ethnic, language, democracy)
- b) self-determination (economic, cultural,
political)

2. International relations

- a) territorial integrity
- b) international cooperation (economic,
political)

II. Social

A. Health

1. Longevity/morbidity

- a) physical
- b) mental

B. Command over knowledge and skills

- 1. Education
- 2. Research

C. Natural Environment

1. Air

- a) noise
- b) atmosphere

2. Water

3. Land

- a) parklands
- b) surface and subterranean

D. Man-Made Environment

1. Population
2. Public services:
 - a) transportation
 - b) communication
3. Shelter
4. Leisure facilities:
 - a) cultural
 - b) recreational
5. Discretionary time

III. Economic

A. Final Goods and Services

1. Inputs:
 - a) human resources
 - b) non-human resources
2. Efficiency
3. Outputs

An examination of the above model (Economic Council of Canada, 1971, p.69) indicates that the components are generally socio-economic in nature. A concern which is even reflected by the Council is that they do not fully or adequately represent many of the major dimensions of the social system (Economic Council of Canada, 1974, p.7). While acknowledging that the indicator framework must be extended, the Council does not elaborate in detail on the nature of the elements that will ultimately need to be incorporated. A broader framework than this is needed to comment on "... the ultimate ends of the socio-economic activity of the nation, the means to achieve these ends, and the degree to which they are being achieved." (Economic Council of Canada, 1974, p.7). "Socio-economic" refers to the "combined social, political,

economic, environmental and technological aspects of society." (Economic Council of Canada, 1974, p.7). No attempt is made to include distinctly "personal" elements and designate them as independent reference points.

The economic aspects of the model are more easily comprehensible and measurable; they are comparatively straightforward and are said to have more relevance to policy formation (e.g., investment prospects) than person-oriented indicators. Knowledge of variables associated with changes and differences in inputs and outputs of these economic indicators makes them more useful and amenable to policy decisions, than for example does knowledge of the quality of family life, social relationships, and other psychological variables. This appears to be the present orientation of the policy-making body, at least in this context. The social system is treated by the Council in an integrated way, as the goal indicators do in some sense represent an overall model or theory of the social system, although perhaps not as comprehensively as other attempts. (e.g., Parsons et al., 1961).

The "personal" components of QOL are alluded to, however; the Maslowian hierarchy of needs (from survival to self-actualization) is noted. Complex psychological needs are seen as "basic goals", the latter defined as "...general aspirations upon which a large degree of consensus can often

be reached..." (Economic Council of Canada, 1974, p.8).

The degree of well-being (QOL) is determined by the extent to which these "basic goals", as well as material and socio-cultural needs of society are met.

Accordingly, in the Eleventh Annual Review, what were considered as goal areas in the Eighth Annual Review become "areas of concern". This may also reflect a coming emphasis on what are sometimes referred to as the "softer" (subjective) issues.

In addition, the Eleventh Annual Review does recognize the existence of another category of indicators which it terms qualitative or subjective. These pertain to the views of individuals regarding the "...state of, or changes in, various areas of concern, and what the aspirations and expectations of these members of society are with respect to the evolution of these areas; such measures can be derived from attitudinal surveys, psychological studies, and the like. (Economic Council of Canada, 1974, p. 12-13). Two points are noteworthy here. First, the "subjective" elements are not found in the list of areas of concern, and are considered outside the domain of the Council's quantitative orientation. The objective areas of concern are included in the model because they appear relatively uncontroversial.

Perhaps this is because the perceptual QOL indicators are viewed not as an end in themselves, but as a means of in-

interpreting the objective QOL models. Henderson (1974) alludes to the greater policy impact of an abbreviated, objective body of data:

Comprehensiveness is required by those analysts who do the detailed designing and monitoring of policies and who therefore need a full range of input and output data, but political decision-makers have no time for this level of detail and would often prefer to depend on a select number of key measures to aid them in their decision-making. (p.43)

Yet by choosing indices that are more obvious or easy to monitor, there is a danger of neglecting equally important (perceptual) components which may not yet have been satisfactorily quantified. (Maslove, 1975, p.5)

The tri-dimensional division of areas of concern in the E.C.C. model is believed to conform to institutional realities in order to permit better correspondence with ongoing policy formation. It is then significant to note that the more abstract issues to be dealt with in other studies (see below) do not yet play a major part in the social decision-making process. Furthermore, the question may be asked, is the three-dimensional representation paralleled in the mind of the public which is served by these institutional realities? The item "participation in public decision-making" suggests that it should be.

The second point implied in the recognition of subjective QOL components is the usefulness and importance of an

empirical approach toward conceptualizing QOL. The Council statement admits that its model is the consensus result of an implicit choice of particular areas for attention. Assuming this model to be satisfactorily representative, the public at large can then be asked to comment on the chosen areas of concern in terms of normative preference or priority judgments; these evaluations become authenticity or sufficiency indicators. They show how people feel about various aspects of the social system, and aid in the normative interpretation of quantitative indicators, suggesting whether the value or the change in the value of the indicator should be viewed as "good" or "bad". A further impact of the social evaluation of areas of concern is the establishment of appropriate trade-offs, from the public's viewpoint, between conflicting objectives. For example, when does the economic well-being of a community which is adversely affected by environmental pollution become less important than physical well-being?

There are several other relevant models of QOL which can be briefly considered in this section, in chronological order. They may be compared to the E.C.C. position primarily in terms of the nature of their components.

The U.N. Food and Agriculture Organization (1949) has listed seven components of levels of living: health, income and consumption, work conditions, literacy and skills, social adjustment, individual security, beliefs, customs and stand-

ards of behavior.

A second report (United Nations, 1954) considers the following factors as encompassing QOL: health (and demographical conditions); food and nutrition; education; work conditions; employment; aggregate consumption and savings; transportation; housing; clothing; recreation and entertainment; social security; human freedoms.

The Science Council of Canada (1968) has included national prosperity; health; education; leisure; world peace; the environment and freedom (security, unity) as aspects of QOL.

The U.S. document Toward a Social Report (1969) views QOL as being comprised of seven areas: health, social mobility, physical environment, income and poverty, public order and safety, learning, science and art, participation and alienation.

Kamrany and Christakis (1969) have enumerated eleven socio-economic parameters defining QOL, without specifying any dimensions: culture, economics, public safety, education, employment, health, legal justice, social security, recreation, transportation, environment and housing.

Jones and Flax (1970) incorporate the following items in their conception: income, unemployment, poverty, housing, education, health, air pollution, public order, traffic safety, racial equality, community concern, citizen participation, and social disintegration.

A literature survey by Becker and de Brigard (1970) yielded twelve indicators: housing, health, public utilities, transportation and circulation, recreation, conservation of natural resources, educational opportunity, social services, culture, local government, and interpersonal (communication) indices.

Harland (1972) has used the following points of reference: culture and demography, economics (income), education, employment, environment, health, housing, legal justice, public safety, recreation, social security, transportation and communication.

The U.S. Office of Management and Budget (1972) has included income, education, employment (opportunities and satisfaction), health, housing, physical environment, recreation, public order, legal justice and transportation as QOL factors.

The Organization for Economic Cooperation and Development (1972) suggested fewer areas: health, time/leisure, physical environment, "institutional environment", objective and perceived command over goods and services.

Henderson (1974) has elaborated on the E.C.C. model by delineating several aggregate areas of social concern, falling within three basic goals. "Material well-being" contains the areas of health, housing and transportation, including income. "Socio-cultural well-being" includes the E.C.C.

components of communication, environment, privacy, leisure, employment and public safety. The third goal, which is concerned with "Equity", includes all factors affecting the distribution of material and socio-cultural well-being. Extending this model to encompass the remaining E.C.C. items would place absence of discrimination, freedom of expression and education under socio-cultural well-being, and population density, property, legal and electoral rights under material well-being. Consumer protection would logically be included here, while national identity and international cooperation would be found under socio-cultural well-being.

Sheldon and Land (1972) have developed a very comprehensive ascriptive model which incorporates qualitative variables. Socio-Economic Welfare (I) includes population, employment, income, knowledge and technology, education, health, leisure, public safety, legal justice, housing, transportation, environment, social mobility and stratification. Social Participation and Alienation (II) includes family, religion, politics, voluntary associations, and alienation. The three remaining dimensions are Use of Time (III), Consumption Behavior (IV), and Aspiration, Satisfaction, Acceptance, Morale, etc. (V).

Christian (1974) includes thirteen areas which form the OECD's list of social concerns, all of which are found in the E.C.C. model. Their general headings comprise health, education, employment, leisure, income, consumer protection,

housing, environment, culture, social opportunity and participation, and a group of concerns including public safety, legal and property rights.

Within the context of Canadian society, a highly promising source of data on QOL is the recent publication entitled Perspective Canada (1974). This document represents a major quantitative breakthrough for the social indicator approach, containing an impressive array of needed social statistics. It is a statistical portrait of the Canadian people, their activities and their environments. The QOL components (issues) contained in the report were selected using criteria similar to those in the E.C.C. model: measurability, relationship to institutional realities, utility in forecasting and monitoring social programs. These criteria were reached by the ascriptive consensus of experts.

The issues encompassed are: population growth, distribution and composition, family formation and composition, health, education, allocation of time, work, income, consumption of goods and services, quality of the environment, housing, bilingualism, native peoples, cultural diversity, criminal justice.

Another pertinent example of the ascriptive approach is Alcock's application of QOL data for classifying societies (Peredo, 1974). Several QOL components - although they are not conceived as such - are used for comparing nations in terms of

their standing on these issues. They comprise civil violence, health and education, equality, press freedom, internal security, military imperialism, political imperialism, economic imperialism, world order, international cooperation, power, GNP per capita, domestic, international and total compassion. The latter denotes operationally defined measures of the way in which a nation performs in its internal policies and the profile it offers to the world as a whole. The first five items show whether a country is "good" or "bad" to live in.

Liu (1975a,b) has carried out a massive study at the Midwest Research Institute (see also Time, Sept. 29, 1975). His model is 5-dimensional, containing 16 basic components which are aggregates of 123 indicators. Individual Economic Well-Being (I) includes personal income indicators. Environment (II) deals with pollution and recreation areas; Political (III) is defined by the E.C.C. components of communication, electoral rights, property rights and public safety. Health and Education (IV) is explanatory; the Social dimension (V) contains indicators relating to employment, population density, discrimination, housing, transportation, leisure and culture. These measures of "quality of life" were programmed for 243 metropolitan areas; each of 65 cities was scored on all 5 dimensions, and ranked in 5 categories: outstanding, excellent, good, adequate, substandard. This approach is be-

coming popular as a first step towards identifying problem areas, and one can foresee a similar application in Canada.

A final example of ascriptive models is that of Foster and Corbeau (1975). From previous work, 16 factors were selected, which correspond to 9 E.C.C. areas: public safety, health, education, environment, population density, transportation, leisure, housing and cultural activity. As the study deals with industrial location decisions of Canadian firms, these components were judged to be central to this issue. Several thousand firms were required to rate the importance of the QOL items in several ways; these results will be summarized later.

To summarize, the preceding sample of ascriptive models epitomizes a pattern of theorizing about QOL, for which the E.C.C. framework has been chosen as a Canadian prototype. Several items can be constructed from it, adequately encompassing the postulated QOL domain described by other models. These will be elaborated in the following chapter.

b) Testimonial models.

The alternatives to the ascriptive approach are not yet typically found in the sphere of large-scale, long-term decision-making. These options are the testimonial models; they may be examined with respect to QOL measurement, dimensionality, and attitudes and values.

Burke et al (1972a) have developed a subjective, person-centered model of QOL, principally within a measurement framework. Perceived QOL (PQOL) is defined in terms of four dimensions: work, family, community (friendships) and recreation. Each may affect the total QOL experience. These four contexts were derived from an interview study in which the aim was to estimate the relative importance of QOL experiences. The latter include growth, mastery, involvement, self-control, stimulation and satisfaction. Experiences occurring across contexts were analyzed in terms of "personal worries" and "social worries".

A 471-item questionnaire was constructed (Burke et al, 1972b), using items selected from relevant scales previously used in similar research. Successive administrations of the scale led to a conceptual model based on four meta-concepts, to which a larger number of sub-concepts could be linked. These categories were designated as: personal characteristics, behaviours, objective outcomes and perceived outcomes.

Burke's measurement strategy exemplifies an approach using ascriptive items (from the literature, personality tests, etc.) which were successively revised via data yielded by the responses of individuals. An example is given of an exploratory scale with the form of an overall QOL checklist. Adjectives reflecting Ss' feelings about their lives were subjected to factor analysis.

Two subscales from the original questionnaire serve to illustrate the approach towards conceptualizing QOL followed here. The first consists of 15 items, emphasizing personal needs: "having good health", "plenty of money to get what I want", "enough money to meet emergencies in the future", "a regular job", "an opportunity to use many of my skills", "making maximum use of my abilities", "being able to respect myself", "being able to manage my own life", "having important goals in life", "helping other people", "developing close relationships with others", "making this a better world to live in", "gaining the respect of my friends and family", "getting along well with my family", "finding life challenging and exciting".

Another list of 21 items, referring to "Worries about Society", deals largely with social issues: unemployment, strikes, role and size of unions, permissiveness regarding criminals, organized crime, amount of violence, personal freedom, civil liberties, racial discrimination, status of women, immigration policy, overpopulation, youth, generation gap, drug use, inflation, cost of living, power of large corporations, safety on the streets, natural resources, sex attitudes, Quebec separatism, Americanization of Canada, where the country is going, world disasters, wars, etc.

These QOL components are largely of a more personality-oriented or situation-specific nature than the socio-economic

lists previously reviewed. Although no characteristic dimensions are given, both psychological and socio-economic factors can be extracted by inspection. Within the above lists, eleven factors can be delineated: health, income, employment, social security, environment, political, population, discrimination, youth, challenge and freedom/respect. A brief comparison with ascriptive inventories shows a lack of several main factors such as education, housing, legal rights, transportation, communication and leisure. These are replaced by such items as "challenge".

It is evident that confusion exists between what can be considered dimensions or factors, and the items that these represent. In addition, any projected measure of QOL - the chief purpose of Burke's attempts at conceptualization - should ideally be derived from the most exhaustive group of items or dimensions of items as possible. The question can be phrased: does a QOL measure which fails to incorporate educational elements, for example, or even concepts such as "challenge" adequately tap all areas of potential utility for decision-making directed at optimizing QOL?

The earliest U.S. prototype of the direct, testimonial approach is that of Dalkey et al. (1972). In this work, the emphasis is on the conceptual multidimensionality of the QOL concept, rather than measurement of satisfaction levels. QOL

is defined as "...a person's sense of well-being, his satisfaction or dissatisfaction with life..." (p. 58). Within this viewpoint, one conceptual model which is a good example of the testimonial methodology, was developed as follows. A sample of 20 individuals was requested to list from 5 to 10 items considered important for the assessment of QOL ("the characteristics or attributes of those events having the strongest influence on determining the QOL of an adult American", p.58). The 250 items were sorted into 48 categories of similar items. Similarity ratings were subjected to a hierarchical clustering procedure which yielded 13 supercategories. These comprised: novelty, peace of mind, social acceptance, comfort (leisure, good health, economic well-being), dominance (control), challenge (including educational opportunity), self-respect (security), privacy, involvement, friendship (communication, tolerance), achievement (job satisfaction, status), freedom (individuality) and sexual satisfaction (p. 65).

These components can be collapsed by inspection into basically five dimensions of perceived quality of life or well-being: Comfort, Security, Achievement, Novelty and Dominance. As Dalkey's study epitomizes the testimonial strategy, these dimensions will represent the postulated "hypotheses" to be investigated empirically within the present study. In his model, Dalkey emphasizes QOL factors that are relevant and

important to the well-being of individuals, rather than prescribing what is socially good (an allusion to the ascriptive position). The stated assumptions of this model can be briefly summarized as follows:

An event is assumed to be characterized (among other things) by a number of properties to be called qualities that are scalable, and that are directly relevant to the QOL of an individual. These qualities need not be apparent to the individual, but some may be. However, perceived or not, it is assumed that the location of the event in the quality space determines its contribution to the well-being of the individual. (Dalkey et al., 1972, p. 93)

The most definitive work to date on subjective QOL factors has been done by Andrews and Withey (1974a, 1974b). Their model comprises two dimensions: values (or criteria), such as achieving success, safety and fun; and domains (or role-situations), such as job and family life. The sum of all possible interactions between criteria and domains is the individual's general affective evaluative response to life, i.e., perceived quality of life (PQOL).

The elements of this matrix (QOL components) were obtained from previous studies, value inventories, national and international bodies, as well as taped interviews from a small sample. By ad hoc clustering, 800 items were reduced to 123. The authors first mapped the relevant domains by using a 7-point satisfaction scale which was given to 1297 adults. They selected 8 demographic variables and 10 subgroups. Both cluster analysis

and Guttman smallest space analysis were used to obtain the major QOL domains. Validity and reliability were approximately 0.80; social desirability accounted for 5% of the variance.

The analysis produced 34 clusters, which could be organized into 3 QOL dimensions, according to social distance from self. Those concerns Close to Self (I) included Self, Spouse, Children and Family, specifically the following 20 items: family relations, self adjustment, virtues, own education, religion, health, leisure, respect, acceptance, independence, marriage, children, imagination, safety, mobility, treatment, relatives, traditions, accomplishment and beneficence. Concerns Far from Self (II) dealt with Government, specifically 6 items: national government, local government, taxes, media, societal standards, weather. In Between items (III) dealt with Job, House, Friends and Neighborhood, in particular 8 items: friends, getting a job, job, money, house, community, services, recreational facilities. (Andrews and Withey, 1974a, p. 10). A factor analysis produced 14 factors which coincided well with the clusterings. Results in all cases were found to be highly replicable across several national samples and within different subgroups of the population, for example, sex and age groups, and socio-economic groups. Multitrait-multimethod validity studies showed that the scale used accounted for 75% of the valid variance, while 10% was methods variance and 15% other variance.

It is interesting to note that, of the 34 elements in the three-dimensional model, 25 can be considered truly subjective or experiential, while 9 are objective-type elements found in ascriptive tabulations. Most items are contained in the two testimonial models previously reviewed.

Having proceeded from an empirical method of conceptualization towards measurement, the authors then ascertained which of the 34 factors would best predict global QOL; i.e., "...how well affective responses to different domains, taken together, (could) explain a person's sense of overall life quality..." (Andrews and Withey, 1974b, p.16). The best objective predictors, shown through least squares regression and multiple classification analysis, were income and housing. The best subjective predictors were "personal efficacy", family and leisure. It is noteworthy that these items all refer to concerns close to self and home. While several hypothesized interactions were studied here, for example, between health and satisfaction with other QOL elements, it was found that the specific concerns selected for analysis were not as important as the range of areas covered. When policy relevance was used as an additional criterion, the 12 best predictors were Self, Family (2), Income, Leisure, Time (2), House, Government, Job, Health, Goods and services. The authors concluded that the model is descriptively powerful, as well as enabling adequate representation of the full range of concerns relevant to QOL.

The fourth important body of QOL research dealing with subjective indicators in a testimonial approach is that of Campbell et al (1975), and Rodgers and Converse (1975). A total of 2134 respondents were required to rate global QOL on 10 semantic differential scales. Ratings were also obtained for 14 QOL domains on a seven-point satisfaction scale. When results were disaggregated for various groups, it was found that perceived QOL was highest for white, older, married respondents with high income, living in rural areas, and lower for those in cities, unmarried, unemployed, or students.

The choice of 14 domains was arbitrary, intended to be relevant to a maximum proportion of the population. Satisfaction was high for all items except "Savings". The most central indices of global satisfaction were work, family life and health. The most stable indices were job, savings, health and education.

Several other studies are illustrative of a testimonial approach, not with respect to defining the universe of QOL components as did Dalkey, but in terms of surveying public opinion on one or many facets of QOL. These investigations have been presented as abstracts for a conference on subjective measures of the quality of life, sponsored by the Institute for Social Research in Michigan (1972).

Grigsby (1972) for example has used subjective indicators dealing with access to public services and jobs, crime, income

and employment, quality of public services, and views of quality of neighborhood.

Rokeach (1972) has used his Value Survey, containing 36 behaviour-related values, as subjective indicators of QOL. Another of the few studies emphasizing the behavioural aspects of PQOL is that of Strumpel and Gurin (1972). These authors have attempted to develop sociopsychological indicators or measures of subjective response to the economic environment. Subjective well-being (PQOL) is shaped by the method in which goals and aspirations relate to one's economic status. The aim was to measure the deficit between these aspirations and reality, and explain the behavioural consequences of the deficit, in terms of personal efficacy and individual/system blame.

Accordingly, Rokeach's lists of values, along with questions dealing with aspirations and expectations were used to assess life goals ("guiding principles"). An analysis was also undertaken of the relationship between PQOL and personal efficacy and self/system blame measures.

Elsewhere, Lingoes and Pfaff (1972) have developed an Index of Citizen Satisfaction, attempting to determine how such (dis)satisfactions are distributed across specific racial, ethnic, age, income and other groups, defined on the basis of psychological, social, economic and cultural criteria.

Allardt (1973) has categorized basic welfare values in a Swedish survey investigation as "having" (objective measures, e.g.,

income); "loving" (feelings of belonging, evaluation of one's opportunities, attitudes to friends); and "being" (self-fulfillment, including measures of the individual's feelings of uniqueness, opportunities for self-development, and daily activities). The measures used in the analysis include an index of perceived security and support, happiness, anxiety and complaint scales, and an index of perceived societal conflicts.

A final study by Schneider (1975) illustrates the relationship between "objective" (ascriptive) QOL indicators and subjective (testimonial) QOL indicators. Using 13 objective indices falling under the categories of income/employment, environment, health, education, participation/alienation, and social disorganization, data obtained from 15 American cities showed much variation. Little variation across cities was found using seven subjective indices (satisfaction with job, home, income, level of services, personal efficacy, government distrust and citizen competence) as well as a constructed measure of total life satisfaction (Schneider, 1975, p. 500). The number of significant correlations between both sets of indices was small, suggesting that objective measures say nothing about the QOL of individuals living in these cities. By implication, "...the 'surrogate' measures of quality of life based on United States census data...are not really full measures of the phenomena that they have been employed to analyze." (Schneider, 1975, p. 506).

However, as seen in section 2a, the ascriptive approach, which postulates "consensus", is invariably the most prevalent one. Schneider pinpoints this currently unbalanced situation in stating that "...there is a strong tendency to use these specific social indicators data to generalize to more global quality of life statements and to equate the observed patterns in objectively measured conditions with actual differences in the life experiences of people." (p. 496).

The utility of the foregoing testimonial models is that they provide direct measures of well-being: "It seems only reasonable to find out from the individuals a social system is designed to serve how they perceive their lives under that system." (Andrews, 1974, p.283). Secondly, they enable better cross-sector comparisons; objective indicators often involve counting different, non-comparable entities. Thirdly, subjective indices provide a check on the adequacy of the range of a set of objective indicators. Knowledge about perceptions of life quality "...can play a significant role in setting priorities for the development of 'objective' social indicators." (Andrews, 1974, p. 284). Liu (1975b) has stated that perceptual indicators strengthen the reliability and enrich the substance of objective compendia (p.14). For example, it may be that, without representation of Self and Family in a set of indicators, one might conclude that QOL (from an objective standpoint) was lower than people actually perceive

it to be. Finally, testimonial accounts may aid in correcting uncertain and unscientific notions of QOL and decisions by policy-makers which affect QOL.

Andrews (1974) has summarized the major arguments against the use of perceptual QOL models, in terms of validity, interpretation, completeness and utility.

Validity criticisms include the contentions that people cannot answer questions dealing with QOL as they are unfamiliar with the concept; many will not respond for reasons of privacy; those who will respond have biased opinions; responses in any case will vary and be unstable. However, individuals can be sensitized to the issue; only 15% consider the matter too personal; bias is usually less than 10%; and delayed reliability has been found to be 0.80 (Andrews, 1975).

Interpretation difficulties center on the allegation that individuals are influenced by unique and different factors, various groups having distinct criteria for evaluation, which may change over time and make comparisons impossible. However, these differences and changes can be measured. "Research which is specifically oriented toward quality of life and which speaks to these issues is very limited and much more could (and probably should) be undertaken." (Andrews, 1974,p.288).

Completeness of testimonial models deals with the criteria for choosing its elements. This will be discussed in

section 3; however, it can be stated here that, while QOL perceptions show infinite variation,

...that variation occurs largely within a conceptual space whose major features have been mapped and identified. Given representation of a modest number of these conceptual areas in a measuring instrument, one can arrive at a rather good estimate of an individual's feelings about his general well-being. (Andrews, 1974, p. 291).

The vast range of possible perceptual indicators can, and has been narrowed down in Andrews' work. Furthermore,

...if one seeks a more detailed reading, either for achieving more focused predictions or for policy-making purposes, one may indeed wish to probe more extensively. But the terrain is apparently not limitless, and its broad features begin to be known. (p.291).

Utility concerns a highly visible and popular critique of the testimonial approach. Briefly stated, the public is often considered ignorant of the impact of life conditions; citizens are presumed not to know what is good or bad for them and hence they are not qualified as judges of life conditions. While this may be so, it is at least as inappropriate to assume (contends Andrews) that some outside "group of experts" can - or should - make all judgments for each individual.²

Secondly, if the relationship between individual satisfaction and societal welfare is unknown, this does not necessarily decrease the utility of testimonial models. If an important component of individual well-being is one's own sense of well-being, then perceptual indicators can be assessed because

2. This characteristic role of ascriptive policy-making will be examined in chapter IV.

they are a part of that basic phenomenon.

c) Hierarchical (importance) models.

The third viewpoint predominantly, if not exclusively existing within testimonial investigations concerns the attitudes, beliefs and values of persons towards a set of QOL components. This may be seen as the essential counterpart of conceptualization. Individuals are typically given a list of items (previously generated or prescribed), and asked to rate them for importance. This procedure yields a hierarchy of QOL areas, in much the same manner as terminal or instrumental values are ordered with respect to priority or relevance.³

It has been suggested by Michalos (1975) that the ordinal scales produced by such importance models (see below) can be transformed to interval scales using Neumann and Morganstern's standard gamble technique. Assuming "quality of life" as synonymous with "value of life", the question becomes "What is your life worth to you now, in terms of the good and bad things that might be expected?" (Michalos, 1975, p. 18). Ordinal values showing priorities may be converted to an interval scale which shows utility. This depends entirely on the individual's "sensed probability" of the events happening, e.g., the chances of being victimized by crime, being unemployed, etc.

3. This analogy to the work of Rokeach was suggested by D.N.Jackson (personal communication).

Combining these probabilities with values produces a measure of expected value of life, i.e., QOL in Michalos' view (p.19).

Several studies have illustrated the method and results of hierarchical approaches to QOL. In Dalkey's investigations (Dalkey et al., 1972), the split-100 technique (magnitude estimation) and a 7-point rating scale of importance were used. This can be considered an indirect measure of an individual's value hierarchy as it relates to his perception of QOL. The data yielded were used to evaluate alternatives in two simulated decision-making situations. Hence, the 19 respondents' definitions of QOL in terms of their own personal value systems were employed to ascertain the extent to which these definitional components influenced behavior. It was found that the 13 clusters of QOL factors were ordered in the following sequence: 1) love (communication, friendship, religion), 2) security, 3) peace of mind, 4) sex, 5) challenge (education), 6) social acceptance, 7) job satisfaction/income, 8) freedom, 9) involvement, 10) comfort (leisure, health), 11) novelty, 12) dominance, 13) privacy.

The second group of value-oriented investigations has originated from the work of several researchers at the Boston University Communications Research Center (Gitter and Franklin, 1971; Gitter and Knoche, 1971; Sawchuk and Gitter, 1971; Lingoes and Pfaff, 1971.) Dillman and Christenson (1971), for example, specified a list of QOL items and required individuals to state

their preferences as values rather than attitudes. This tactic enabled the establishment of priorities among a wide-ranging set of QOL goals. Several thousand heads of households registered their opinions by indicating the degree of expenditure of public funds among a number of areas of general concern (government activities).

Factor analysis was used for ordering multiple items rated for relative importance. Twelve statistically common dimensions were identified within a number of individual items (public values), eight of which can be found in the E.C.C. list previously discussed. These were assigned priority ratings and grouped according to them. High priority was assigned to law and order and pollution, medium priority to items involving the opportunity structure of society; low priority to areas such as foreign aid. Results indicated that the 12 QOL factors obtained could be ranked as follows: 1) law and order; 2 & 3) environment (pollution control, protection of nature); 4) education; 5) employment; 6) health (and security); 7) urban problems; 8) college youth concerns; 9) national defence; 10) assistance to agriculture; 11) foreign aid; 12) space exploration.

Thus the value framework is seen to be of some use in determining conceptualizations of QOL by producing a parsimonious description of the hierarchical nature of people's preferences, in this instance, a public value hierarchy given

by an American sample. The conclusions suggested that "...it becomes possible to view as a unit those groupings of items that people tend to see as similar. It is therefore much less likely that the researcher would group together things that people see as totally unrelated." (Dillman and Christenson, 1971, p. 13). Secondly, "...these findings suggest that it may be meaningful to speak in terms of a few value areas rather than in terms of specific government programs when attempting to bring public preferences to bear on setting societal goals." (p. 13).

Henderson (1974) has ranked the E.C.C. items in terms of weights assigned according to four social trends: greater social and economic equity; greater concern with socio-economic objectives that are more socially-oriented; theory rather than empiricism as the matrix of innovation; and a more controlled, communal, and less individualistic society. The QOL factors were ordered as follows: 1) man-made environment (physical aspects including housing, population density, transportation and leisure), 2) health and employment, 3) communication, 4) natural environment and education, 5) man-made environment (social aspects such as public safety), 6) social rights (including consumer protection, absence of discrimination and freedom of expression), as well as national identity and international cooperation, 7) individual rights (including property, legal and electoral rights, privacy). (Henderson, 1974, p.78).

The study by the Canadian Department of Manpower and Immigration (Burstein et al., 1973-74) on job satisfaction required 1973 respondents to rank six (ascriptive) items in terms of their relative importance in attaining the most important goals in life. Work and income, as well as family, were all placed at the top of the hierarchy, while friends, house and church were next. (Burstein et al., 1973-74, p.18).

A recent example of an importance model which uses several subjective or perceptual QOL indicators is the study by Freedman and Shaver (1975). A questionnaire required Ss to rate the absolute importance of 16 QOL items on a 4-point scale in terms of "importance to your happiness". "Objective" items include health, job and financial situation, while the perceptual indices relate to marriage, friends, success, personality growth, love, relatives, sex and physical attractiveness. Results are not yet available.

The final importance model to consider is that of Foster and Corbeau (1975) at Dalhousie University. A total of 595 all-Canadian business firms were asked to rate each of 16 ascriptive items individually, in terms of personal importance. These were upheld as factors important to the industrial location decision-maker. Aggregation of these items produces the following hierarchy: 1) environment, 2) health, 3) education and public safety, 4) population density, 5) housing, 6) leisure, 7) transportation.

In summary, an analysis of all studies indicates the following order of QOL priorities: 1) health, 2) employment and income, 3) environment, communication and public safety. All other items were not found to be consistently at the top of any of the hierarchies reviewed, while the above items regularly occurred highest in at least two investigations. These results will be used for comparison in chapters III and IV in order to find some overall consistency and establish the reliability of these disparate findings.

3. Theoretical Relevance of this Investigation for a Conceptual Model of Quality of Life.

Several examples of the three models have been considered. Prototypes of the ascriptive model (Economic Council of Canada) and testimonial model (Dalkey) have been examined in some detail. Reference has been made in passing to the shortcomings of both approaches. These deficiencies will be briefly enlarged upon here, in order to underline the need for a conceptual model of QOL which embraces the advantages of both methods.

The ascriptive approach towards defining or measuring QOL deals with more easily measurable components such as unemployment. The testimonial strategy deals with more subjective concepts which are usually considered "unmeasurable". However, it can be argued that certain experiential measures are at least as objective as many of the so-called "objective" measures.

A good example is the work on job satisfaction cited above. At any rate, the terms "objective" and "subjective" carry unfortunate connotations: "Given that science values objectivity and eschews subjectivity, it is easy to suppose that the 'subjective' indicators are not as valid or useful as the 'objective' ones." (Andrews, 1974, p. 281). One solution may be to replace "subjective" with "perceptual" indicators of QOL.

A second issue, which is a characteristic weakness of ascriptive models, is the arbitrary nature of item selection. Items are incorporated only insofar as they are assumed by the policy-makers to be representative of the abiding concerns of the populace. Dalkey et al. (1972) have summarized the input problems in terms of the lack of a stop rule for writing items. The QOL domain can be enormous. Although all items can be relevant to the well-being of individuals, without necessarily prescribing what is considered to be socially good, "...they are distilled from clinical lore, sociological think pieces, some psychological and sociological experimentation, and the like." (p. 86). They may be difficult to relate on the one hand to behavior, and on the other, to policy.

Liu (1975a) has advanced general criteria for constructing QOL factors, so as to avoid the problems of mere availability of indices or the perpetuation of historical accidents, which have produced several current ascriptive models. Components should be easily understood, flexible enough to encompass

several life styles, adaptable to changing social, economic, political and physical conditions, and open to scientific verification. (Liu, 1975a, p. 5).

A third issue concerns the representativeness, validity, and completeness of the QOL elements in many models. The three dimensions in the E.C.C. model, for example, remain purely descriptive and may not have an analog in the public mind. In addition, the socio-economic aspects of QOL chosen for analysis in Perspective Canada comprise a portrait which is acknowledged as incomplete:

Like all portraits, it reflects selectivity by the artist in the choice of themes and in the views from which various features are to be shown. Also, as the artist is limited to the tools available, so must this portrait be limited by the statistics currently at our disposal. (p. xxi, emphasis added)

Nevertheless, the portrait is deemed relevant to questions which the average Canadian will raise for himself, whatever his criteria for assessing the QOL, and however that quality is judged.

This cannot be disputed, and in itself the publication is an important contribution to the individual's ideas on the topic. It is noteworthy, however, that there is a gap: "... there are several dimensions of individual and social well-being that need more attention by decision-makers and statisticians." (Statistics Canada, 1974, p. xxi). Perhaps the gap can be filled by the inclusion of components which, although

not yet "minimally quantifiable", are crucial to the decision-making process. Such components may be national identity, facets of job satisfaction, or even the behavioral components of inflation. These relatively more qualitative aspects of QOL are excluded in the publication, with the following rationale: "The truly fundamental problems of personal being such as the spiritual life, love, and friendship are obviously outside the domain of numerical calculus." (Statistics Canada, 1974, p. xxii, emphasis added). It is evident that, if QOL is to be a truly representative , comprehensive, accurate and useful concept, these concerns (which are operationally quantifiable) must be incorporated into any viable model. Until this is accomplished, the existing social indicator frameworks are grossly incomplete regarding "quality of life", and can only satisfy a fraction of the current needs for social accounting and public decision-making.

Within testimonial models, the above issues are more amenable to evaluation. If sampling of respondents is undertaken efficiently, the problem of arbitrariness is solved. This occurs if a well-sampled group of individuals is allowed to offer its cognitive structuring of the QOL domain. Testing, evaluation and confirmation are automatic, inherent in the method.

The problem of reliability is often brought up as a shortcoming of the testimonial approach. The variety of inter-

pretations produced by the survey (in vivo) approach is susceptible to the possible unreliability of verbal reports (e.g., acquiescence bias or social desirability.) While this may be a serious shortcoming in attempting a QOL definition or conceptualization, it may be counterbalanced by the often arbitrary character of ascriptive models which may only reflect the QOL cognitions of the model-builders. In any case, the sources of error mentioned (cultural distortions, demographic differences, etc.) can easily be statistically quantified. In this connection, Dalkey et al. (1972) have stated:

There is no inconsistency between assuming a fair amount of stability for basic value categories and varying importance ratings on these categories for different life states, if it is assumed that trade-offs between basic values are meaningful, and depend on the state of the individual in the QOL space. (p.83)

The fifth issue has concerned policy relevance and utility. The relatively enduring government concerns of the socio-economic models (such as housing, communication, etc.) are considered more manageable and understandable within the framework of policy formation than either individuals' attitudes or feelings about QOL. However, this becomes a disadvantage because the point of view of the individual is lost by the imposition of a list of considerations from self-appointed experts. (Ziller, 1974, p.301). The manner in which a policy problem is measured, or even conceptualized, often points out the solution at the same time. As with the ascriptive strategy,

...indicators may emerge from the political-bureaucratic process that minimize problems or make them more amenable to solutions and which suit the emotional commitments and interests of the decision-makers and those who influence them. Indicators may be selected to promote the adoption of desired policies, to make these policies appear as successful as possible, and to direct public discussion in the desired directions. (Maslove, 1975, p. 14).

Thus a more comprehensive picture for policy analysis may be provided by a survey approach; and rather than lacking policy relevance, it seems that the QOL domains which result here simply point out the deficiencies of past policy solutions. The implication is that policy-making can no longer remain viable in the traditional spheres of housing, income, etc., without being based in the future on the human concerns which emerge from a testimonial strategy.

These points lead to the final issue in the continuing debate of strategy, namely, the interrelationships between both views. Certainly, the significance of expectations and aspirations, including measures of satisfaction with all components of the perceived QOL, lies in the fact that they are conditioners of an individual's response to his environment (housing, job, etc.). However, as Walters (1972) indicates, "Part of our current dilemma arises out of the apparent paradox that measured improvements in objective conditions have not been associated with similar improvements in satisfaction. This whole 'subjective' area provides an opportunity for creative theoretical and operational research." (Walters in Henderson, 1974, p. 37)

Thus, what QOL means in actuality (in vivo, i.e., through public opinion) may be grossly underrepresented by the ascriptive (in vitro) models. Perhaps housing rates or levels of unemployment do not play a relatively significant part in the in vivo conception of QOL, or in the public hierarchy of values. These indicators may significantly depart from the positions they occupy in the ascriptive formulations of the theoreticians.

The fact remains that "...while improvements over time can be shown in such objective measures as real income, housing quality and health, evidence bearing on the experiences of personal satisfaction with income, housing and health do not suggest corresponding improvement." (Sheldon and Land, 1972, p. 140). The authors suggest that, rather than counting homicides, which does little to reduce the likelihood of murder, researchers become interested and proficient in measuring interpersonal and intergroup tensions as a causal factor which is more directly amenable to change. (p. 142). Another example of this needed change in direction is the fact that, while the maintenance of a healthy physical environment for the worker is an acknowledged goal, providing some measurable level of intrinsic job satisfaction is not yet an acknowledged goal.

In summary, it can be contended that direct, perceptual, in vivo cognitions or measures of QOL "...provide a vitally important complement to the 'objective' measures which

are currently receiving what may be a disproportionate share of time, energy and attention." (Andrews, 1974, p. 280). However, only when both approaches are concurrently used "... will it be possible to know how demonstrable changes in living conditions are affecting people's sense of life quality, and - conversely - whether changes in people's sense of life quality can be attributed to changes in external conditions." (Andrews and Withey, 1974a, p. 2).

McCall (1975) echoes these views by distinguishing between the subjective state of happiness and happiness requirements (the "needs" found in ascriptive models). The role of subjective studies is seen as indicating which conditions are important for determining QOL; an example is the analysis of job satisfaction. Both McCall and Baier (1974) have examined the QOL concept from the viewpoint of integrating both objective and subjective needs, such as belongingness or security.

The integration of strategies must proceed by utilizing refined and robust statistical techniques which can be applied to data sets from both strategies. The differences between them can be resolved by comparing the output in terms of similarities (of dimensions or factors). In this way, definitive conclusions may not necessarily be reached; but a rapprochement is provided by applying one methodology to determine the relationships between the output of two separate approaches. While accepting their complementarity, their relative productivity vis-à-vis

the issues raised in this section has yet to be resolved. The extent to which in vivo indicators significantly depart from the cognitive positions they occupy in the various in vitro models requires investigation. Previous comparative attempts here are lacking; the present study is a step in this direction.

4. Purposes and Contribution of the Research.

Statistical considerations aside, the value of research attempting to isolate dimensions of QOL by in vivo methods should not be underestimated. In this chapter, the literature review has attempted to dispel any idea that QOL is a simplistic, common sense and universally-defined concept. It remains complex, multidimensional, controversial, ambiguous, elusive and without unanimity as to its content. The task of conceptualization is normative, in the sense that it is presumably cognitively meaningful to the average individual, within his or her own framework of values, experiences and needs. It is a task which can perhaps be characterized as a study of the role of concept formation in the process of attitude acquisition (Rhine, 1958). As such, it can be considered from the general standpoint of social psychology within the present investigation, in the belief that the tools available to this branch of social science are most applicable to the problem.

As noted elsewhere, Dalkey et al. (1972) have mentioned that QOL may be comprised of scalable qualities not necessarily perceived by an individual. This set of properties attached to a person at a given point in time is likened to a set of dependent variables ("determiners"). This connotes a cognitive model or system through which events (independent variables, such as moving to another city) are screened and filtered. Determiners are properties of the individual, such as income, health, status, education - variously termed values, QOL aspects or social indicators. They form the person's cognitive framework as they are characteristically stable (changing more slowly and continuously), objective (measurable), and controllable (in terms of public policy). (Dalkey et al., 1972, p.95). The identification of this set of independent variables characterizing QOL can lead to studies involving forecasting and optimization, i.e., the analysis of sets of independent variables which influence and change the standard dependent variables.

In this connection, as Christian (1974) has stated, it is important to assure that "...availability (or ease) of measurement does not unduly influence the choice of what needs measuring." (p. 179) In other words,

...given the location of the individual in the determiner space, a relatively reliable prediction can be made concerning the nature of the stream of events occurring to the individual. Finding out how they determine the nature of events is, in part, a matter of research strategy. One fairly complex model postul-

ates that they operate by fixing an opportunity region in event space, and the individual has relatively free choice within this region. A possible assumption relevant to the notion of qualities is that there are trade-off curves ... determining the relative contribution of each quality (at a point) to the overall well-being of the individual. Assuming the individual operates rationally, he will choose a point that maximizes his QOL. (Dalkey et al., 1972, p. 95)

Hence the emphasis on developing a comprehensive structure of the QOL index as perceived by individuals. A summation is needed of the multitude of specific issues in the public mind, e.g., consumer protection and environmental pollution, into overall dimensions such as "security", to facilitate definition, measurement, forecasting and ultimately optimization.

These stages can be summarized as 1) conceptualization and subsequent determination of values through importance ratings of QOL components; 2) measurement of QOL in terms of satisfaction with the various items (including needs) empirically selected from stage (1); 3) prediction of behavior and societal change based on data obtained in stage (2); 4) optimization of QOL through policies based on the trade-off functions and relative satisfaction with QOL dimensions found in stage (2). No single phase is adequate to strengthen decision-making and policy-formation; for example, income may not be important relative to health, but because of inflation, satisfaction with income levels is low and this need becomes a better pre-

dictor of behavior (e.g., strikes) than its importance as a value. This situation may thus occur despite the intuitive assumption that factors rated as more important potentially contribute proportionately more to overall satisfaction.

It is therefore the ultimate aim of research designed to clarify and operationalize the QOL construct to 1) objectify the core of the public decision-making process and/or 2) to seek a better understanding and knowledge of the process of social change. Even though social data may only be one of the inputs in this process, it can assist in the assessment of the content of policy and the subsequent evaluation of social development programs. Hence, goal indicators (areas of concern) developed by the Economic Council of Canada were designed to measure government progress in achieving its social objectives. Whether or not these objectives reflect those articulated by citizens is knowledge which is crucial to policy-formation.

Insofar as governments allocate and justify their social goals, objectives and priorities on the basis of improving the quality of life of the population, the pursuit of defining, measuring and forecasting quality of life becomes a legitimate political tool of accountability to the citizenry. (Harland, 1972, p. 64)

Aside from the understanding of QOL conceptions gained from the populace, testimonial results suggest those factors that should most probably be treated by policy and programs. As such, the development and dissemination of these

parameters can yield more information upon which decisions can be made, whether in the public or private sector. More articulate and meaningful feedback is provided to decision-makers regarding the effects of past and future programs if these components can be eventually monitored in the proposed research framework. Once these factors are obtained and priorities among them assessed in the public domain, problem areas in society can be made more visible, and progress toward specific policy objectives more easily traced.

In essence, by 1) broadening the framework for viewing the spectrum of socio-economic activities to include the qualitative or subjective components, 2) taking this framework to the people for evaluation, 3) thereby discovering the outstanding reference points existing, and 4) developing and assessing priorities in both cases, the researcher is really attempting to extend the understanding of what constitutes, conceptually and attitudinally, the "quality of life" in a society.

These are essentially the main purposes of the present endeavor. Few, if any, Canadian studies have systematically dealt with the issue of QOL conceptualization, either via (a) the determination of the (public) validity of a given ascriptive model, or (b) the direct exploration of the meaning of QOL in the public mind. Many investigations have primarily dealt with the relative importance of a given list of factors (Foster

and Corbeau, 1975; Henderson, 1974; Burstein et al., 1973-74) or measurement of QOL (Burke et al., 1972), rather than the conceptual groundwork. So the present study seeks to remedy this imbalance by applying statistical techniques appropriate to the multidimensionality of the concept. By implementing a testimonial approach, some complementarity to the analysis and interpretation of levels of living undertaken by econometricians is sought. The direct approach is also used to shed light on the "public validity" of QOL models, which may be appreciably different from their "face validity".

5. Statement of the Problems.

The preceding review of QOL studies has outlined the two approaches to the conceptualization problem (the identification issue) in terms of shortcomings in item selection criteria and methodology. The advantages and disadvantages of both approaches were then discussed and some preliminary suggestions were put forward to secure a rapprochement. This consideration of the input, analysis and output aspects of QOL research has led to some edification of potentially rich areas to explore, for example the influence of demographic variables.

The state of this definitional research has been appraised, within the framework of the contributions such investigations can make, e.g., objectification of decision-

making and policy-formation. The need for a validation of in vitro models by comparing popular and professional QOL views was discussed. The value of undertaking this preliminary phase is realized by considering the current status of QOL paradigms. These controversial and divergent points of view can be resolved by using sound methodological practices aimed at portraying the multidimensionality of the construct in a meaningful and parsimonious way. These practices can avoid or lessen the effect of weaknesses which have undermined many previous attempts. The utility of the data from the comparisons put forward in this investigation rests partly on the stringency of this methodology and its refinement in subsequent research.

Accordingly, this section of the chapter outlines briefly the issues to be investigated and presents them separately in the form of questions.

The empirical data obtained (see Chapter III) provides necessary information regarding the extent to which individuals (non-experts) share current expert views on the nature and meaning of the QOL construct. Two existing types of models will serve as prototypes or standards for comparison: the ascriptive, three-dimensional Economic Council of Canada model and the testimonial, five-dimensional Dalkey model.

Although it is difficult to predict the nature and number of dimensions comprising the popular conception of QOL,

the three ascriptive and five testimonial dimensions can be postulated to represent the unknown conceptual space defining QOL. It is then hypothesized that the scaling technique may collapse the respective item lists into the same or similar dimensions, i.e., alike in number and nature.

This study is largely exploratory, descriptive and analytical. Assuming a grid describing studies which are "significant" (vertical dimension), and those which are "exploratory" versus "definitive" (horizontal dimension), the present endeavor lies within the first quadrant. While "significant" in orientation and subject matter, it is largely "exploratory" because of the nature and size of the sample, among other considerations. The investigation proposes to generate hypotheses rather than testing them in the traditional experimental manner. This is seen as the first step on the avenue toward conclusions which will have more bearing on practical applications.

The objectives of the present study are embodied in the purpose of discovering organization in terms of a system or model inherent in the QOL experience. The QOL conceptualization schemes obtained from individuals may then be analyzed regarding the degree to which they are reflected in the actual value hierarchies of the same respondents. The final objective involves a comparison of the dimensionality yielded in each approach, as well as the value hierarchies. The means by which

these objectives are accomplished are briefly summarized as follows.

The empirical application of the popular conceptions of the QOL domain will be determined by a judgment scaling procedure. The flexibility provided by the nonmetric multidimensional scaling (MDS) strategy allows for the proposed resolution of the alternative and equally plausible interpretations of QOL (a three or five dimensional system corresponding to either of the postulated models).

This strategy permits the extraction of the key underlying dimensions of the domains, shows which mode (ascriptive or testimonial) exhibits the most congruency with original hypotheses, and allows visual comparison of the congruency of professional and popular views. This is done in terms of the smallest number of succinct dimensions which Ss use as QOL reference points. It has been implied that ascriptive components dealing with the external circumstances of a person's life (e.g., incidence of crime, traffic congestion) are more manageable by social programs at all levels of government than are attitudes or feelings which invariably surface in a testimonial strategy. But it is here suggested that the former components may constitute only a limited picture of the satisfactions comprising perceived QOL. The question this research seeks to resolve through the use of a scaling strategy is whether these socio-economic items constitute a major share of

the individual's well-being, or whether there are other reference points such as a sense of achievement, freedom and so on. The technique enables pooling of the diverse pictures of the world that each person develops for himself into a more common picture which seeks to clarify disagreement encountered on basic issues in decision-making.

The manner in which the second problem at hand is addressed in the study involves factor analysis of importance ratings of both ascriptive and testimonial sets of QOL components. This enables the determination of the degree to which Ss' conceptions are reflected in their value hierarchies, in addition to providing a comparison (in each case) with the MDS results. Although perhaps less reliable for reasons already mentioned, this technique, used as an adjunct, permits the objective comparison of both data sets through factor matching; similar factors may be found despite differences in the item content of the scales. This transfer and substitutability of values in the QOL hierarchy may simply mean that two different individuals with quite different patterns of rewards may experience the same level of QOL, insofar as these labelled values function as disguised rules for obtaining higher degrees of QOL.

Finally, similar item clusters may be found in both domains: judgment space and response space. Any definitional departures between dimensions and factors isolated in their

respective domains are interpretable in terms of the nature of the techniques used. Similarities, on the other hand, provide more definitive evidence of such a dimension being used as a reference point basic to any definition of QOL. The distinction between items which does not occur in judgment space may be found in response space. In the event that poorer definition of a factor in response space may be due to characteristics of items extraneous to their perceived content, this finding is significant in highlighting the importance of choosing the scaling procedure in future studies.

To conclude, the present study purports to address the following problems:

1. How do individuals conceptualize "quality of life", i.e., what is the nature and number of dimensions necessary to define the construct? Specifically, do individuals perceive QOL in terms of Social, Political and Economic dimensions as in the E.C.C. model, or in terms of Comfort, Security, Novelty, Dominance and Achievement dimensions as in the Dalkey model?

2. How do the ascriptive and testimonial approaches compare in terms of the dimensions yielded?

3. To what extent are the conceptual dimensions obtained (in both cases) reflected as factors in the value (importance) hierarchies of the respondents?

4. How do the approaches compare in terms of the factors yielded above?

CHAPTER II

DESIGN

This chapter presents the methodology of the research. It begins with a description of the ascriptive and testimonial items representing the postulated domains of the QOL construct, including their development and construction. The questionnaires and answer booklets are then outlined in conjunction with the rationale behind all sets of rating scales. Following this, the administration procedures are discussed, and the nature and characteristics of the sample participating in the research are presented. Next, an overview of the multidimensional scaling and factor analysis procedures used to analyze both sets of data (ascriptive and testimonial) is given, with some comment on the statistical methods involved in the treatment of both judgment and response data. Particular attention is focused on the nature of the data derived from each method. Incorporated in this section is an account of the ancillary methods utilized, i.e., the relative importance ratings. The chapter is concluded by a summary of all comparisons employed in the context of the design of the study.

1. Development and Construction of Ascriptive and Testimonial Items Used in the Study.

From the review of the literature presented in chapter I, it was noted that the Economic Council of Canada list of

goal indicators from the Eighth Annual Review would be used as the ascriptive model of QOL to be evaluated empirically.⁴ Three major dimensions were postulated in this attributive model: Social, Political and Economic. The decision concerning the number of items to include in the study was based on practical considerations. As all possible pairs of items are needed, this total cannot exceed a reasonable level, beyond which rating fatigue could play a part. Previous studies, e.g., Skippon (1974) have employed a maximum of 20 stimuli, yielding 190 pairs ($n(n-1)/2$). It was concluded that this number was the tolerable maximum, and that the E.C.C. model itself would be adequately comprehensive without the addition of further items.

Accordingly, the list of goal indicators (see chapter I) was carefully scrutinized in order to develop broad and meaningful indices of QOL which could be easily rated in terms of similarity and importance. The criterion of parsimony was used: the briefest and least controversial descriptor of a given goal indicator was chosen. Thus, "allocation of time" became "leisure". Simplicity was the criterion used to avoid the possibility of spurious similarity ratings. For example, it was contended that the similarity rating between "job satisfaction" and "mental health" would be spuriously higher than

4. It is to be stressed that the model is ascriptive; the approaches used to test it in the present study are testimonial, i.e., responses of the sample are used.

that between "job satisfaction" and "health". Hence the choice of one or two major words whenever possible. Similar reasoning was employed in the selection of all stimuli as words rather than statements. The problem of item ambiguity in a study of this sort required a trade-off in terms of the goal of maximum objectivity. Verbal or written explanations of the items would suffice to distort any preconception in the minds of the respondents about the item and would amount to a description of the QOL construct. As this is obviously one of the objectives of the study, no a priori definitions or specifications could be given to the individuals.

The final 20 ascriptive items, listed as elements of the three postulated dimensions, are presented below:

I. POLITICAL

- Freedom of Expression
- Legal Rights
- Security of Property Rights
- Public Safety
- Consumer Protection
- Electoral Rights
- Safeguards for Privacy
- Absence of Discrimination
- International Cooperation
- National Identity

II. SOCIAL

Health

Education

Protection of the Environment

Population Density

Transportation

Communication

Leisure Time

Housing

Employment

III. ECONOMIC

Financial Resources

These items represent the core data input on a descriptive level and were used in evaluating the hypothesis as to whether they are substantiated empirically.

The procedure exercised in constructing the testimonial QOL items differed entirely. Ss were asked to list between 5 and 10 items which they considered to be crucial aspects or components of the quality of life of the average Canadian citizen (see below). This method closely followed that of Dalkey et al., (1972). Several hundred items were then grouped into categories (see Appendix A-7) by the author and two independent judges.⁵ The three sets of categories were then

5. The assistance of the late Dr. P.A.Taylor and Dr. C.E.McInnis is gratefully acknowledged.

examined for frequency of items as well as categories; the ten testimonial items which emerged are presented below:

Education	Income
Employment	Leisure
Family	Personal Well-Being
Freedom	Physical Environment
Friends	Social Acceptance

Similar criteria (brevity and simplicity) were used in the construction of these items. It may be noted from the previous lists that Ss had generated items forming six categories identical to components in the ascriptive list. The remaining four categories (Personal Well-Being, Social Acceptance, Family and Friends) deal with relatively subjective issues, which may be viewed as personal components apart from the socio-economic ones.

The testimonial approach does not involve a priori hypotheses regarding the dimensionality of the QOL space that a scaling analysis would produce. To maintain consistency and fulfill the need for a formal basis of comparison later, the postulated dimensions were derived from the Dalkey study. The authors used a similar approach as mentioned, and obtained 13 QOL categories using a hierarchical clustering routine. As set forth in Chapter I, analysis of these groups yielded five dimensions which could serve as hypotheses. These were: Comfort, Security, Novelty, Achievement and Dominance. While admittedly

arbitrary, most of the items comprising these dimensions are identical to those obtained from the respondents (see Appendix A-7). It should be noted, however, that the hypothesized QOL space is not of necessity five-dimensional, as these clusters do not give a visual portrayal of the space such as that produced by a scaling routine. They are simply illustrative as candidate hypotheses which do allow for multidimensionality of the QOL space.

2. Description of Questionnaires and Answer Booklets.

A biographical data form was first administered. The respondent's name was requested, but to avoid missing data and ensure anonymity, this and all other questionnaires were coded by numbers. Several other relevant variables were sought in order to present a comprehensive picture of the sample. This analysis is found in section 4 below.

The first task consisted of the instructions for eliciting the testimonial items, a procedure adapted from the Dalkey study. Briefly, instructions were as follows: "You are given a deck of ten blank cards. List from 5 to 10 items (one item per card) which you consider to be crucial aspects or components of the quality of life of the average Canadian citizen. Ignore things concerned with basic biological maintenance, but do not overlook aspects with negative connotations, for example, agg-

ression." Ten 3" X 5" index cards were presented with these instructions, which were given at the beginning of the study to avoid possible contamination of the responses from items in the other parts.

Each part of the investigation (ascriptive and testimonial) contained three questionnaires and answer booklets. In part I-A, the judgment scaling task, each of the 20 ascriptive items was paired with every other item, yielding 190 item pairs. The order of the items in each pair and the order of the pairs was random on the questionnaire (see Appendix A-1). The answer booklet (see Appendix A-1) consisted of 190 nine-point scales for similarity ratings. The scale was bipolar, with four ratings of similarity (extremely, very, moderately, somewhat), and four ratings of dissimilarity (as above) at the high end of the scale.

In part I-B, the response task, the 20 ascriptive items were presented on a single page in random order (see Appendix A-2). The absolute importance ratings (A.I.R.) were given on a set of 20 unipolar nine-point scales (see Appendix A-2) after results of the pilot study indicated that the negative pole of the scale was not being used by Ss. Ratings varied from 1 and 2 (extremely important), 3 and 4 (very important), 5 (undecided), to 6 and 7 (moderately important) and 8 and 9 (somewhat important).

Part I-C consisted of the alternate format for assessing priorities among the items. Relative importance ratings (R.I.R.)

were obtained here by asking respondents to consider the entire list of items. As it was not feasible to rank order all items, the three most important and the three least important were secured (ratings of 1, 2, and 3 and 18, 19 and 20, respectively.) (see Appendix A-3).

Parts II-A and II-B followed the same pattern with substitution of the ten testimonial items (see Appendices A-4 and A-5). The exception to this was part II-C, where Ss were asked to rank order all ten items in order of importance, the list being considered short enough to make this feasible (see Appendix A-6).

3. Procedure.

The biographical data form, testimonial item instructions and parts I-A, I-B and I-C were administered to a sample of 15 Ss as a pilot study in June, 1974. Comments and suggestions were elicited in order to provide an optimum format for all phases of the research. The feedback obtained indicated that the 190-item questionnaire did not produce an inordinate amount of fatigue. A second observation was that Ss did not use the high end (negative pole) of the A.I.R. scale; this was consequently modified. It was also noted that ratings appeared to be normally distributed for the judgment scaling task. Between 20 and 90 minutes were needed to complete all forms. Ss found the tasks interesting and cooperated fully. After several

other minor modifications, it was decided to proceed with the study on a larger scale.

The data gathering part of the study was undertaken in July, 1974, in two separate stages (ascriptive and testimonial). In each stage, questionnaires were administered in classrooms to groups varying in size from 5 to 35, in a single sitting. The average time required to complete part I was approximately 30 minutes; part II required from 15 to 30 minutes. One week elapsed between stages, during which the index cards were sorted by the three judges into categories, compared for item frequency, labelled and used in the construction of part II questionnaires.

In each stage, the order of all questionnaires was counterbalanced to avoid the possibility of a sequential bias. All Ss received the biographical data form first, followed by the testimonial item instructions. In part I, four orders were used: A,B; B,A; A,C; C,A. As parts B and C were used for comparative purposes, approximately one-half of the sample completed each part. Since part A was lengthy, it was not considered prudent to require all Ss to answer both parts B and C. Part II contained six counterbalanced orders: A,B,C; A,C,B; B,A,C; B,C,A; C,A,B; C,B,A. Ss were assigned randomly to each order in both parts.

The mortality rate was high in part II, as the Ss who were recruited were volunteers who did not receive any remuneration.

ation for their efforts, financial or otherwise. Of the 150 Ss engaged in part I-A, 78 completed part I-B and 72 part I-C. There were 105 of the original Ss who participated in part II-A, 101 doing so in part II-B and 98 in part II-C.

The formats used for similarity and importance ratings were adapted from Skippon (1974), pp. 39-41. In all cases, instructions were read aloud by the examiner from the questionnaires, after rapport was suitably established. Questions were carefully answered so as not to leave any misinterpretations of the tasks. Examples were given in both cases.

4. Characteristics of the Sample.

The Ss were 150 teachers who were enrolled in summer courses at the Faculty of Education, University of Ottawa in July, 1974. Primarily high school teachers and administrators, they were involved in upgrading their qualifications at the Master's degree level. Recruited by the author on a voluntary basis, from a total population of over 600, the Ss were visited in approximately a dozen classes. Their cooperation was solicited after a brief description of the nature of the study was given.

Biographical data obtained from these respondents is presented in Table 1. It can be seen that 45 Ss were lost for part II due to lack of interest, time, or other commitments. Almost 60% of the sample were between the ages of 26 and 35;

Table 1

Biographical Characteristics of the Ascriptive and Testimonial Samples.

Characteristics	Ascriptive Sample		Testimonial Sample	
	N	%	N	%
Age:				
20-25	13	8.6	10	9.5
26-30	43	28.6	28	26.6
31-35	45	30.0	31	29.5
36-40	21	14.0	15	14.2
41-45	17	11.3	13	12.3
over 45	11	7.3	8	7.6
Sex:				
male	102	68.0	75	71.4
female	48	32.0	30	28.6
Language:				
English	139	92.6	97	92.3
French	6	4.0	3	2.8
Both	5	3.4	5	4.9
Marital Status:				
Married	109	72.6	83	79.0
Single	41	27.4	22	21.0
Occupation:				
Teaching	95	63.3	63	60.0
Administrative	36	24.0	32	30.4
Counseling	9	6.0	4	3.8
Other	10	6.7	6	5.8
Income:				
\$20,000-\$15,000	34	22.6	25	23.8
\$15,000-\$10,000	61	40.6	38	36.1
less than \$10,000	55	36.8	42	40.1
Family Size: (includes the respondent)				
1	41	27.4	22	21.0
2	30	20.0	23	21.9
3	21	14.0	16	15.2
4	35	23.3	26	24.7
5	15	10.0	13	12.3
more than 5	8	5.3	5	4.9
Total N	150		105	

most were English-speaking.

Some comments regarding the nature of this sample in relation to the objectives of the study can be noted here. The first consideration involves its size. It is acknowledged that the minimum number of Ss needed corresponds to the number of items ($n = 20$). Traditionally, the more objective approach involves formulas which incorporate a predetermined standard error of the sample. This sampling error assumed knowledge of traits or conditions in the population which have been shown to have effects on the phenomenon under investigation. In the present study, these cannot be known. Runkel and McGrath (1972) recognize that judgment-type studies de-emphasize the sampling of actors, with the understanding that each is interchangeable within the design of the inquiry. As a sampling formula is inapplicable in this investigation, the alternate criterion can be the sample size used in previous studies (Kish, 1965, p. 51).

A review (undertaken by the writer) of approximately 30 studies using various forms of multidimensional scaling suggested that the number of researchers using a small group ($n = 25$ to 40) equalled those using a larger group ($n = 150+$). No systematic procedure was used in obtaining these Ss and criteria explaining choice of size was lacking. Accordingly, an "accidental" sample of volunteers was used here. As the present research is (in this sense) of an exploratory nature

however, no attempt is made to suggest that the criteria of randomness or adequacy are met (Triandis, 1964). Inferences and generalizations are necessarily limited, as the study is intended to encourage further research among those having more ready access to much larger populations not presently available to this investigator.

These considerations introduce the second aspect of the sample: its nature. Some evidence (e.g., Rodgers & Converse, 1975) suggests that QOL is affected by certain demographic variables - age, sex, income, amount of education, marital status, and so on (see p.27). A multitude of hypotheses is available; for example, it can be said that QOL automatically improves with increased financial resources. To date, these remain primarily hypotheses without broad support in the literature. The characteristics contained in the biographical data form were simply requested to illustrate the nature of the group contributing to the conceptualization of QOL and the priority ranking of both its postulated and derived components. As such, all conclusions reached in this exploratory study cannot be applied to teachers in general, teachers in Ontario, the population of Ontario, Eastern Canada, or Canada as a whole. Were the sample larger, it would be of interest to relate the QOL conceptualizations obtained to several characteristics: sex, age, income, etc.

This is a strategic investigation which essentially raises more questions than it answers. These questions can be approached through several tactical studies, using the present theoretical model, to discover empirically how the QOL domain (and its organization of priorities) differs in various cities, provinces, language groups, etc., in Canada. The effect on policy-formation and social legislation must come from the latter research, which necessarily demands a degree of time and funding far beyond the availability of the present investigator.

5. Analysis of the Similarity Judgment Data.

a) Rationale for the multidimensional scaling.

A multidimensional scaling (MDS) procedure was used in this part of the study due to its demonstrated ability to map a conceptual space as well as its lack of restriction to a unidimensional structure of a domain. This meets with the objectives discussed in sections 4 and 5 of chapter I.

In traditional scaling methods used in psychology, it is assumed that the investigator knows the dimensions of the area he is studying. The respondent is usually required to make judgments about a dimension which is specified by the investigator. These methods also assume that the attribute being measured is unidimensional. As Messick (1956) has indicated,

however, in many areas of psychological investigation the number of relevant dimensions is often unknown and an a priori abstraction of "reasonable" or "psychologically meaningful" dimensions may be misrepresenting the true nature of the stimulus domain. Postulated dimensions may under or over represent the complexity of the domain or be completely irrelevant to the domain under scrutiny. Thus, when applied to psychological domains of unknown dimensionality, unidimensional scaling methods are inadequate.

MDS techniques circumvent the problems created when applying unidimensional methods to unknown domains, by assuming an n-dimensional domain. Thus an attribute can vary with respect to several dimensions at the same time. Rather than assigning a single number (scale value) to represent the judged stimulus along a unidimensional continuum, as many numbers (scale values) are assigned to the judged stimulus as there are relevant dimensions in the psychological space.⁶ These scale values are the projections of the judged stimulus on the axes or dimensions within the space. Similarly, all stimuli are represented as points on the dimensions in the space.

The distance between two of these points is their "psychological distance", representing the judged dissimilarity

6. In cases where dimensions are not easily interpretable, highest scale values for each stimulus across all obtained dimensions may be used to portray the stimuli on a unidimensional continuum.

of the stimuli. If a person perceives one stimulus as extremely similar to another stimulus, then the two stimuli can be considered to be psychologically close together. If the individual perceives them as dissimilar, then the two stimuli can be considered to be psychologically far apart. The MDS model obtains the dimensionality of the Euclidean space defined by these distances, as well as scale values for the stimuli.

Although MDS was originally a psychological technique, it has been shown to have utility for studying a wide variety of complex phenomena, such as perception of political relationships (Messick, 1961), marketing analysis (Stefflre, 1972), and notably consumer preferences for a public transportation system (Dobson et al., 1974). But the advantages of using this method for examining conceptions of QOL resides in the fact that the complexity of the domain need not be lost due to unidimensional conceptions. The lay judges (Ss) can structure the domain using as many or as few dimensions as they choose. By determining the number of dimensions, the scale values of the stimulus projections on them, and their interrelationships, one can obtain the group's structure of this domain. Interpretations can then be made which provide insights concerning the cognitive processes used.

The seemingly paradoxical ability of the newer (non-metric) methods to extract quantitative, metric information

from qualitative, nonmetric data is especially useful to social scientists. Here, data so often come from respondents who can readily and reliably give only ordinal judgments, e.g., that one subjective magnitude exceeds or falls short of another - without being able to specify by how much. Alternately, if actual numerical ratings of these subjective magnitudes are given, the only trustworthy properties are the merely ordinal ones. For example, one can specify that one number is larger than another, without being able to attach any significance to the exact numerical difference between them.

A second major point to note is that while a priori hypotheses regarding the number and nature of the dimensions are not needed, referral back to this original data, where applicable, is provided for. This is done by analysis of the solution obtained for optimum fit to the initially given data, the ideal fit consisting of a monotonic relationship (see below). Finally, in the judgment task considered here, the individual is not asked about his personal agreement or disagreement with a particular item. Thus, the MDS results provide only a measure of the respondent's conceptual definition of "quality of life" and cannot necessarily be construed to reflect his own personal beliefs or attitudes toward "quality of life".

b) Description of the nonmetric MDS procedure.

The elementary formulations of Shepard (1962a, 1962b, 1963, 1972) and Kruskal (1964a, 1964b, 1968) may be outlined to describe the mathematical procedure of the MDS model used. Although theoretically similar to traditional methods - where obtained relative interpoint distances are converted to absolute distances using an additive constant, and the dimensionality of the space along with projections of the stimuli on the axes of this space is developed - there are several important differences.

The analysis begins with a datum s_{ij} , for every two "objects", i and j , in some set of n , which represents the similarity, substitutability, affinity, association or in general, proximity between them. The objective is that configuration of n points in the (Euclidean) space of smallest possible dimension such that, to an acceptable degree of approximation, the resulting interpoint distances d_{ij} are monotonically related to the given proximity data in the sense that $d_{ij} < d_{kl}$ whenever $s_{ij} > s_{kl}$. In order to apply the gradient method, and hence to find the optimum configuration of points, the only further specification required is an explicit function to measure the to-be-minimized departure from the desired monotonic relation between the given proximity data s_{ij} and the distances d_{ij} . The latter are computed among the points in the

configuration reconstructed during each iteration. Then an algorithm is employed according to which the coordinates for the points are adjusted during each iteration in the direction of the (negative) gradient of that function until the "stationary" situation is reached. At this stage, barring entrapment in a merely local minimum, any further adjustments could only make the fit worse.

The measure of departure, Kruskal's "stress", is based upon the sum of squared discrepancies between the actually reconstructed distances d_{ij} and corresponding numbers $\hat{d}_{ij}$ that minimize this sum, subject to the constraint that they are monotonic with the corresponding s_{ij} in the sense that $\hat{d}_{ij} < \hat{d}_{kl}$ whenever $s_{ij} > s_{kl}$.

For any of these iterative methods, it is necessary to provide a starting configuration in a space of some trial number of dimensions. The starting configuration can be entirely arbitrarily or randomly generated, or it can be constructed in some rational way on the basis of the given data. The rational starting configuration, since it is bound to be closer to the final optimum configuration being sought, may have the advantages of (a) cutting down the total number of iterations required, and more importantly (b) of avoiding entrapment in merely local minima.

The first criterion for determining dimensionality is derived from a plot of stress against number of dimensions. Ideally, the number of dimensions chosen will correspond to an "elbow" where this curve first approaches zero and then declines only very slowly thereafter.

This may be considered the most essential of all criteria for evaluating the representation in terms of the number of dimensions it contains. Shepard et al. (1972) state that the best-fitting configuration is constructed in each of several spaces of varying dimensionality. The researcher then makes a decision regarding the point at which the slope of the curve first changes. Under ideal conditions, this point is readily discernible, for example, when the degree of stress increases as the dimensionality decreases.

A second criterion for the dimensionality of the space is essentially extrastatistical: the solution should be interpretable. The most comprehensive and parsimonious configuration that has been suggested is comprised of three dimensions (Shepard et al. 1972, p. 343). If, however, the representation cannot be interpreted in its full dimensionality, it may be because its parameters are too numerous and therefore dominated by error in the data. In this case, a representation of lower dimensionality should be tried.

A final criterion is visualizability. In the standard Euclidean case, the configuration of points generated by the

iterative process is often completely arbitrary with respect to the coordinate axes. In fact, it is primarily determined by the particular orientation arbitrarily chosen for the starting configuration. Clearly, the interpoint distances d_{ij} (which are being fitted to the data s_{ij}) are strictly invariant under rigid rotation of the entire configuration of points. This means that the axes will generally be properly interpretable, if at all, only after a suitable rotation. It is only in a minority of cases that the axes produced by MDS can be expected to be interpretable without further rotation.

The output of a Kruskal MDS program can be summarized briefly. A matrix of mean similarity ratings is given for all stimulus pairs (20 X 20 ascriptive items, 10 X 10 testimonial items). Stress values along with the plot for determining dimensionality are produced. Rotated scale values are then provided for each ascriptive and testimonial item on one dimension, two dimensions, three dimensions and so on, depending on the optimum configuration. A three-dimensional solution may also be portrayed unidimensionally by considering only the highest scale values per item across all dimensions. Orthogonal representations of all dimensions are produced: dimensions I and II, II and III, etc.

6. Analysis of the Response Task Data.

a) Absolute importance ratings (factor analysis).

The second problem addressed in the study is the extent to which the respondents' conceptions of QOL appear in terms of priorities signified by absolute and relative importance ratings. Since the MDS technique only requires the individual to judge one stimulus in relation to another, and not to indicate any preferences among the items, the resultant conceptual structuring of the judgment space need not necessarily represent a similar structuring of values or priorities. To assess these, a principal axes factor analysis of self-referent responses to the items was undertaken. In the response approach, the individual is required to respond to each stimulus in terms of his personal importance hierarchy, with the result that variability of reactions to stimuli (QOL items) is ascribed to individual variation (Torgerson, 1958, p.48).

The methodological procedures involved in MDS and factor analysis differ. The scaling analysis centers on a number of dimensions extracted to account for a major portion of the mutual interpoint variance. The factor analysis deals with the extraction of a number of factors to account for common variance in a matrix of correlation coefficients.

Parts I-B and II-B yielded 20 X 20 and 10 X 10 correlation matrices which were factored by the principal axes method; results were later compared to the MDS configurations.

b) Relative importance ratings.

The R.I.R.'s obtained for both parts of the study served as a basis for comparison with A.I.R.'s and as a reliability check. For part I-C, cumulative numbers of Ss were calculated for each item endorsed as "most important" and "least important". For part II-C, frequencies of each rank (from 1 to 10) for all ten items were computed. In both cases the final hierarchies obtained were used for descriptive purposes; no systematic statistical analysis was performed.

7. Design of the Study.

The several comparisons made in this research are best illustrated in Table 2. All comparisons deal with the entire sample. In the case of obtained factors (ascriptive and testimonial), relative importance ratings were analyzed in order to ascertain the stability of the results. The majority of the comparisons (except for (h)) are basically non-statistical in nature. Similar item clusters are noted in the scaling analyses and identical factor components are examined in the importance ratings. In this way, judgment and response

Table 2

Types of Comparisons Provided by the Design of the Study.

Model	Method of Analysis				
	MDS		FA (A.I.R.)		R.I.R.
Part I: ascriptive (N=20)	(a)	(d)	(e)	(i)	(j)
	(c)		(h)		(m)
Part II: testimonial (N=10)	(b)	(f)	(g)	(k)	(l)

- (a) obtained dimensions with postulated dimensions
 (b) as above (testimonial)
 (c) obtained dimensions (ascriptive) with obtained dimensions (testimonial)
 (d) obtained dimensions with obtained factors (ascriptive)
 (e) obtained factors with results of previous research
 (f) obtained dimensions with obtained factors (testimonial)
 (g) obtained factors with results of previous research
 (h) factor matching (testimonial and ascriptive)
 (i) R.I.R. with obtained factors: reliability check
 (j) R.I.R. with previous research results
 (k) R.I.R. with obtained factors: reliability check
 (l) R.I.R. with previous research results
 (m) R.I.R. (ascriptive and testimonial)

spaces are compared in terms of complexity, organization and meaningfulness, in all possible combinations. Definitional departures are interpreted in terms of the various common reference points used by the Ss. The relative abilities of the scaling and factor analysis methods to order and reduce the data in their respective ways are also discussed.

The sole comparison which is presented statistically is the factor matching. As the present case involves an unequal number of variables, the analysis is based on the subset of variables common to both approaches (Harman, 1970, p. 270). The invariance of the factor solutions can be derived by using the factor measurements (factor score coefficients) produced by the principal axes program (Wrigley and Neuhaus, 1955). Essentially, the measurements of a factor p from the first set of six variables are compared with those of factor q from the second set of common variables to produce a coefficient of congruence (ϕ_{pq}) which ranges from -1 to +1. Any coefficient $\geq \pm 0.50$ has been suggested by Triandis (1964) as evidence for the existence of a congruent factor.

This chapter has set forth the procedures followed and the statistical methods used. Results from these methods are now presented in the following chapter.

CHAPTER III

PRESENTATION OF RESULTS

This chapter contains the outcome of the data analysis, beginning with a presentation of multidimensional scaling results of the judgment data for the ascriptive items in section 1. Attention is given to the selection of the exact number of empirical dimensions and their nature. Following this, the results of the factor analysis of the response data for ascriptive items are presented in section 2, including the selection of the relevant factors and their nature. The relative importance ratings given to ascriptive items are also reported, in section 3, with a view toward comparison with the above-mentioned data in section 4. The results of the multidimensional scaling, factor analysis and relative importance ratings of testimonial items are analyzed in the same manner in sections 5, 6, 7 and 8. Finally, the judgment and response results (absolute and relative) for both classes of items are compared in sections 9, 10 and 11.

1. Results of the Multidimensional Scaling of Judgment Data for Ascriptive Items.

Kruskal's MDS program was applied to the ascriptive judgment data for the 150 respondents. For each of the 190 item pairs, the mean similarity rating was computed. The 20 X 20 ascriptive data matrix is found in Appendix B-1. The program

was run in 8, 7, 6, 5, 4, 3, 2, and 1 dimensions. Stress values obtained for the configuration of 20 points in each of these dimensions are shown in Appendix B-2.

At this point, it will be recalled that three "dimensions" were postulated in the ascriptive Economic Council of Canada model. Items 1 to 10 comprised a political group of goal indicators, items 11 to 19 a social group, and item 20 an economic dimension. It had been hypothesized that Ss would use these three criteria for discriminating among the QOL components. Accordingly, the QOL items may be characterized by these three "property vectors" or cognitive points of view. If this is the case, the points that are successively encountered on a two-dimensional plot, for example, should correspond to item content that connotes more and more of some particular identifiable property. The conclusion is then reached that this property (e.g., financial or economic) played an important role in whatever process gave rise to the data.

Using the criteria previously discussed in Chapter II, it was evident that the ascriptive QOL space was three-dimensional (see Appendix B-2). The visualizability criterion concerns the desirability of confining the data to at most three dimensions; this criterion was satisfied.

The nature of the three dimensions that respondents used to describe the conceptual space of QOL based on ascriptive input will next be examined. An attempt was made to ascertain whether or not the Ss organized the 20 E.C.C. items into the same, similar or radically different dimensions which were used as hypotheses at the conclusion of Chapter I. Shepard's (1972) comments concerning the criterion of interpretability of dimensions are illustrative at this point:

If substantive interpretation can be given for the way the points are arranged in the space as a whole (for example, but not necessarily, by interpreting a complete set of orthogonal axes in the space), it is reasonable to conclude that the dimensions are all real. If, however, the representation cannot be interpreted in its full dimensionality, it may be because the parameters of the representation are too numerous and therefore dominated by error in the data. In this case, a representation of lower dimensionality should be tried (p. 9-10).

Accordingly, one can proceed by examining each dimension in turn, while attempting to explain the item clusters in terms of some common element. With the present data, it will be noted that these desired elements are not as salient as in the case of other more straightforward studies, e.g., when considering the similarity between nations (Wish et al., 1972). Consequently, the reality of the QOL dimensions obtained may perhaps be considered doubtful, or at least questionable. Mindful of this possible limitation, however, it is proposed that the following analysis serves to illustrate the possibil-

ities of the technique when using this type of data.

The rotated scale values of the 20 ascriptive items on the first dimension are found in Appendix B-3. Using this data, item groupings on the unidimensional scale are illustrated in Figure 1. It is evident that roughly six groups of items can be distinguished on this scale, none of which contains items of a unitary nature. There are 11 items in the largest grouping, 7 of which are defined in the E.C.C. model as Political and 4 of which are defined as Social. Two groups are relatively well-delineated at the negative pole, and three groups at the positive pole of the scale. Yet no grouping can be understood as possessing attributes which make it logically distinct from the others. Item 16, Communication, may be viewed as a sort of reference point on the QOL scale.

The rotated scale values of the 20 ascriptive items of the first two dimensions are found in Appendix B-4. Figure 2 portrays the two-dimensional solution as a unidimensional scale of items having the highest values on either dimension, ordered from highest to lowest. Comparison of this plot with Figure 1 shows that the items are slightly more well-defined. Three clusters are apparent, none of which is homogeneous in

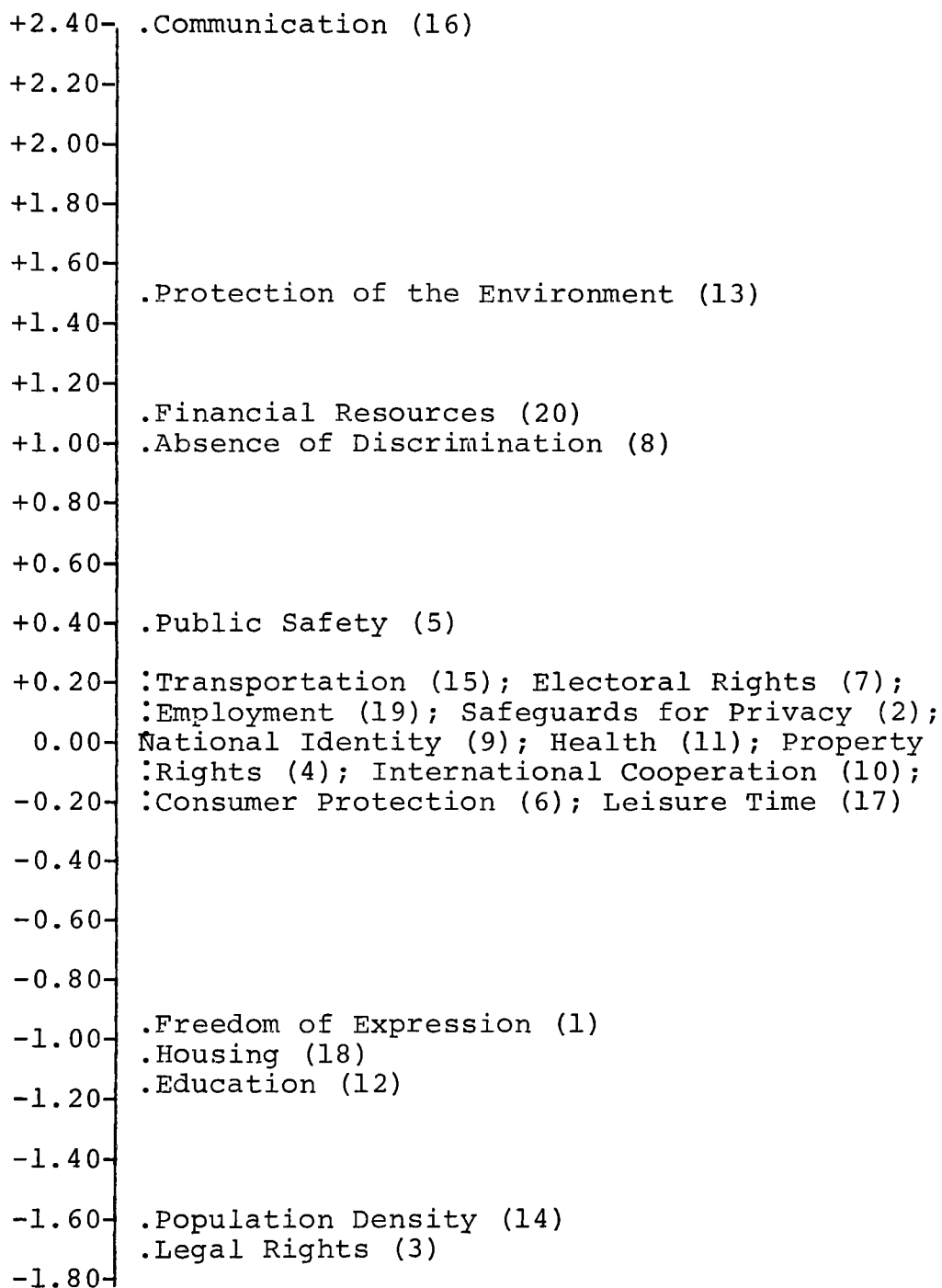


Figure 1.- Plot of Scale Values for Ascriptive QOL Items on One Dimension (N = 150).

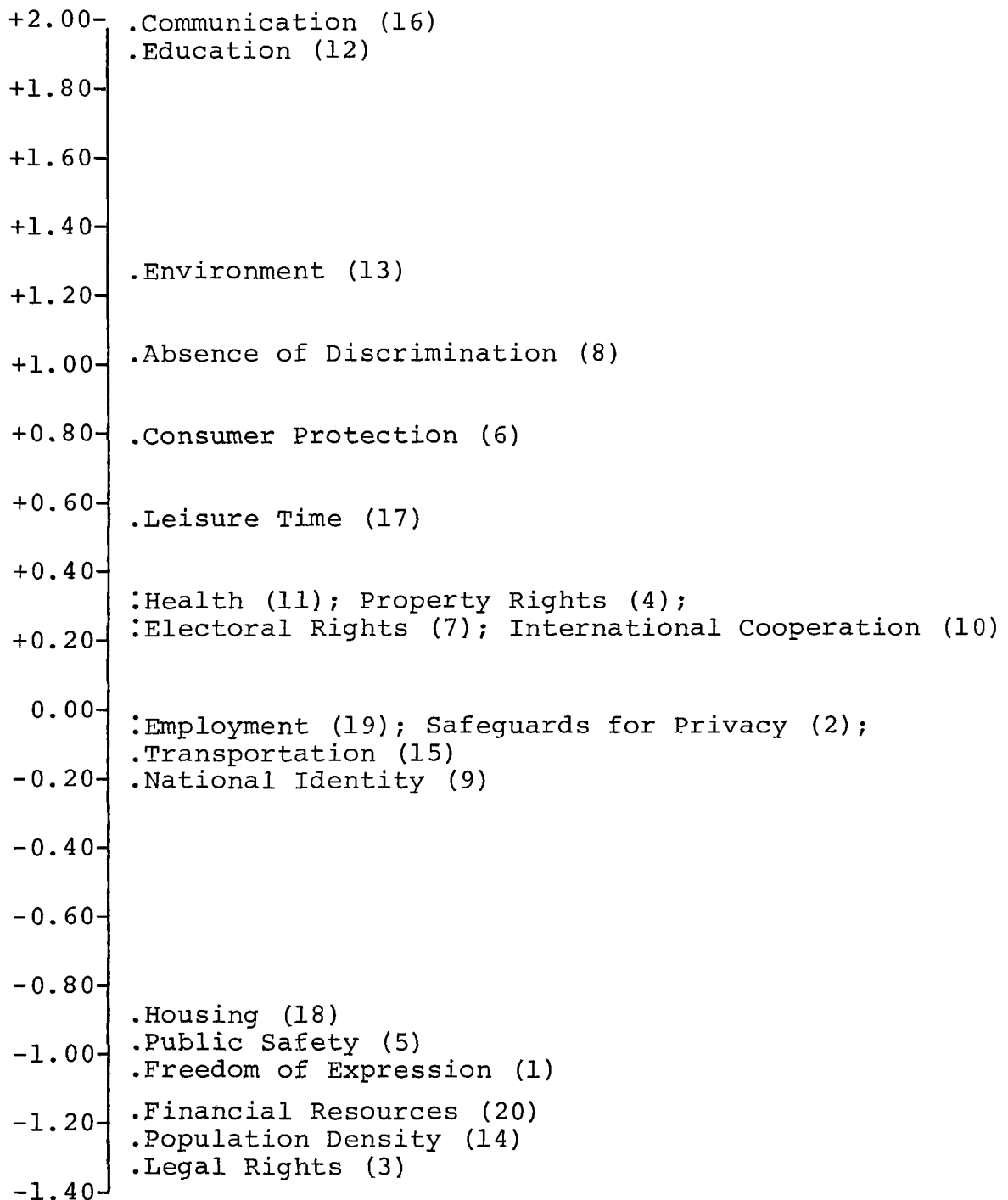


Figure 2.- Plot of Scale Values for a Two-Dimensional
Ascriptive QOL Configuration on One Dimension.¹

¹ highest scale values for each item

terms of Social, Political or Economic attributes, however. Most items fall within the same groups in both cases. The exceptions noted are items 20 (Financial Resources); 12 (Education); and 5 (Public Safety). Item 16 (Communication) is consistently distinct, at one pole of the scale in almost all plots. Item 12 (Education) is often associated with item 16, which may suggest a cognitive map of QOL for this sample of teachers with "communication" as a reference point. (Perhaps given occupational groups tend to organize the QOL concept into terms which reflect their vocational or career orientation).

Figure 3 depicts graphically the positions of the items having loadings on both dimensions of the two-dimensional solution. The largest cluster of items remains much the same as in Figure 2. The contribution of the second dimension appears to lie in (a) the separation of items 20 and 5 from the first cluster; (b) items 8 and 13 from the second cluster and (c) item 16 from the third cluster. Despite these distinctions, the two-dimensional configuration remains largely uninterpretable. An economic dimension (item 20) appears to be emerging, but is not wholly isolated. A further problem arises with the separation of item 16 from item 12; it appears no longer certain that these components define a dimension, as they now appear to be conceptually distinct. Therefore any attempt to

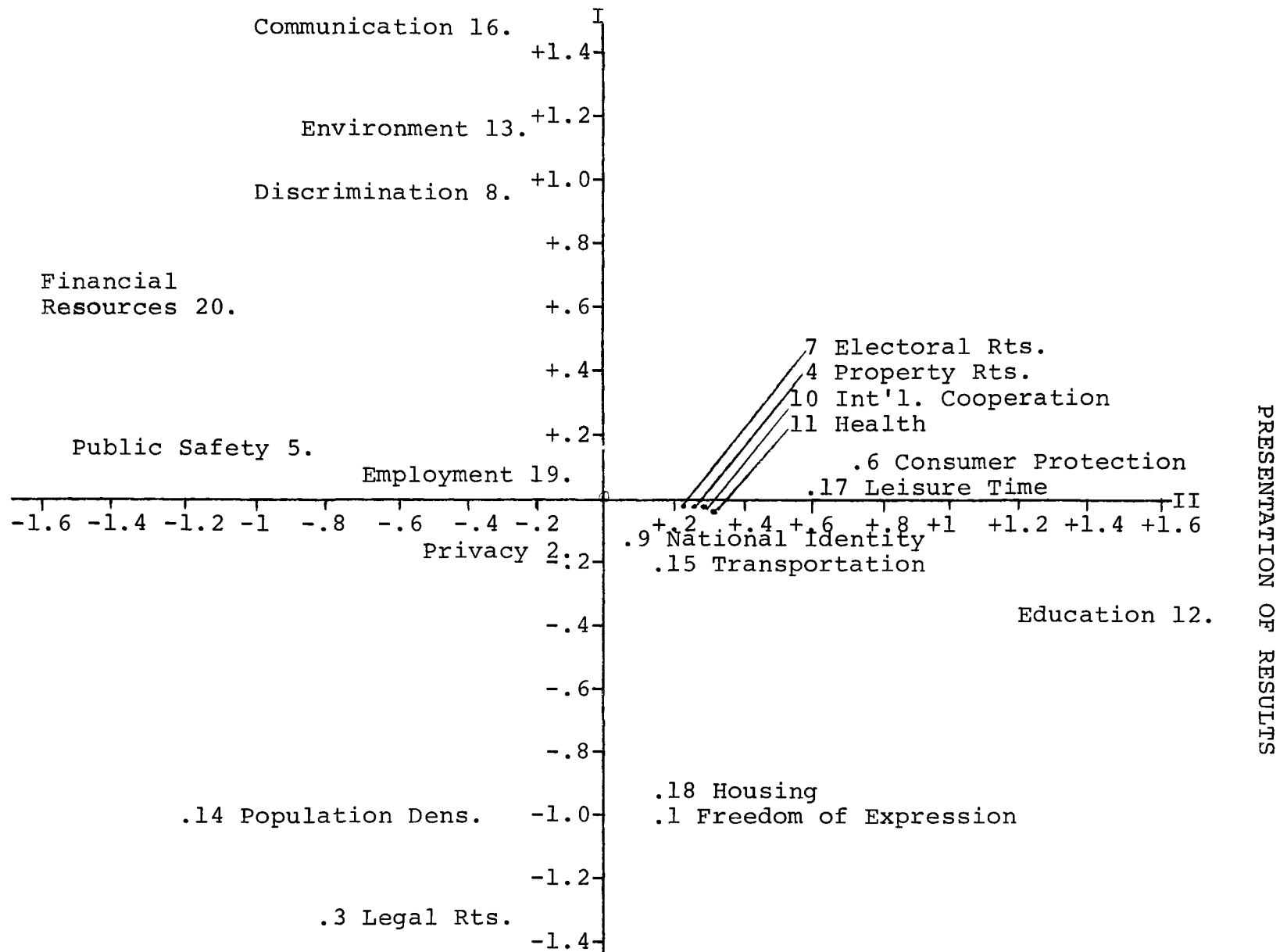


Figure 3.- Projections of Ascriptive QOL Items on Dimensions I and II for the Two-Dimensional Solution.

view the QOL domain produced by the teacher sample into Social, Political and Economic dimensions seems unwarranted, since the respective items are distributed in all quadrants. At this point, it would seem that, for the two-dimensional solution here, the hypotheses postulated at the conclusion of Chapter I for the ascriptive case cannot be rejected.

The rotated scale values of the 20 ascriptive items for the three-dimensional solution are found in Appendix B-5. Figure 4 depicts this solution unidimensionally. It is apparent that generally no clear separation of items exists. The exceptions appear to be items 12 and especially 16, which still remain distinct, as well as the clusters comprising items 1 and 18 and items 8 and 13. Item 20 (Financial Resources) cannot yet be considered apart from the others.

Figures 5, 6 and 7 illustrate the positions of all QOL items on the three final dimensions (I and II, II and III and I and III, respectively). Items 12 (Education) and 16 (Communication) remain generally distinct, and there appears to be a group of items in Figure 7 which might be termed "political" in nature (items 2, 19, 6, 9, 17, 10, 4, 11, 7 and 15). But all three plots for the three-dimensional solution remain basically uninterpretable. Figure 8 shows a geometrical representation of the three-dimensional solution.

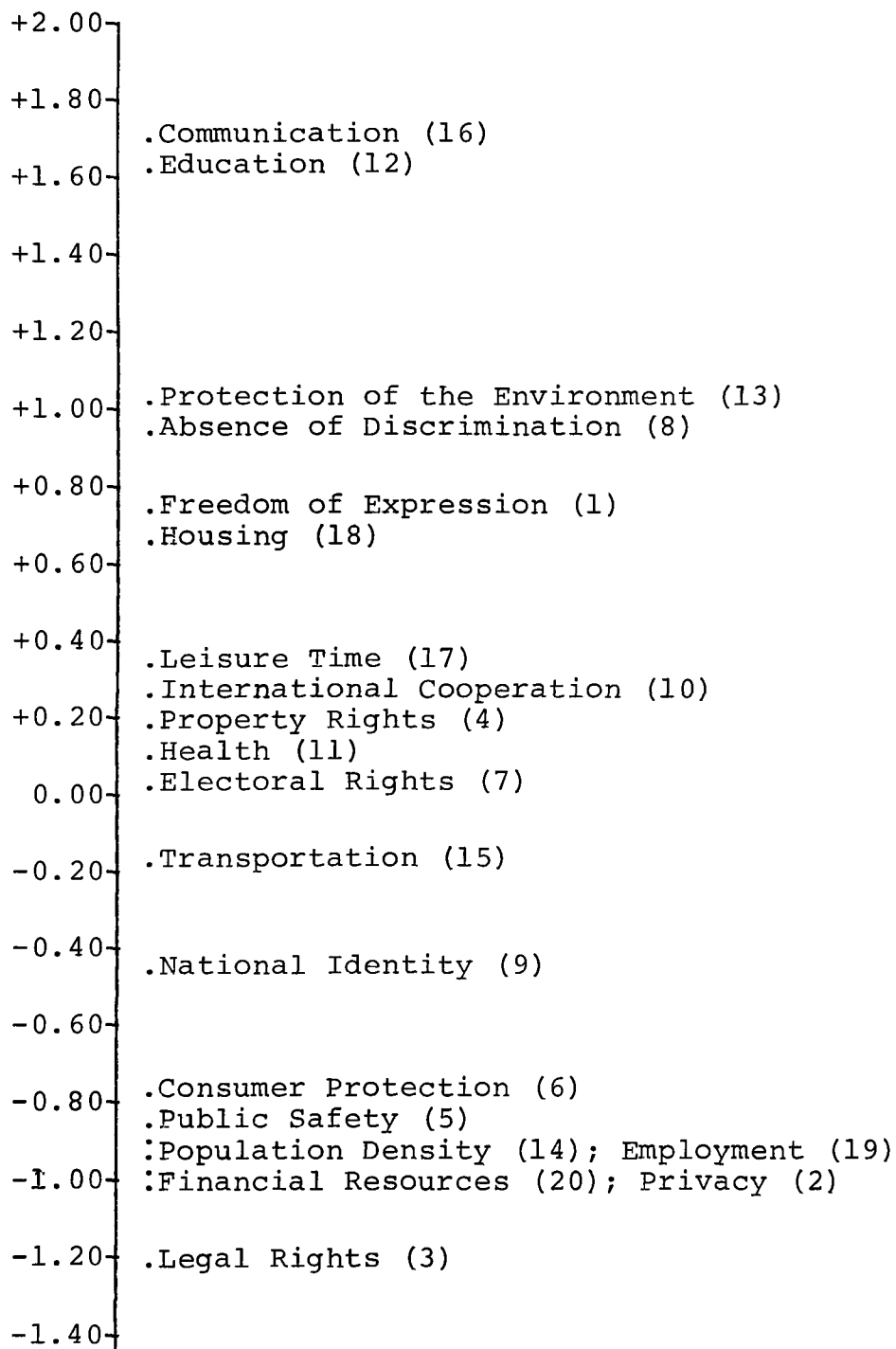
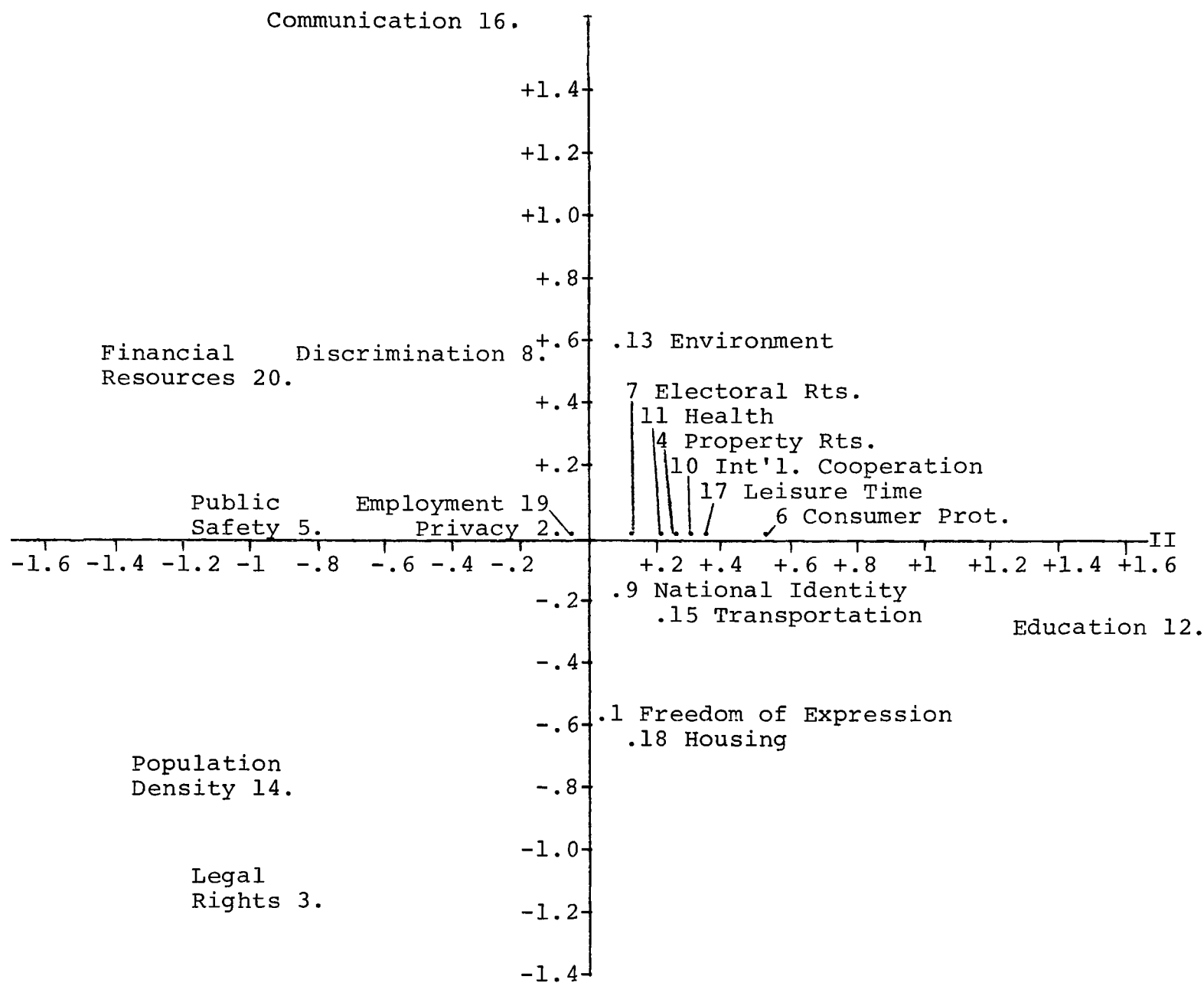


Figure 4.- Unidimensional Representation of Highest Scale Values for Ascriptive QOL Items on Three Dimensions.



PRESENTATION OF RESULTS

Figure 5.- Projections of Ascriptive QOL Items on Dimensions I and II of the Three-Dimensional Solution.

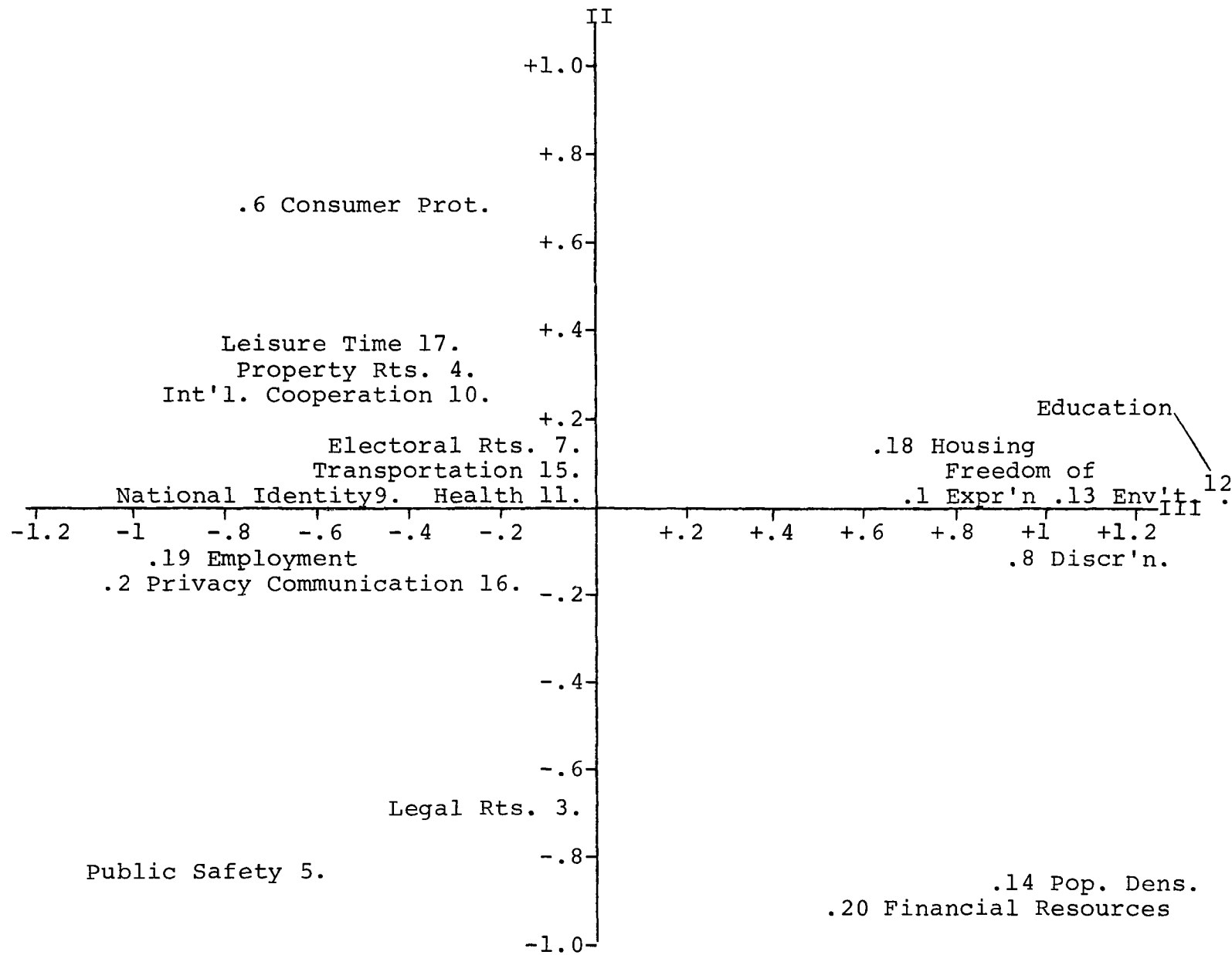


Figure 6.- Projections of Ascriptive QOL Items on Dimensions II and III of the Three Dimensional Solution.

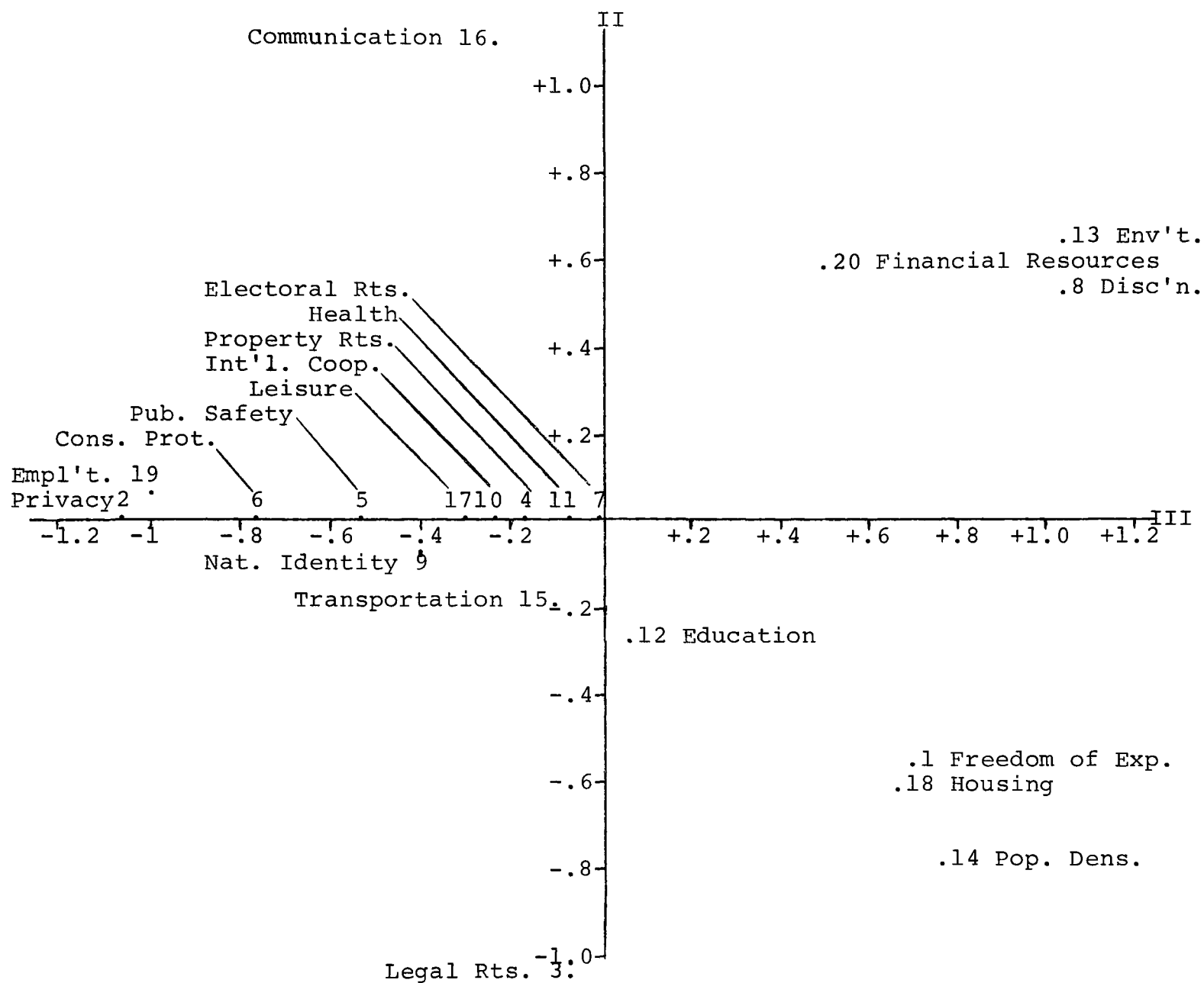


Figure 7.- Projections of Ascriptive QOL Items on Dimensions I and III of the Three-Dimensional Solution.

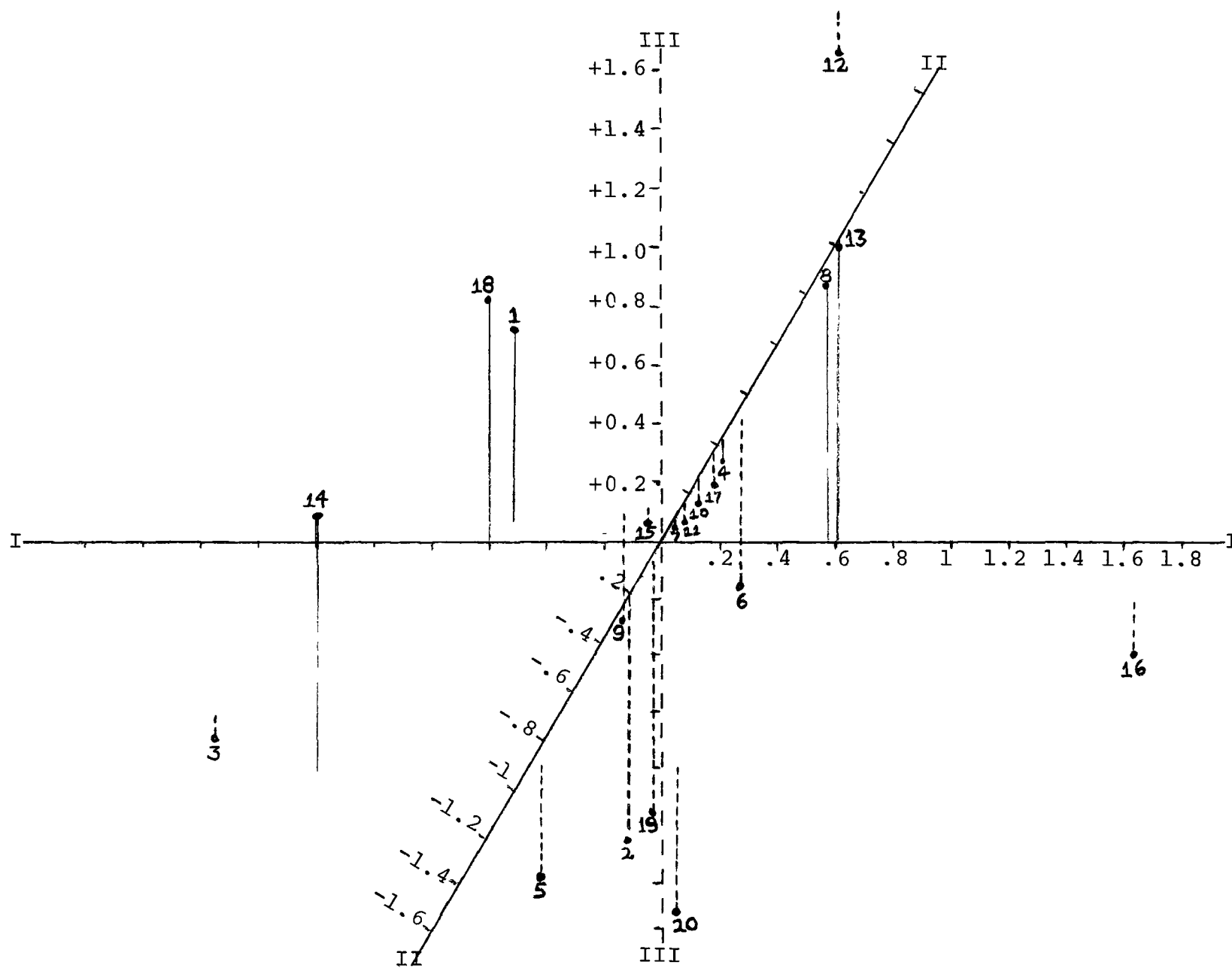


Figure 8.- Three-Dimensional Configuration for 20 Ascriptive QOL Items (N=150).

The appropriate labelling of dimensions obtained from MDS is an extra-statistical task. In the present case, it appears that no clear-cut interpretation of the axes is possible. However, in several plots (figures 3, 5, 6, 7 and 8) there are consistently three reference points in the QOL domain as dimensionalized by the sample: Education, Communication and Financial Resources. Figure 8 shows three orthogonal dimensions characterized by these reference points. It is suggested that there is an Economic component to QOL, lending some support to the E.C.C. model. Furthermore, the other two reference points suggest that conceptualization of QOL may be closely dependent on (or at least related to) the nature of the sample used - Education is here a reference point for a sample of teachers. This may be a major finding if it is supported by further research with different occupational groups.

Also, there is some evidence in figures 5, 6 and 7 to suggest a continuum of items from personal, concrete needs towards collective, more abstract desires. Thus, Communication (16) is usually found at one polarity and a consistent cluster of four items (Freedom of Expression (1), Housing (18), Population Density (14) and Legal Rights (3)) at the opposite polarity, with Education (12) as well as Financial Resources (20) and Environment (13) somewhere in between.

Several factors can be responsible for the foregoing indefinite outcome; those central to the model-building emphasis of the present investigation will be reviewed in Chapter IV.

2. Results of the Factor Analysis of Response Data for Ascriptive Items.

It will be recalled that the response task required Ss to rate the importance of each QOL item (ascriptive and testimonial) on a nine-point scale. Because it was found that Ss in the pilot study were not using the high end of the scale (degrees of unimportance), it was decided to retain only those four headings describing the positive pole of importance.

Several factors can be reiterated before viewing the results of this analysis. The rationale behind the factor analysis was primarily the assessment of the value priorities of respondents towards both an ascriptive list and an empirically-constructed list of QOL items. Two comparisons were sought: between importance hierarchies produced by both approaches, and between factor analysis and MDS results within each approach. Finally, it must be noted that the analysis was done on sets of items which were rated in terms of "absolute importance" (hereinafter referred to as absolute importance ratings, A.I.R.'s). Each item was rated independently of any other. No hypotheses were put forward as to the number of factors expected in any case.

Accordingly, the means and standard deviations of the 20 ascriptive QOL items were obtained; they are presented in Table 3⁷. Analysis of this table shows that items 18 (Health),

⁷ Examination of this table indicated that Ss used 3 of the 9 ratings; a rating of 3 was most often preferred. On the average, ratings of 6, 7, 8 and 9 were not used. This suggested that (a) a wider range of descriptors or (b) a shorter, e.g.,

Table 3

Means and Standard Deviations of Each Ascriptive Item
Derived From Subject Response Data (N=78)

Item	Mean A.I.R.	Standard Deviation
18. Health	1.99	1.47
15. Freedom of Expression	2.05	1.13
14. Education	2.45	1.53
2. Absence of Discrimination	2.46	1.55
17. Legal Rights	2.50	1.74
16. Employment	2.51	1.59
3. Safeguards for Privacy	2.54	1.36
19. Environment	2.59	1.64
5. Public Safety	2.76	1.50
11. Communication	2.91	1.78
4. Consumer Protection	3.03	1.82
10. Housing	3.14	1.77
20. Security of Property Rights	3.15	1.92
8. Leisure Time	3.23	2.04
12. Electoral Rights	3.23	2.09
13. Financial Resources	3.41	1.94
6. Population Density	3.62	2.40
1. International Cooperation	3.90	2.45
7. Transportation	4.13	2.12
9. National Identity	4.68	2.35

15 (Freedom of Expression), 14 (Education)⁸ and 2 (Absence of Discrimination) were all considered "extremely important" by the sample. All other items were rated as "very important" with the exception of item 9 (National Identity) which was rated 5 (undecided).

Principal axes factor analysis yielded seven factors which accounted for 71.9% of the total variance. After 14 iterations, communality of one or more variables exceeded 1.0; factoring was terminated at iteration 13. Those with eigenvalues above 1.0 were retained. The 20 X 20 correlation matrix is found in Appendix B-6. The unrotated factor matrix (using the principal factor with iterations) for 20 items and 7 factors is found in Appendix B-7.

Examination of this matrix indicated that, using the ± 0.35 criterion, 16 of 20 variables loaded substantially on one (negative) pole of the first factor. Had prior MDS shown the three groups of items to be conceptually distinct, the opposite pole would have had significant loadings. In this case, extraneous variance (acquiescence response bias) rather than perceived content variance would be operative, and could lead to the removal of this first factor.⁹ As the MDS results were indeter-

5-point scale would have distributed the ratings more easily. But it appeared incorrect to interpret this as a lack of normality, i.e., a skewed distribution. It was evident that the distribution was merely asymmetrical (for the reasons put forward above); mean ratings were dispersed quite evenly and normally around a mean of 3.0, satisfying factor analysis logic.

⁸ probably an artifact of the sample

⁹ (Skippon, 1974, p. 85).

minant in the ascriptive case however, the positive pole is not represented and the first factor remains.

To enhance interpretability, these factors were rotated to provide orthogonality via the varimax method. Results are shown in Table 4. Analysis of this table shows that the set of ascriptive QOL items is not readily reducible to a few factors. However, factor I summarizes a substantial portion (44.5%) of the variance in the data used. The relatively even distribution of variance across the remaining six factors suggests that there exists only minimal overlap.

It may be noted that parsimony is apparently sacrificed for meaningfulness by having seven factors. Using the ± 0.35 criterion, it was also found that the first three factors contained at least three items above this value. This suggests that these factors are stable or replicable; the last four factors are not as stable as these three.

The highest loading for each item across all factors is indicated. These will be considered in the graphical presentation used in the interpretation in order to gain optimum distinction of the factors because of the cross-loadings occurring with some items. Five items (3, 17, 20, 18 and 10) are cross-loaded on factors I and II (3 cases), I and IV and I and II, respectively.

Table 4

Factor Loadings of Ascriptive QOL Items on 7 Rotated Factors (N=78)

Item Content	Factors						
	I	II	III	IV	V	VI	VII
I. POLITICAL							
3. Privacy	<u>.56</u>	<u>.37^a</u>	.05	.22	-.07	-.04	-.07
20. Property Rights	<u><u>.56^{b,c}</u></u>	<u>.45</u>	.21	-.04	.13	.03	.14
5. Public Safety	<u>.61</u>	.08	.11	-.03	.33	.19	.19
4. Consumer Prot'n.	<u>.57</u>	.10	.01	.15	-.01	.04	.02
15. Freedom	<u>.03</u>	<u>.60</u>	.14	.13	.02	.11	.05
17. Legal Rights	<u>.46</u>	<u>.75</u>	.05	.05	.17	-.16	-.01
12. Electoral Rts.	.25	<u>.73</u>	.01	-.00	.18	.20	.03
2. Discrimination	.18	<u>.16</u>	-.03	<u>.97</u>	-.02	-.05	.04
9. Nat'l. Identity	.16	.05	.08	<u>-.05</u>	-.08	.23	<u>.71</u>
1. Int'l. Cooper'n.	-.07	.02	-.02	.05	.09	-.04	<u><u>.56</u></u>
II. SOCIAL							
6. Pop'n. Density	<u>.56</u>	.16	.13	-.15	-.01	-.02	-.02
7. Transportation	<u>.65</u>	-.03	.35	.08	.15	.23	.02
10. Housing	<u>.53</u>	.18	<u>.36</u>	.20	.06	-.03	-.08
14. Education	<u>-.05</u>	.17	<u>.77</u>	-.00	.22	.26	-.05
16. Employment	.30	-.06	<u>.56</u>	.12	.06	-.10	.08
18. Health	<u>.35</u>	-.04	<u>.47</u>	-.11	<u>.63</u>	.05	-.04
19. Environment	.00	.31	.08	.03	<u>.72</u>	.17	.07
11. Communication	-.01	.34	.02	.02	.15	<u>.83</u>	.10
8. Leisure	.26	-.14	.23	-.12	.10	<u>.42</u>	.10
III. ECONOMIC							
13. Financial Res.	.27	.23	<u>.67</u>	-.19	-.01	.07	.06
Percentage of Common Variance	44.50	15.10	12.7	8.70	7.80	6.00	5.30
Cumulative %	44.50	59.50	72.20	80.90	88.70	94.70	100%

a loadings underlined once are greater than +/- 0.35

b underlined twice: highest for each item across all factors

c underlined three times: satisfy both criteria simultaneously

There is some evidence to suggest that factor I may be a "Political" factor, representing legislatable items (privacy safeguards, property rights, public safety, consumer protection, transportation) that are currently popular and controversial. (For example, credit ratings, compulsory seat belt use, smoking in public places, expropriation, food price surveys, gasoline prices). Population density and housing may or may not fall into this framework, e.g., immigration controls, rate of new housing construction. By the same token, Factor II is "Political" in terms of a more direct definition (legal rights, electoral rights, freedom of expression). This factor may be termed "Political Rights/Participation" vs. "Political Legislation".

Factor III deals with Education, Financial Resources and Employment and may be characterized as an Economic factor. These three items clearly define the reward structure or productivity of society. They are geared towards financial benefits, part of what may be termed "personal gain".

Factor IV is weakly defined, and could have been more appropriately classed with factor II. It can be interpreted by the sole item defining it: Absence of Discrimination.

Factor V is described by two postulated Social items: Health and Protection of the Environment. These may reflect an overall concern with pollution-related effects on health,

for example, quality of the air, presence of green space. Both physical and mental health are affected by changes in the environment, suggesting that the factor be termed "Health".

Factor VI deals with communication and leisure time. Despite its low loading, "Leisure" seems to describe this factor, considering the various ways in which leisure time is spent via the media (radio, television, cinema).

Factor VII is relatively easier to interpret. National Identity and International Cooperation both contain a "Global" element.

Table 5 lists these factors in terms of items ranked in order within each factor. They are portrayed graphically in Appendix B-8, B-9, B-10 and B-11.

A second method of interpreting this data is based on the study by Dillman and Christenson (1971). The above factors have substantive homogeneity (e.g., a lack of cross-loadings in most instances) and are theoretically meaningful. It is thus defensible to calculate overall A.I.R. means using highest item loadings on each factor as criteria, which in turn can be used to determine the factor hierarchy. This ordering of QOL factors (see Table 6) can be compared with Table 3 for similarities.

Factor V (Health) is clearly viewed as "extremely important". As no other factor is valued in this way, the others

Table 5

Factor Interpretation of Ascriptive Response Data Using
Highest Loadings (N=78)

Factor	Interpretation	Ranked Items
I.	Political (Legislation)	Transportation, Public Safety, Safeguards for Privacy, Consumer Protection, Security of Property Rights, Housing, Population Density
II.	Political (Rights/Participation)	Legal Rights, Electoral Rights, Freedom of Expression
III.	Economic	Education, Financial Resources, Employment
IV.	Discrimination	Absence of Discrimination
V.	Health	Protection of the Environment, Health
VI.	Leisure	Communication, Leisure Time
VII.	Global	National Identity, International Cooperation

Table 6

Importance Hierarchy for Ascriptive QOL Factors (N = 78).

Factor and Title	Items	Item Mean	Overall Factor Mean ^a	Factor Rank
V. Health	18.Health 19.Env't.	1.99 2.59	2.29	1
IV. Discrimination	2.Discr.	2.46	2.46	2
II. Political (Rights/ Participation)	17.Legal Rts. 12.Elect Rts. 15.Freedom	2.50 3.23 2.05	2.59	3
III. Economic	14.Education 16.Empl't. 13.Fin. Res.	2.45 2.51 3.41	2.79	4
VI. Leisure	11.Comm'n. 8.Leisure	2.91 3.23	3.07	5
I. Political (Legislation)	3.Privacy 20.Prop.Rts. 5.Pub.Sfty. 4.Con.Prot. 7.Trans'n. 6.Pop.Dens. 10.Housing	2.54 3.15 2.76 3.03 4.13 3.62 3.14	3.19	6
VII. Global	9.Nat.Id'y. 1.Int.Coop.	4.68 3.90	4.29	7

a 1 and 2: "extremely important", 3 and 4: "very important"

having ratings (rounded off) in the next category ("very important"), this hierarchy compares well with that in Table 3. Examination of the item means in Table 6 reveals that within each area, they are generally of similar magnitudes. This finding provides further confidence that the overall factor ranks are meaningful. Widely divergent item means within an area would make the overall mean suspect as an indicator of hierarchical rank, inasmuch as rank would be unduly influenced by inclusion or exclusion of specific items. It can be seen in table 6 that one or two items eliminated from any of the largest value areas would have relatively little impact on the rank of the overall factor area.

It is interesting to note that no factor can be considered "moderately important" or "somewhat important". Accordingly, the factor ranks must be interpreted in a relative framework.

These findings suggest that it may be more meaningful to communicate in terms of a few well-defined "value" areas than in terms of specific census indicators of QOL. This appears particularly relevant when attempting to bring public preferences to bear in setting societal goals. Parsimony, meaningfulness and communicability are essential, as the QOL concept is a holistic one, yet also multidimensional and multifactorial.

It was seen that the use of factor analysis to order items into groupings and the reliance on factor means to establish a hierarchy has two advantages over attempts to understand the hierarchy by a single comparison of the 20 item means in table 3. First, it becomes possible to view as a unit those groupings of items that respondents tend to see as similar. While the theoretical orientation on the part of a researcher might allow groupings of totally unrelated items, empirical results obviate this possibility. Secondly, it is important that the effects of any individual item on the factor mean be diminished; in order to provide a breadth of coverage, several items in each area are needed. The present results approach this objective. While three or four factors would serve to meet this goal more closely, it is noteworthy that at least two items are included within each of the seven factors obtained, except in the case of factor IV.

The reliability of these findings can be briefly considered. Although the QOL factors are themselves subject to change, it is emphasized that they are likely to change more slowly than the specific components from which they are constructed. Meaningful comparisons of the QOL factor rankings across samples, time and methods should not be significantly affected by slight changes in their composition. To evaluate reliability across methods, a rudimentary method for examining stability (in a broad sense) was incorporated into the study and is outlined in the next section.

3. Results of the Relative Importance Ratings of Ascriptive Items.

Further checking of the factor hierarchy outlined above is provided by the relative importance ratings (R.I.R.'s). This analysis was undertaken to ascertain any differences in the formats used and partly as a reliability check. It will be recalled that a random number of Ss (N=72) were asked to place a 1, 2 and 3 for the three most important items in the ascriptive list, and 18, 19 and 20 for the three least important.

Table 7 shows the ranking of the 20 ascriptive items. Item 18 (Health) is ranked first in relative importance, followed by items 14 (Education), 16 (Employment) and 13 (Financial Resources). Conversely, these items are ranked 18, 19, 16 and 10 respectively, in terms of least importance. Considering this sample as a random half of the total sample, it is clear that

Table 7

Relative Importance Ratings and Ranks of Ascriptive QOL Items (N=72).

Item	Frequency of "Most Important" Ratings			Cumulative Frequency	Rank	Frequency of "Least Important" Ratings			Cumulative Frequency	Rank
	1	2	3			18	19	20		
Int.Coop.	1	2	0	3	17	6	7	10	23	3
Discr'n.	2	3	5	10	11	6	3	3	12	6
Privacy	2	7	3	12	9	4	2	3	9	9
Con.Prot.	2	0	2	4	15	4	3	1	8	11
Pub.Sfty.	2	2	3	7	12	4	0	1	5	13
Pop.Dens.	2	2	2	6	13	5	3	8	16	5
Trans'n.	0	0	1	1	19	5	14	9	28	2
Leisure	3	2	9	14	5	2	2	2	6	12
Nat.Id'y.	1	0	2	3	18	8	16	12	36	1
Housing	3	5	5	13	6	1	1	3	5	14
Comm'n.	1	2	3	6	14	6	3	3	12	7
Elect Rts.	0	2	2	4	16	4	3	4	11	8
Fin.Res.	6	4	5	15	4	5	3	1	9	10
Education	5	10	11	26	2	1	0	0	1	19
Freedom	7	5	1	13	7	1	1	1	3	17
Empl't.	2	10	4	16	3	2	1	1	4	16
Legal Rts.	4	6	3	13	8	0	0	1	1	20
Health	27	7	5	39	1	1	1	0	2	18
Env't.	2	3	6	11	10	1	1	3	5	15
Prop.Rts.	0	0	0	0	20	6	8	6	20	4
N =	72	72	72	216		72	72	72	216	

the hierarchy is reliable. Comparison of tables 3 (A.I.R.'s) and 7 indicates the consistency of ratings; this is also true for both poles of the importance scale. In addition, those items ranked lowest on the factor hierarchy (table 6) are also considered least important in the relative importance hierarchy: items 9 (National Identity); 7 (Transportation); 1 (International Cooperation) and 20 (Property Rights). Health and Education are at the top of the hierarchy in both cases.

4. Comparison of the Results of Judgment and Response Data for Ascriptive QOL Items.

It is evident that the respondents entertain both complex conceptions and priorities with respect to QOL. A comparison of figure 8 (section 1) with table 5 (section 2) bears this out. The 150 respondents viewed QOL in a three-dimensional framework. Of these, 78 respondents expressed importance decisions which were organized into seven factors. The judgment space (MDS) and the response space (factor analysis) did not contain the same number of "dimensions", such that there appears to be a trade-off between parsimony (in the scaling results) and meaningfulness (in the factor analysis results). However, in terms of a general appraisal, the factor analytic results are possibly more illustrative than the MDS results with regard to the definition and organization of the ascriptive QOL items, although the purposes of the methodologies differ.

In addition, from figure 8 and table 5 it was seen that very few QOL items formed similar clusters in defining both dimensions and factors in their respective spaces. The overlap between the particular conceptual QOL domains appeared to be almost negligible. Items 16 and 13 (factor III) occurred together as items 19 and 20 in the unidimensional plot of the final MDS solution (figure 4). As well, items 3, 5, 4 and 6 (factor I) occurred as items 2, 5, 6 and 14 respectively in similar groupings. Thus 6 of the 20 items occurred in similar positions in both the judgment and response spaces. These items - Employment, Financial Resources, Population Density, Safeguards for Privacy, Public Safety and Consumer Protection - appear to be basic not only to the Ss' conceptual understanding of QOL, but also to the value hierarchy. For the remainder of the 20 items, respondents made no conceptual differentiation. The response space, however, divided these into separate factors; they are perceived as distinct groups in the context of personal importance only.

It thus appears that, to some degree at least, the Political Legislation factor (I) and the Economic factor (III) representing evaluative QOL domains, have their counterparts in the scaling clusters, representing conceptual distinctions.

It is important to note that these two factors correspond to two of the original postulated E.C.C. dimensions which were sought unsuccessfully in the scaling procedure. Thus, while no hypotheses regarding the number and nature of factors were set forth, two of the seven emerged to satisfy the MDS hypotheses. This suggests that there is some stability of QOL component groupings across methods.

More basically, however, the comparison between both spaces in terms of the two clusters is instructive from the point of view of methodological effects. Policy planners developed the three-dimensional structure theoretically. When an empirical attempt was put into effect, the present sample could not completely support this structure from a conceptual viewpoint. But there is some evidence to suggest that the trichotomy (Social, Political and Economic) is partly substantiated from a priority viewpoint.

5. Results of the Multidimensional Scaling of Judgment Data for Testimonial Items.

The testimonial approach was followed as described in chapter II. The 150 Ss were asked to list between 5 and 10 items considered to be components of the QOL of the average Canadian citizen. Three judges grouped the several hundred items into categories; the final list comprised 10 items, as follows:¹¹ 1) Social Acceptance 2) Leisure 3) Education 4) Physical Environment 5) Employment 6) Income 7) Friends 8) Freedom 9) Family 10) Personal Well-Being.

There were 105 Ss who volunteered for the second part of the study. They were presented with a randomized list of all possible pairs of these items (n=45) and asked to rate similarity in exactly the same manner as with the ascriptive data. Once again, Kruskal's MDS program was used to extract configurations for the testimonial judgment data. For each of the 45 item pairs, the mean similarity rating was computed. This 10 X 10 testimonial data matrix is found in Appendix B-12. The program was run in 5, 4, 3, 2 and 1 dimensions. Stress values obtained for the configuration of 10 points in each of five dimensions are found in Appendix B-13.

As there was not any distinct elbow or inflection point in the curve, the procedure for estimating the dimensionality

¹¹ It will be noted that 6 items (2,3,4,5,6,8) are the same as items 17,12, 13, 19, 20 and 1 of the E.C.C. list. This enabled comparative analysis and reliability checks.

of the testimonial QOL space was inapplicable. It appears that the unidimensional solution is probably the most valid one. The criteria for estimating dimensionality and determining its nature (visualizability, etc. - see chapter 2) ultimately could not be applied. Accordingly, this data does not have to be perceived as multidimensional in order to understand the testimonial QOL structure within the minds of the respondents. Only one criterion, process or characteristic is apparently sufficient to account for its complexity. The nature of this criterion is revealed in the following pages. A discussion of the meaning and nature of this finding in itself, and in relation to postulated multidimensional solutions in chapter I is found in chapter IV.

The rotated scale values of the 10 testimonial QOL items on one dimension are found in Appendix B-14. All loadings were necessarily considered in this case, ordered in terms of size. The item groupings on a unidimensional QOL scale are illustrated in figure 9. Although there appear to be four clusters, each cannot be readily separated and distinctly labelled. Rather, item 8 (Personal Well-Being) seems to serve as a reference point on the scale, to which all other items are oriented. At the opposite end, item 2 (Leisure) does not represent a polar alternative, but conforms to the sense of personal satisfaction that the scale conveys. Accordingly,

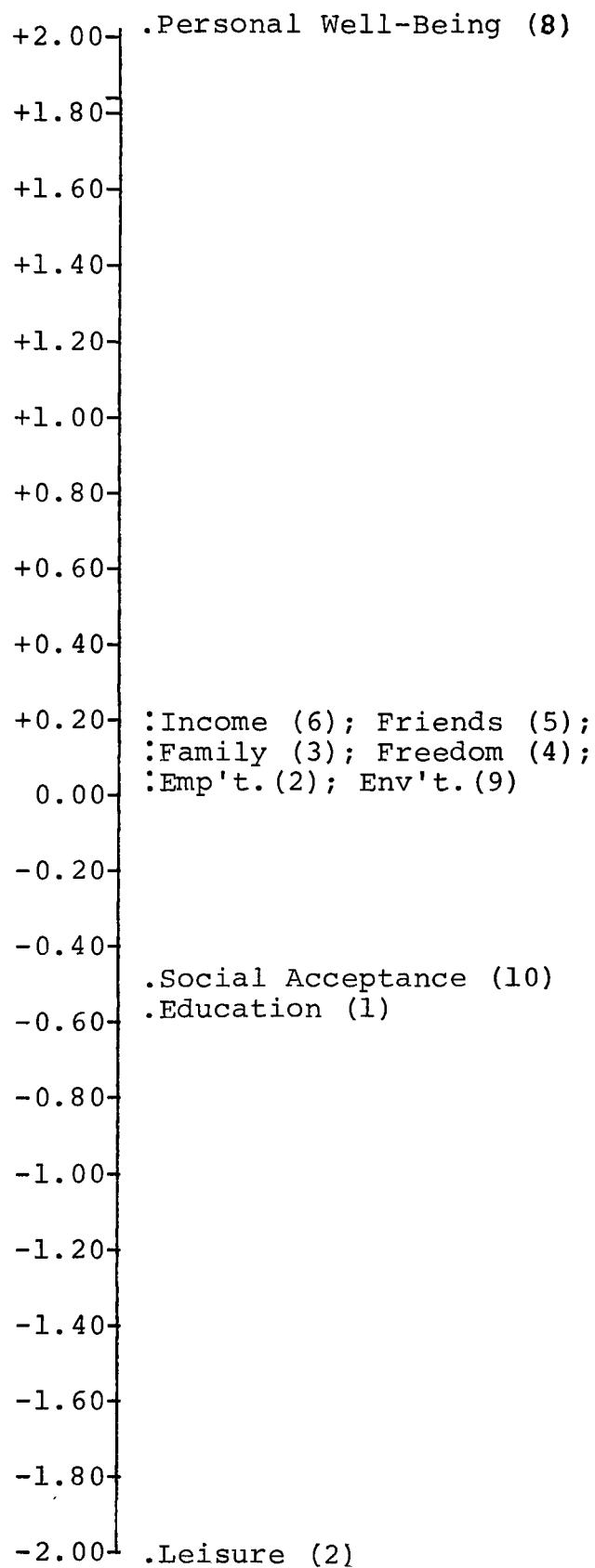


Figure 9.- Plot of Scale Values for Testimonial QOL Items on One Dimension (N=105).

this scale of QOL components can be understood as a "Comfort" dimension.

Consequently, the originally postulated hypotheses cannot be accepted. These Ss do perceive QOL in less than 5 dimensions; unidimensionally, to be more specific. Furthermore, it would seem that Dalkey's categorization, comprising Comfort, Security, Novelty, Achievement and Dominance dimensions, is unsubstantiated in the present case. Respondents have collapsed these reference points into a solitary concept: Comfort. Only this process of conceptualization was used. Discriminations of this process - the above five dimensions - may be too fine for the present sample.

6. Results of the Factor Analysis of Response Data for Testimonial Items.

In the second part of the study, 101 respondents rated the importance of the testimonial items on the unipolar nine-point scale. The means and standard deviations of these items are presented in table 8.¹² Rounding off the ratings, analysis of this table shows that items 3 (Family) and 8 (Personal Well-Being) were considered "extremely important" by the sample, while the remainder fell into the "very important" category.

¹² Once again, Ss used 3 of the 9 ratings; on the average, ratings 6, 7, 8 and 9 were not used. Distribution of these ratings was asymmetric, as in the ascriptive case, but homogeneous. The dispersal of these absolute importance ratings around a mean of approximately 3.0 is congruent with statistical assumptions for factor analysis.

Table 8

Means^a and Standard Deviations of Each Testimonial Item
Derived from Subject Response Data (N=101).

Item	Mean Absolute Importance Rating	Standard Deviation
3. Family	2.32	1.75
8. Personal Well-Being	2.47	1.65
4. Freedom	2.64	1.62
1. Education	3.00	1.84
2. Employment	3.24	1.62
5. Friends	3.55	1.98
7. Leisure	3.64	1.93
6. Income	3.97	1.94
10. Social Acceptance	4.36	2.27
9. Physical Environment	4.49	2.05

a 1 and 2: "extremely important"; 3 and 4: "very important"

The 10 X 10 correlation matrix is found in Appendix B-15. Principal axes factor analysis yielded two factors which accounted for 55.9% of the total variance. After eight iterations, communality of one or more variables (items) exceeded 1.0; factoring was terminated at iteration number seven; those with eigenvalues above 1.0 were retained.

The unrotated factor matrix (using the principal factor with iterations) for 10 items and 2 factors is found in Appendix B-16. Examination of this matrix indicated that, using the ± 0.35 criterion, all 10 variables loaded substantially on the first factor, and 2 of the 10 on the second factor. It would be arbitrary to group these items into the five selected dimensions put forward in the Dalkey study. Since the MDS results indicated that there is a unitary dimension (Comfort), it is probably more conservative to consider these items from that viewpoint at this stage of the analysis.

To enhance interpretability, these factors were rotated to provide orthogonality via the varimax method. Results are shown in table 9. Unlike the ascriptive factor analysis, parsimony is achieved in addition to meaningfulness in the present results. The number of factors is one-fifth the number of items. Also, with respect to their stability and replicability, it was found that each contained at least three items with loadings above the arbitrary significance criterion. In all criteria -

Table 9

Factor Loadings of Testimonial QOL Items on Two Rotated Factors (N=101).

Item Content	Factors	
	I	II
1. Education	<u>.415</u> ^{b,c}	<u>.369</u> ^a
2. Employment	.201	<u>.788</u>
3. Family	<u>.536</u>	.111
4. Freedom	<u>.716</u>	.198
5. Friends	<u>.616</u>	.329
6. Income	.213	<u>.760</u>
7. Leisure	<u>.552</u>	.261
8. Personal Well-Being	<u>.648</u>	.219
9. Physical Environment	<u>.532</u>	<u>.415</u>
10. Social Acceptance	<u>.408</u>	<u>.470</u>
Percentage of Common Variance	84.8	15.2
Cumulative Percentage	84.8	100.0

a loadings underlined once are greater than $\pm .35$

b underlined twice: highest for each item across both factors

c underlined three times: satisfy both criteria

parsimony, stability and meaningfulness - the results of the testimonial factor analysis were more satisfactory than in the ascriptive case.¹³

In table 9, there is evidence to name factor I a "Security" factor. Elements such as Personal Well-Being (especially), Leisure and Freedom imply this orientation. The social element (Friends, Family) as well as other elements (Physical Environment, Education) are difficult to fit in here. But then the choice of a label for all 7 of the original 10 items is a task that is akin to the objectives of the MDS analysis. The interpretation of the first factor then is arbitrary here; there are some commonalities, which comparisons with the scaling results will later clarify.

Factor II presents a less problematic decision. Items 2 and 6 (Employment, Income) clearly define an Economic cluster, with item 10 (Social Acceptance) conceivably related to these in terms of a "status" element. Indeed, the factor could be labelled "status"; were not item 10 the lowest of the three loadings, it would provide this reference point in the group.

¹³ There is some cross-loading in the present data. Items 10, 9 and 1 have values above the arbitrary significance criterion in both factors. Although this suggests that these items should not be considered as strongly defining one factor over another, it does not appear to be a serious drawback. But in order to exclude the ambiguity provided by these three items, highest loadings for each item on either factor will be considered in the analysis that follows.

Neither factor is bipolar; both are broad indicators based on priority ratings, which makes their interpretation more difficult and tenuous. However, it is stressed that they are well-delineated and stable. Factor I contains the following items ranked in order: Freedom, Personal Well-Being, Friends, Leisure, Physical Environment, Education, Family. Factor II is comprised of Employment, Income and Social Acceptance, in order. Appendix B-17 illustrates these factors graphically.

As they demonstrate a substantive homogeneity, the factors can be examined with the format used in the ascriptive case. The hierarchy is found in table 10. It is apparent that both factors are considered as "very important". Ranks are therefore based only on overall factor means, which may be misleading because of the divergency of means included in each factor. Consequently, item 3 (Family), which was previously the only item rated as "extremely important" by the sample, now falls in with the rest. This dichotomy is lost, implying that table 10 can be viewed as illustrative only. One cannot make the inference that respondents consider the "Security" dimension of QOL as taking priority over Economic considerations. This compares favorably with the results of the scaling analysis, where Ss did not appear to distinguish between these or any components, preferring instead to conceptualize them on a unitary basis, along a "Comfort" dimension.

Table 10

Importance Hierarchy for Testimonial QOL Factors (N=101).

Factor and Title	Items	Item Mean	Overall Factor Mean ^a	Factor Rank
I. SECURITY	4. Freedom	2.64	3.15	1
	8. P.Well-Being	2.47		
	5. Friends	3.55		
	7. Leisure	3.64		
	3. Family	3.32		
	9. Phys.Env't.	4.49		
	1. Education	3.00		
II. ECONOMIC	2. Employment	3.24	3.85	2
	6. Income	3.97		
	10. Soc. Accept.	4.36		

a a and 2: "extremely important"; 3 and 4: "very important"

7. Results of the Relative Importance Ratings of Testimonial Items.

The stability of these findings was evaluated by the "relative importance" method used for ascriptive items. All 101 of the respondents were asked to rank order the 10 testimonial items in order of importance to them. Table 11 shows this ranking of the QOL items for 98 Ss. The mean rank for each item was computed by summing the products of r (rank) and n (number of Ss), for each rank, and dividing by N (total number of Ss).

These results suggest extremely high reliability for the priority ratings. Only items 6 and 7 (Income and Leisure) show reversed positions from table 8, as well as in terms of factors from table 10. It is emphasized that Ss had to consider all 10 items simultaneously in order to rank each one, whereas each item was considered in turn, independently from the others, in the A.I.R. case. Yet the results were virtually identical, implying that the testimonial QOL hierarchy is stable across methods or formats.

8. Comparison of the Results of Judgment and Response Data for Testimonial QOL Items.

The respondents in the study entertained relatively simple conceptions and attitudes regarding QOL when items of ultimately their own construction were employed. The 105

Table 11

Frequency of Relative Importance Ratings and Ranks of Testimonial QOL Items (N = 98).

Item	Relative Importance Ratings										Frequency	Mean R.I.R.	Rank
	1	2	3	4	5	6	7	8	9	10			
1.Education	8	16	16	10	10	10	5	13	4	6	473	4.8	4
2.Employment	5	4	15	17	11	12	19	7	6	2	516	5.2	5
3.Family	37	16	12	10	5	8	6	1	2	1	296	3.0	1
4.Freedom	11	21	11	11	16	7	9	8	3	1	416	4.2	3
5.Friends	4	9	12	11	17	13	13	9	8	2	520	5.3	6
6.Income	3	5	6	11	6	19	12	13	13	10	624	6.3	7
7.Leisure	2	7	6	6	7	13	17	16	13	11	645	6.5	8
8.P.Well-Being	27	11	17	9	13	2	6	10	2	1	363	3.7	2
9.Phys.Env't.	1	2	2	4	8	11	5	11	26	28	770	7.8	10
10.Soc.Accept.	1	5	2	9	5	4	7	10	19	36	762	7.7	9

teachers organized QOL into a unitary domain, which was termed "Comfort". There were 101 Ss expressing their attitudes to the importance of the QOL components, as two factors: "Security" and "Economic". While no fine discriminations were made conceptually, some distinction appears in terms of priorities. Both organizations are acceptable, and it would be arbitrary to contend that the two-factor model is superior. The Comfort dimension is as meaningful, parsimonious and interpretable as the Economic and Security factors appear to be. The two factors were collapsed in the judgment space, which was postulated to be multidimensional; however, Ss could not make the dimensional distinctions. This could reflect fact, the nature of the sample, or other extraneous problems. In this sense, the scaling results may not be as definitive as the factor results.

In both instances, large clusters of items remain unbroken. Comparison of figure 9 and table 10 shows that factor II items occur in the two middle clusters of the unidimensional scale. Factor I items are found throughout the scale. Although factor II items were perceived as distinct in the context of personal importance, no such distinction occurred conceptually. All items are basic to both understanding and personal priority of QOL components. The Comfort dimension may have its counterpart in the Security (non-financial comfort) and Economic (financial comfort) factors.

The finer distinctions postulated from Dalkey's model are generally lost in favor of a holistic concept. As that multidimensional model was also derived using a testimonial approach, with other statistical techniques, the present findings cannot be related to theoretical planning biases. If any conclusions regarding the original hypotheses are to be made, one can only state that the first of Dalkey's dimensions - Comfort - was substantiated in the present study.

9. Comparison of the Results of Ascriptive and Testimonial Approaches.

In terms of item input, it was noted that the testimonial procedure produced items which were not directly included in the E.C.C. list of "goal indicators" or "areas of concern". These broad items pertained to the "human" or "subjective" aspect of QOL: personal well-being, social acceptance, friends and family. This result is significant in itself, for it seems to emphasize the relatively greater comprehensiveness of the empirical (in vivo) approach, which should play a central role in the subsequent construction of valid measuring instruments.

The scaling results cannot be technically compared: the number and nature of the items precludes any rigid statistical comparison. But it is enlightening to note the positions of the six common items in the one-dimensional testimonial plot, (Figure 9) and the unidimensional form of the three-dimensional

ascriptive solution (figure 4). Employment and Financial Resources are together in their respective clusters. Freedom (of Expression) and Protection of the (Physical) environment occupy similar clusters. Education is relatively distinct from the other items in both respective clusters. Leisure, while defined alone at the negative pole of the testimonial dimension, is included with four other items comprising an ascriptive cluster. Accordingly, there may be some correspondence here which indicates a reliability of the scaling results over time and across Ss, for the common items.

The factor analysis produced seven ascriptive factors and two testimonial factors. A cursory review of the items comprising them shows that only one may be considered common to both. The Economic factor (ascriptive III, testimonial II) contains the two basic items, Employment and Income (Financial Resources). It appears that no matter what procedure is used (theoretical listing or empirical survey), respondents will include an Economic factor in QOL when assigning priorities to a given list of QOL items. The Economic factor appears to stand alone when priority judgments are required, but becomes part of a general view of QOL conceptually. It would seem crucial therefore, to include this component in any further model of QOL.

Results of the factor matching process shed some light on this "factorial invariance" of the two solutions, i.e., the

stability of the factors when different procedures are used on the same sample of persons. Factor score coefficients for both sets of factors are found in Appendices B-18 and B-19. Table 12 lists the coefficients of congruence obtained by matching each testimonial factor with each of the seven ascriptive factors, based on the six common items in both. The Security factor is congruent with the first two ascriptive factors, even though only one item is common (Freedom). This appears logical, and is supported by the fact that there is a significant inverse relationship between Security and Discrimination (ascriptive IV). On the other hand, Health and Leisure factors would have been expected to converge with the Security factor, if only because these are contained within the latter.

Two other observations are noteworthy. The congruence between the Economic factor in both instances approaches a significant level, suggesting support for previous statements concerning the existence of a distinct Economic component in QOL. Finally, there is a low degree of congruence between the Global and Economic factors, both of which contain dissimilar elements but which may share a similar meaning.

The six common elements in both cases may also be generally appraised for the similarity of ranking (see table 13). Establishing cut-off criteria will aid in interpreting this data. Let ranks 1 to 5, 6 to 15 and 16 to 20 represent high,

Table 12

Degree of Factorial Similarity Between 7 Ascriptive and 2 Testimonial QOL Factors^a.

Factors		ϕ_{pq}^b
Ascriptive	Testimonial	
I. Political (Legislation)	I. Security	<u>.68</u>
II. Political (Rts./Participation)	I. Security	<u>.63</u>
III. Economic	I. Security	-.16
IV. Discrimination	I. Security	<u>-.64</u>
V. Health	I. Security	.32
VI. Leisure	I. Security	.23
VII. Global	I. Security	-.01
I. Political (Legislation)	II. Economic	-.08
II. Political (Rts./Participation)	II. Economic	-.05
III. Economic	II. Economic	.46
IV. Discrimination	II. Economic	.27
V. Health	II. Economic	-.13
VI. Leisure	II. Economic	-.31
VII. Global	II. Economic	<u>.50</u>

a based on 6 common QOL items

b highest coefficients ($\geq \pm 0.50$) indicating closest factor match, are underlined.

Table 13

Absolute and Relative Importance Ratings for Common QOL Items.

Common Items	Ascriptive Case				Testimonial Case				Final Rank
	A.I.R. rank	Wgt.*	R.I.R. rank	Wgt.	A.I.R. rank	Wgt.**	R.I.R. rank	Wgt.	
Freedom of Expression	2	3	7	2	3	3	3	3	1st
Education	3	3	2	3	4	2	4	2	2nd
Employment	6	2	3	3	5	2	5	2	3rd
Leisure	14	2	5	3	7	2	8	1	4th
Income	16	1	4	3	8	1	7	2	5th
Environment	8	2	10	2	10	1	10	1	6th

* ranks 1 to 5: 3 points; ranks 6 to 15: 2 points; ranks 16 to 20: 1 point

** ranks 1 to 3: 3 points; ranks 4 to 7: 2 points; ranks 8 to 10: 1 point.

medium and low priority for ascriptive data, and ranks 1 to 3, 4 to 7 and 8 to 10 designate high, medium and low priority for testimonial data.

The table indicates that few items maintain stable relative positions. Freedom shows almost consistently high priority. Employment, on the other hand, is usually assigned medium priority. The overall hierarchy of the common QOL items across all four data sets may be ascertained by assigning 3 points to high priority items, 2 points to medium and 1 point to low priority items (priority as previously defined). On this basis, the last column of table 13 shows that Freedom is at the top of the QOL hierarchy, followed by Education and Employment. Interestingly enough, even if Education is considered an artifact of the teacher sample, Income appears almost at the end of the list (fifth) instead of alongside Employment.

This chapter has sought to convey the complex sets of results of the data analysis, with limited interpretation. They are compared with findings of previous investigations in chapter IV, and their significance within the policy-oriented context of this study is discussed in detail.

CHAPTER IV

DISCUSSION

This chapter presents interpretations of the results in the light of the stated problems of the study. In section 1 the general findings which emerged from the analysis of the judgment and response domains are discussed with reference to the original hypotheses. This is followed in section 2 by a discussion of these findings with regard to previous research and theorizing on the QOL issue. Finally, some directions for further research in the areas of (a) further explication of the concept, cognitively and attitudinally and (b) measurement of QOL, both with regard to public policy-making, are put forward in section 3. The rationale behind these suggested directions, dealing with quantification, sampling and optimization of QOL in a social policy framework, is also included in this section.

1. General Interpretation of the Major Findings.

The first noteworthy result was the confirmation of a postulated three-dimensional conceptualization of QOL in the ascriptive case. However, the E.C.C. model, composed of Political, Social and Economic groups of indicators, was not substantiated in the present study, except for the Economic dimension. Respondents could not group the ascriptive items in a way which would be totally supportive of the E.C.C. model. However, of the three reference points found, one (Education) suggests that QOL conceptualization may be occupation-specific.

Better organization of the QOL components was obtained with the factor analysis procedure for ascriptive items, however. Although not as parsimonious as anticipated, the priority organization of the ascriptive items was noteworthy. The sample rated the importance of each item and distinguished seven well-defined factors. Both the Political and Economic factors were supportive of the postulated Political and Economic dimensions in the scaling model. The Health factor was considered as the most important, which was also indicated when items were rated for relative importance.

These results imply that lay interpretations of QOL are difficult to relate to preconceived models; in the first case, because congruence is lacking, and in the second case, because of the relative lack of parsimony. Both criteria for the ideal QOL model are elusive within the framework of the sample and items used in the present study. But the factor analysis results do seem to present a viable and worthwhile approach to this problem.

The scaling of the testimonial data was more promising. It was first noted that a "humanization" component was added to the standard list of socio-economic items. This took the form of items such as Friends, Family, Social Acceptance and Personal

Well-Being. The suggestion here is that samples of the population entertain more complex cognitions of QOL, which social policy often neglects in favor of more directly measurable indicators.

The arbitrary five-dimensional interpretation put forward by Dalkey et al. was a significant step in the direction of incorporating these elements, however. Examination of that data suggested Comfort, Security, Novelty, Achievement and Dominance dimensions. But respondents did not dimensionalize QOL space as finely as this, collapsing the items into a unidimensional scale of components which was best labelled a "Comfort" dimension. This represents a meaningful simplification of the QOL domain set forth in theory. The "Comfort" criterion illustrates a significant finding for a measurement model, and supports the objectives discussed in Chapter I. In terms of these original hypotheses, it may be stated that only one of the original five dimensions could be substantiated in the present study.

No less significant was the priority organization of the testimonial items. The sample reduced this diverse data into two homogeneous general factors: Security and Economic. What was unitary conceptually became divided when priorities were considered. As distinguished between a financial component of Comfort (their definition of QOL) and a security component, which took some precedence in the hierarchy. Comparisons of MDS, fac-

tor analysis and R.I.R.'s of all ascriptive and testimonial data indicated substantive reliability of the results.

It may be noted that Ss were asked to list items comprising "quality of life", a term which was not defined or described for them in any way. This was done even before the E.C.C. items (which otherwise could have biased responses) were presented. The contribution of the testimonial approach towards item selection and construction in a scaling study lies in the fact that Ss (representing a sample of the public) emphasized the personal or human side of QOL which many investigators have neglected. For example, testimonial item 10, Social Acceptance, does not usually find its way into item pools perhaps because it is a "soft" item, considered difficult to quantify and define.

More importantly, the "Comfort" dimension, which testimonial Ss used in conceptualizing QOL, did not appear in either the postulated or obtained dimensionality of the ascriptive model. While planners conceive of QOL as a multi-faceted socioeconomic entity, respondents chose a single, person-oriented criterion. Consequently, in terms of validity, it seems that items such as this should be added to the standard list of E.C.C.-type components in future research attempts.

This is related to the larger contribution of the testimonial approach, of course. It may be valid theoretically to

decide upon the QOL dimensions using a team of experts, and more so to check this model out empirically, as the present study attempts to do. But a direct solicitation of factors from large well-sampled segments of the public adds a dimension of empirical validation that is difficult to surpass. This approach was used with a very limited sample; but the empirical data showed that a multidimensional model which sounds good in theory may be unnecessary in practice. This is not to suggest that "Comfort" should be the sole concept in future attempts at measuring and optimizing QOL, but it appears that a group of related variables should perhaps be added to the more developed socio-economic lists as an important candidate for quantification.

Comparison of relative importance ratings of the six items common to both approaches yielded the following hierarchy: Freedom, Education, Employment, Leisure, Income and Environment. Although Education may be viewed as an artifact of the sample, the fact that Freedom tops the list may again be indicative of the necessity of incorporating this "soft" item in a future policy-oriented design.

In the following section, the foregoing results are compared and matched with those of other relevant studies which were reviewed in chapter I.

2. Relationship of the Results to Previous Research.

When comparing the ascriptive and testimonial results to other research, only the studies by Liu (1975a), Henderson (1974) and Andrews and Withey (1974a, 1974b) will be considered, as these analyses deal with the dimensionality of QOL. Liu's model contained five dimensions (Social, Political, Economic, Health/Education and Environment) and was based on 123 indicators. Henderson's (1974) model, also ascriptive, separating Material Well-Being from Socio-Cultural Well-Being and Equity. Andrews and Withey's (1974b) testimonial model distinguished three dimensions based on over 100 subjective and objective items: Self/Family, Job/Neighbors and Government/Media. QOL components are perceived in the latter case in terms of distance from self, implying a description in terms of three concentric circles. What is common to all three studies is an Economic dimension.

The ascriptive scaling results appear to have this Economic counterpart in the above models. In the Andrews study, moreover, some similarity exists between the "personal" and "collective" groups of items in the present study, and the Self/Government dimension. Items ranging along the "personal/collective" continuum (Communication, Education, Population Density, Legal Rights, Housing, Freedom of Expression) also generally correspond to Henderson's Material Well-Being dimension. However, there does not seem to be a similar corres-

pondence for the remaining items; there is no lateral or horizontal dimension which could be accurately termed Socio-Cultural Well-Being.

The testimonial scaling results produced a unidimensional conceptualization of QOL which was termed "Comfort", with items ranging along a continuum from Leisure to Personal Well-Being. There does not appear to be any similarity to Andrews' model; the Personal Well-Being pole at best approximates the Self/Family pole.

Results of the ascriptive factor analysis were more illustrative vis-à-vis the above models. Two factors, Political (I and II) and Economic (III) had counterparts in the original E.C.C. model. Furthermore, three of the seven factors are contained in Liu's (1975a) model: Political, Economic and Health. Thus, the E.C.C. and Liu models seem partly substantiated by an empirical investigation which evaluates the postulated structure of QOL. This occurs only with a factor analysis of importance ratings, however. The remaining factors are subsumed either under the Social dimension of the E.C.C. model or the Social and Environmental dimensions of Liu's model. This may be understandable considering the conceptual vagueness of the "social" component of QOL; on the other hand, the analysis for the present sample did partition Social into Discrimination, Leisure and Global factors.

More noteworthy comparisons occur with the testimonial factors. The Economic factor here is found in both the original E.C.C. and Liu models, as well as both ascriptive and testimonial data sets (cf. factor matching results in chapter III). This is significant insofar as Ss produced the testimonial items themselves, and the priority ratings which led to the separation of the economic element. There appears to be enough evidence to conclude that this is a basic reference point in the QOL domain.

Factor I (Security) contains the following items and their elements (see Appendix A-7): Freedom, Leisure (culture), Environment, Education, Friends, Family (marriage, sex, population) and Personal Well-Being (peace, health, privacy). While this factor is almost equally divided among Political and Social dimensions in the E.C.C. model and several dimensions in the Liu model, comparisons are possible with the Andrews model. The Security factor corresponds most appropriately to that pole of the QOL dimension closest to self, in terms of the following common items: health, freedom, education, leisure and family. The Security factor may thus be compared to the inner core of Andrews' QOL model.

The analysis of priorities in the present study yielded the following hierarchies: (a) ascriptive: health, freedom of expression, education, absence of discrimination; (b) testimonial: Family and Personal Well-Being. The common item at the

top of the QOL hierarchy is Health. This occurs whether ascriptive or testimonial items are used, and when either absolute or relative importance is considered. When the six common items are used for comparison, the order of importance is Freedom, Education, Employment, Leisure, Income and Environment.

These results conform well with similar research reviewed in chapter I. The Health component was considered a substantially more important element of QOL in studies by Henderson (1974) and Foster and Corbeau (1975). Employment shared a similar position in studies by Henderson (1974) and Burstein et al. (1973-74), and ranked third in the common hierarchy discussed above. Aside from these two components, the remainder of the items do not conform literally to other hierarchies. Public Safety, Environment and Communication were at the top of the list in at least two studies, but cannot be similarly considered in the present study. Although there is some evidence of central reference points for Health and Employment, it is difficult to speculate on the position of other elements, partly because of sample and scale differences.

3. Suggestions for Further Research.

This section opens with a discussion of ways in which the present results could be analyzed by auxiliary methods. In addition to these "technical alternatives", the extension of

the approaches followed to areas involving QOL measurement will be considered. The logic of this rationale will be then examined in relation to the utility of QOL research. This discussion will involve policy relevance (in terms of QOL optimization) within the framework of various types of policy research, e.g., social experimentation. The section will conclude with several suggested research projects which may be viewed as phases of an overall research strategy.

It was noted in chapter II that E.C.C. items were left ambiguous so as to discourage the artificial rating of similarity and thus biased the outcome of the scaling analysis. Because of this, respondents may not have maintained the same frame of reference throughout the judgment task, using criteria which shifted from assessment to assessment. This may have been a factor responsible for the difficulty of interpreting the ascriptive QOL dimensions (Green et al., 1969). However, there is no empirical evidence to suggest that the introduction of qualifiers and adjectives to the items would have produced a more meaningful final configuration. An investigation into this possibility of obtaining spuriously high similarity ratings could provide this evidence.

There also remains the probability that the number of items scaled may have induced randomization of ratings through respondent fatigue. Although there is no evidence to support this in previous research, an attempt could be made to randomly

select a smaller number of item pairs or by assigning Ss to a specific number of blocks containing different pairs. By pooling data over Ss, the problem of handling large stimulus sets may be minimized (Green and Carmone, 1972).

A final technical suggestion concerns the external validation of the dimensions extracted. In some instances, (Miller et al., 1964), Ss are requested post hoc to score items on a set of bipolar phrases. For example, each ascriptive item could have been rated in terms of political, social or economic categories. Although this procedure would have tested the presence of the three hypothesized labels in the perceptual domain of the sample, it is important to note that the respondents are given a psychological set. The procedure is useful in determining the presence of structure where there apparently is none (Green and Carmone, 1972).

While these suggestions may lead to additional clarification, it is contended that the approaches used in the present study have served a central purpose, namely the assessment of the "public validity" of an ascriptive model. It is concluded that a survey (testimonial) strategy produces a more comprehensive picture of QOL, which is thus superior as a basis for measurement. Robinson (1975) has supported this view in terms of "...the image of what constitutes improved well-being." (p. 3, *italics added*). Economics falls short of meeting this need;

Since economic indicators are developed within a conceptual framework that was not built to take into account the more sophisticated knowledge about human behavior generated in other social sciences, they will likely reach short in accurately identifying the effects of social and economic change on general social conditions. (Robinson, 1975, p. 7)

Furthermore,

Social indicators derived solely from directly observable 'objective' phenomena can produce highly misleading information. Public policies are presumably developed with the well-being of the intended beneficiaries in mind. By confining policy analysis to objective data, i.e., by disregarding the perceptions people have of their situation, policy advice will likely be conceived within the value frame of the social scientist and/or the policy planner. Consequently, objective social indicators can become instruments to maintain the status quo, measuring elements we have become familiar with, and sacrificing validity for methodological ease. (p.7)

An example is given of inflation, where it can be acknowledged that "...people can feel worse even though things are getting better according to 'objective' or tangible measures." (p.13)

The "intangible" aspects of QOL represent the function which weighs the statistical determinants for individuals or groups (p. 8). So what may often occur is that "The structure of meaning known to the policy analyst is not necessarily identical to that of the intended beneficiary. (...) what policymakers get is what analysts think beneficiaries are (or should be) thinking." (p.9).

There are further ramifications of the results of the present study which may be viewed in the framework of "policy research", i.e., research which seeks to delineate short or long-

term policy alternatives and offer substantive recommendations, based on empirical evidence, on new or established courses of action (Etzioni, 1971). QOL and PQOL research serve the ends of policy science, which may be generally conceived of as an attempt to link "...the intuitive, political, consensus-seeking approach to policy formulation with the systematic, analytical approach being developed by (social scientists) in order to create a more realistic, viable approach to policy-making." (Henderson, 1974, p. 64).¹³ This definition alludes to the interface between multidisciplinary social science research and the processes of policy-formation and decision-making. While much that has been written on this relationship between social science and public policy (e.g., Horowitz and Katz, 1975) cannot be reviewed here, the present discussion furnishes an example of the issue.

Briefly, the policy-formation process may be characterized by the designation of principal social goals, choosing the order of priority for these goals, determining the array of possible objectives and trade-offs between them and deciding on objectives to be pursued (Henderson, 1974, p. 28). These stages can be described as problem identification; planning

¹³ The major works on policy research and policy science are Williams (1971), Dror (1971a, 1971b), Dye (1971), Freeman and Sherwood (1970), Lasswell (1971), Lerner and Lasswell (1965).

(consideration of alternatives); program development (procedures and design); implementation and evaluation. There are often trade-offs between the "best" approach or alternative (as determined analytically) and the most realistic approach (from a political and administrative viewpoint). Second or third best solutions may be utilized because of this political expediency. The criterion of political feasibility may lead to distinctly suboptimal solutions; suboptimality could occur in instances where QOL findings give way to purely economic or political ends.

However, Robinson states that "Policymakers are no longer content to look at active political signals, cross-check them against those policy options that are administratively and/or legally feasible, and then choose the one that seems most hopeful for success in meeting a problem. (...) 'Who wins and who loses' is becoming a necessary dimension of policy analysis." (p. 2). The contribution that QOL research (or social indicator research) can make to policy science is thus to provide systematic information to decision-makers, as well as considering the political realities of the social system. As mentioned, the testimonial or survey approach appears to satisfy both these considerations reasonably well.

The considerable upward pressure on government expenditures demonstrates a need to improve decision-making modes,

to gauge necessary program adjustments and improve performance in particular goal areas. The apparent demand for determining economic, social and psychological trade-offs involved in various policy choices may be differentiated from the real demand. The former appears through reviews of the literature and the indications of decision-makers themselves, while the latter seems to be only pronounced in certain government sectors and policy situations. There are four groups which can benefit from this case of policy research: politicians, administrators in public and private sectors, "experts" concerned with the details of policy implementation, and special interest or citizens' groups. (Henderson, 1974, p. 66).

But the situation is not without some objections: conceptual, methodological and political. For example, concern is often voiced about the possibility of QOL research being used to support previously-made subjective decisions, or about the potential invasion of privacy which data banks would represent. These and several other problematic issues were briefly reviewed in chapter I (Andrews, 1974). Cogent replies were voiced, and it was concluded that none of these presumed weaknesses was sufficient to invalidate the development and use of perceptual QOL indicators. Sheldon and Land (1972) for example, have stated that once the reliability, validity and utility issues have been established in the private sector, government agencies would

implement this university-based research within the federal statistical system (p. 148).

The utility lies in using QOL characteristics produced by research "... in conjunction with an effective knowledge or understanding of the value systems of the various groups with which they are concerned." (Dalkey, 1972, p. 128). While the values of the policy-maker may dictate the adoption of a mode of transportation or an attractive housing configuration, this may be sharply suboptimal for a substantial proportion of his constituency, whose behavior and attitudes is based on dissimilar values. While traditional policy has often been directed toward these determinants, Robinson (1975) stresses that

We often take on faith that these determinants get translated into improved well-being. Our faith has been so strong that we have accepted many phenomena, such as money income, as direct and valid proxies for increased happiness. We have now come to accept that life is more complicated than that, and have developed more comprehensive lists of the "things that matter for happiness." But we will continue to live in a world of proxies and assumptions, until we bridge the gap between attributes and feelings, between behaviour and motivations. (p.13)

Whether or not QOL findings are geared to a systems approach (oriented to public goals or objectives) or to a policy-oriented (case by case) approach, it is vital to successful policy implementation to have this knowledge.

The advantage most often recognized concerns the increased visibility of social problems produced by (P)QOL research. Ordinarily, issues are evaluated publicly through the

media, which seldom allows a complete or balanced view. In addition, the high degree of organization of some social groups means that these problems receive more articulation and visibility than those of unorganized groups. So some form of empirical feedback from government-sponsored QOL research would improve the visibility and complexity of policy issues by presenting unbiased clarification across all social groups. At a basic level at least, QOL data reservoirs could provide an early warning system allowing the policy-maker to remedy a given situation before negative effects become critical and public opposition occurs.

The previous brief discussion summarized a sample of the areas of potential utility of QOL-oriented research to policy-formation and social problem-solving. With these points in mind, a systematic research program is outlined below. The stages of this program may be generally conceived of as:

- 1) identification: conceptualization or operational definition of QOL in Canadian society. What are the concerns of given sets of people, which are relevant to their sense of general well-being? What is the relative potency of each concern; how do they relate to each other; which covary and which are distinct; what is the structure of people's perceptions?

- 2) measurement: using the previous results to develop an instrument or battery to assess levels of satisfaction. Both

ascriptive and testimonial approaches are used; standardization, reliability and validity are undertaken. In other words, what are individuals' evaluations of their concerns; how stable, valid and comparable are they?

3) prediction: using the measurement data as dependent variables, the assessment of potential change over time in QOL or QOL-related behaviour caused by independent variables such as job satisfaction, urban mobility, etc.

4) optimization: a series of experimental alignments of policies (simulated or actual) in order to influence the direction of QOL differentially, in certain segments of society where the results of previous phases have indicated intervention as useful. Alternately, social experiments designed to affect the total population with regard to a policy issue relevant to its QOL components.

These research phases will next be examined in some detail, by providing a brief description of the issues or the methodology involved, and examples of past, current or potential research activities within each phase.

1A) The identification issue addressed by the present research has been undertaken on a large scale in an American context by Andrews and Withey (1974a, 1974b). Determining QOL components by a survey approach and isolating or specifying dimensionality has also received attention by Dalkey et al.

(1972). It is proposed that similar research be undertaken systematically in a Canadian context, using the results of these investigations as well as the present one.

1B) An alternative approach would be to subject certain QOL components to the scaling or factor analysis methods. The researcher could attempt this "component conceptualization" either as an antecedent or subsequent phase of the systematic project above. Inroads have already been made in the areas of quality of working life (Burstein et al., 1973-74) as well as transportation (Dobson et al., 1974). In the latter case, the authors used two scaling models to detect the latent structure of public thinking on a proposed transportation system. The 32 "design attributes" of the system were presented for preference judgments and three dimensions were found: level of service, social factors and aesthetic factors. This sort of analysis could be done for each of the components (objective and subjective) of a given QOL model, and the results aggregated to form a social report (Black and Kirkaldy, 1971), relevant to policy at municipal, provincial and federal levels. The perceived dimensionality of, for example, employment, health and environment could thus be integrated in a single framework, which would increase the validity of measurement scales designed on this basis.

2A) Large-scale measurement of QOL and PQOL, providing a national data bank, is at the core of the research program. A

Canadian application of the advances made by Andrews and Withey would form the basis of successive stages. Several methods of measuring levels of satisfaction as well as hierarchies of importance would be incorporated in a national survey. At present, the Gallup poll attempts are too diffuse and general, as well as limited in terms of areas chosen for public feedback. More specific information across a broader range of QOL areas is needed to allow the next research phases to proceed.

2B) Component measurement may form a first step, e.g., the work on job satisfaction (Burststein et al., 1973-74). This sort of information has invaluable policy uses; for example, in knowing that low levels of job satisfaction lead to poorly functioning labor markets, higher medical treatment costs, industrial sabotage, alcoholism, or needless strikes, governments will attempt to devote resources for increasing job satisfaction. (Portigal, 1974, p. 14). This framework may be applied to each socio-economic QOL component as well as the so-called "nebulous" areas closely identified with the personal or subjective dimension of QOL.

2C) The next logical phases concern comparisons on various levels with the conceptual and measurement data obtained, beginning with population subgroups. Groups based on demographic variables such as age, sex, marital status, occupation, socio-economic status, language and culture have different concept-

ualizations of QOL and differing levels of satisfaction. In addition to identifying these differences, to determine the specific location of problems, policy-makers can gain some insight into the causes of these differences if the proper research is made available to them. Programs can then be carefully legislated to improve QOL differentially in order to balance deficits. Change across subgroups, however, would probably be related to the weights assigned to a number of components which are more or less constant for the society as a whole. To quote Dalkey,

To the extent that particular socially, culturally, economically determined subgroups of a society experience relatively similar life environments, it is not unreasonable to assume that the individual members of such groups would have relatively similar sets of needs. From this supposition we may further expect that a set of QOL characteristic weights could be developed on a sample survey basis that would be fairly representative of all members of such a group, the extent of which might be defined by fairly simple sociometric data (income, education, race, family status, etc.) Admittedly, these would be crude measures, but potentially useful for policy-evaluation purposes. (p. 127).

2D) The next level of comparison centers on municipal and provincial differences. The classic example of inter-city QOL differences is Liu's research (1974b, 1975b). His methodology can be applied to the statistical data in Perspective Canada to produce a ranking across several dimensions for Canadian provinces. To this data should be added however, the subjective indices found by Andrews and Withey, and testimonial

items such as the ones found in the present study. An accurate rating can then be found which policy-makers can utilize as a basis for decisions intended to raise QOL levels in lower-ranked areas. Public feedback would also serve this purpose if the data were open to responsible municipal representatives.

An example of this potential is provided by Dalkey's substudy into ranking various environments (1972). Using a list of 12 QOL characteristics, (security, novelty, etc.), respondents evaluated 8 descriptions of career/life environments in terms of desirability. Certain job/living environments were rated high on meaningfulness, status and newness, for example; desirability was not directly proportionate to financial benefits. The results implied that if a particular current living environment is forcing an individual into too many suboptimal solutions, the environment is likely to produce a low QOL level for its inhabitants. Such geographical comparisons may have important long-term benefits for guiding (urban) policies which will in turn affect these environments.

2E) The final level of comparison is international. Several attempts are under way to match levels of satisfaction in Canada and the U.S. (Michalos, 1973; Macy and Foster, 1975). As yet, no structured work on comparing conceptual configurations of QOL is evident. Alcock's work (Peredo, 1974) is an example of international comparisons with strictly defined

operational components (see Chapter I). This research has important consequences in the area of conflict resolution and allocational decisions dealing with the global distribution of resources.

2F) At this point in the program, results of all previous research would be made available for public assessment, following the principle of participatory democracy. Feedback from the total population of society would be useful in restructuring and improving the methodology, reinterpreting the results thus far, and suggesting future directions for the application of the data. For example, the municipal comparison data involving QOL satisfaction could stimulate citizens to propose a series of programs aimed at redressing imbalances. Publications such as Perspective Canada and A Report to the People of Alberta (Downey, 1972) are limited attempts which use socio-economic indicators.

The QOL data obtained would give a higher quality of information to the public, and form a better base upon which to make their decisions at the ballot box. Furthermore, the use of this data by citizens' associations and other groups would

...better equip them, from an informational viewpoint, to present and defend their grievances and proposals and to pursue their objectives at various levels of government and in the private sector of the economy. And, too, the resulting feedback by these citizens' groups and other members of the public would be of assistance to open-minded decision-makers in assessing the meaning of the levels of, and changes in, the in-

dicators, and in reassessing the indicators themselves. (Henderson, 1974, p. 55)

As Henderson and others (see Schindeler and Lanphier, 1974) have stated, the social sciences in Canada have traditionally dealt with social problems from the viewpoint of the élite, rather than on the way these problems and discrepancies are experienced and perceived by the "ruled".

This can be changed if PQOL data generated by multidisciplinary teams of social scientists is presented at the proper time, in a policy-relevant framework. This data, showing peoples' concerns broken down demographically and across all political constituencies may be compared with the concerns of the governing representative, i.e., MP. The latter concerns may be assessed through speeches, committee work and submitted legislation (Hyde, 1971, p. 7). Correlating both sets of concerns indicates the degree of congruency between them and at a higher level, the possibility of the need for better representation. The channels of communication of QOL data are: (1) people to government, whether by independent social science research or royal commissions and task forces. The proposed present research program exemplifies this. (2) government to people: the publication of this material, beyond Perspective Canada. (3) among the people: i.e., reactions of community groups to national and local QOL, including representativeness of the media in reporting these reactions (Hyde, 1971, p. 15-18).

3A) The third stage of the research program deals with prediction of behaviour and social change from the foregoing satisfaction data. Andrews and Withey (1974a) have explored the first area by attempting to determine which QOL domains are most important in predicting overall life quality. Hypothesized interactions, such as poor health dominating QOL regardless of other concerns such as housing and family, did not occur. Using multiple classification analysis, a form of multiple regression, it was found that self and health concerns (personal efficacy, family, money, fun and housing) explained most of the variance, and that job satisfaction was a better predictor of overall QOL for men than for women (Andrews and Withey, 1974a. p.18-19).

3B) QOL data may be useful in predicting social change as well. Components such as job satisfaction levels may indicate the probability of labour strikes. Studies using all QOL components may be used to predict locational decisions of firms, for example (Foster and Corbeau, 1975). Simulation models can be constructed to forecast large-scale change, e.g., the STAPOL model developed by Little and de Brigard (1970) at the Institute for the Future.¹⁴

4A) In predicting instances of social change, the utility of QOL data depends largely on what is known of the relationships (trade-offs) between the various objective and subjective

¹⁴ The model assesses the impact of policy on QOL, using QOL as the dependent variable in this instance. See 5 on p. 157.

components. There is a real need to determine the situation-specific interaction between e.g., family life and job satisfaction, or between a global indicator such as income satisfaction and other socio-economic indicators like housing or education satisfaction. These questions may be partly answered by the fourth research stage, an analysis of QOL optimization.

As it is nearly impossible to direct a particular policy towards one objective without affecting others, the above relationships, between QOL data (output), a range of public policies (input) and other non-policy factors (other inputs) need to be specified (Maslove, 1975, p. 9). Generally good measures of well-being levels, once developed, could "... play a central role in attempts to understand how other phenomena - both internal and external to the individual - affect, or are affected by, his sense of well-being." (Andrews, 1974, p. 298).

QOL measures can be used to assess the affects of variables intended to produce QOL optimization, e.g., urban residential mobility. Considering the individual as a welfare-maximizer in a dynamic decision-making system, the researcher can analyze types of individual decisions (such as mobility) which are geared to optimize some combination of financial and psychic income. These decisions may often involve trade-offs between an enhanced financial situation and improved PQOL. Optimization

models could utilize weighting schemes, wherein changes in QOL towards optimization could be assessed by deriving the slope of the regression curve at different points in time, for different QOL-influencing variables. Work has been done by House (1972) where QOL satisfaction is a function of the ratio of the status (actual level) of the component to its desired level.

What sort of strategies (e.g., minimax) are usually employed? How often are QOL solutions expedient rather than optimal? What are the barriers to optimization, both internal and external; how often do they occur and with what effects? An external barrier may be a policy; an internal barrier, insecurity or anxiety concerning one's capabilities or coping devices. To the extent that these and other such barriers come between an individual and his desires, he is likely to make decisions that may be less than optimal in terms of the quality of his life.

Values, according to Dalkey, may be said to represent the decision criteria an individual will use in attempting to secure an optimal mix of QOL characteristics. An example given is the choice between marriage and bachelorhood. The elements within the individual's normative value system may be considered PQOL components, e.g., as in previous studies: freedom, security, novelty. The theoretical interaction between these (weighted) values will eventually determine the appropriate role selection,

ostensibly the optimal one. These relationships can be researched by designing projects with methodologies sophisticated enough to disaggregate the causal factors from the coincidental ones. This leads into the area of social experimentation.

5) The topic has been extensively reviewed in Caporaso and Roos (1973), Fairweather (1967), Riecken et al. (1974), Rossi and Williams (1972), Caro (1971), Suchman (1967), Cook et al. (in press) and Cook and Scioli (1972). Social experiments can be undertaken using all data in the previous stages of the research program. This area of research is relatively unexplored and would represent significant advances for policy-formation, as well as for an understanding of QOL in modern Canadian society as a whole. By going beyond the exploratory stages employing survey methodology, solutions can be found to optimize QOL by policy changes. Causal research can explain the kinds of events influencing QOL and PQOL. Alternately, the paradigm can be reversed: instead of using a policy or event as the independent variable affecting the QOL dependent variable, other dependent variables (e.g., migration behaviour - Liu, 1975c; Cebula and Vedder, 1973) can be related to (P)QOL as an independent variable. There is a large variety of candidate hypotheses which can be tested empirically, through simulated manipulation of several variables. Notwithstanding the list of caveats (such as the nature, adequacy and ethics of control groups),

this form of research can be done productively on a small scale with results suggesting larger scale investigations. There is a desperate need for an information base which links cause (policy) with effect (QOL level) and perhaps even cause in terms of PQOL with effect in terms of kind of QOL-optimizing strategy and its success.

One way of viewing this interaction is by linking each well-being indicator to the major known instruments (policies) for inducing change in the well-being indicator. Much can be gained by making these implied relationships as explicit as possible - and thereby subject to more rigorous testing (Christian, 1974, p. 183). The necessity of being able to trace the effects of a particular program or policy may well lead to systematic research and empirical experimentation involving trial policies in relation to particular QOL situations. The causal relationships between QOL and PQOL levels and long-term events (independent variables) such as moving, vacations and job changes, or short-term events must be examined thoroughly. These results would enable optimum choices to be made for increasing the level of QOL in society directly (through policy) or indirectly (through communication of the information to the public).

This section has reviewed alternate methods of analysis of the "identification issue", including factors which may have some effect on QOL conceptualization. It was suggested that this

research is a step towards answering certain policy-relevant questions which may be obscured by a purely ascriptive approach. The central point in the discussion is the utility of a testimonial (survey) approach in dealing with methods of policy-formation. Within the framework of participatory democracy, the present research can be extended into a multi-stage research program which carries the potential of solving, or at least clarifying, many current problems of policy-formation and decision-making. The various apparent restraints were discussed - political, methodological, conceptual - within the larger issue of strengthening the links between social science research and public policy. Future innovative research, which marshals the theoretical information and measurement tools of (social) psychology, can handle these objections, especially when the payoff is so significant and extensive. The potential for applying psychological insights and expertise in the QOL area has not yet been explored to nearly the same extent as in the disciplines of sociology and economics. Several exploratory attempts reviewed within most of the stages proposed bear witness to the feasibility of continued, in-depth exploration. It deserves mention that this research will not only contribute to enlightened policy-making, but inevitably to an increased QOL within all of Canadian society.

SUMMARY AND CONCLUSIONS

The investigation was designed to ascertain how individuals conceived of QOL, and how they assigned its components on a scale of priorities. Specifically, it was determined whether respondents perceived QOL in terms of Social, Economic and Political dimensions and/or in terms of Comfort, Security, Novelty, Achievement and Dominance dimensions. The extent to which the dimensions produced corresponded to factors based on priority rankings was also ascertained. Comparisons were sought within and across methods, for both the ascriptive and testimonial approaches.

Results in the first instance did not tend to confirm the three-dimensional model, as respondents portrayed the multidimensionality of the QOL construct in a largely uninterpretable way. However, the structure produced by the scaling method provided a tentative interpretation which could be described as a "personal/collective" dimension. The E.C.C. model was not valid for this limited sample, if "public feedback" is considered a form of validity. While the number of dimensions was congruent with the original model, the nature of the dimensions was not.

In the testimonial case, items produced by respondents were largely identical with those of previous studies. Four subjective components were found in addition to six typical socio-economic items: personal well-being, social acceptance,

family and friends. The scaling analysis organized these 10 areas into a unidimensional conceptualization, which was labeled "Comfort", thus substantiating only one of the original five hypotheses. Comparison of scaling results of both approaches showed no similarity in conceptual space for the six common items, but naturally indicated the utility of the testimonial method for discovering additional elements for a comprehensive QOL model.

Factor analysis of priority rankings yielded seven ascriptive factors: Political (Legislative); Political (Rights/Participation), Economic, Discrimination, Health, Leisure and a Global factor. The Political and Economic factors showed some agreement with the original E.C.C. model. In general, factor analysis produced a better organization of components.

Two testimonial factors were found: Security and Economic, the latter again strengthening the commonality of an economic factor in QOL.

When actual priorities (in terms of absolute and relative importance) were considered, Health, Freedom, Education and Absence of Discrimination ranked highest in the ascriptive case, while Family and Personal Well-Being (including health) ranked highest in the testimonial case. The conclusion here is that a health component is consistently of highest importance. This was manifested also when relative importance ratings were anal-

alyzed. Comparison of the six common items yielded the following hierarchy: Freedom, Education, Employment; the second item may possibly be an artifact of the sample.

Factor matching tended to support the existence of an Economic factor in either data set. Besides this congruence, the Security factor was shown to be inversely matched with the Discrimination factor.

Comparing the factor and scaling structures of both approaches, it was concluded that items comprising Political and Economic factors are basic to a conceptual understanding of QOL; while the Social component may be too diffuse, it perhaps can be characterized as a personal/collective orientation. The Economic factor, particularly, appeared as a reference point. The organization of both subjective and objective QOL components was along a continuum of "Comfort"; this dimension showed up as a Security factor.

These findings compared favorably with previous research. Economic and Political dimensions appear in several studies; Health and Employment areas have received high priority in similar investigations.

Several technical points were reviewed in terms of their possible bearing on the results: item ambiguity, fatigue-induced randomization, external validity. Extensions of the present research were discussed in the context of data input

for policy-making. Suggestions for future research were proposed as a multi-phasic program dealing with large-scale conceptualization and measurement, multi-level comparisons, prediction of social change and optimization of QOL.

REFERENCES

- Allardt, E., About dimensions of welfare: an exploratory analysis of a comparative Scandinavian survey. University of Helsinki Research Group for Comparative Sociology, No. 1, 1973.
- Andrews, F.M. Social indicators of perceived life quality. Social Indicators Research, 1974, 1(3), 279-299.
- Andrews, F.M., & Withey, S.B. Developing measures of perceived life quality: results from several national surveys. Social Indicators Research, 1974a, 1(3), 1-26.
- Andrews, F.M., & Withey, S.B. Assessing the quality of life as people perceive it. Paper presented at the annual convention of the American Sociological Association, Montreal, August, 1974b.
- (*)
- Becker, H.S., & de Brigard, R. Considerations on a framework for community action planning. Middletown, Conn.: Institute for the Future, 1970.
- Black, D., & Kirkaldy, J.S. A feasibility study for the production of a social report for the province of Ontario - an outline of the program and objectives for research contractors. The Commission on Post-Secondary Education in Ontario, Ottawa: 1971.
- Bossard, J.H.S. Problems of social well-being. New York: Harper and Bros., 1927.
- de Brigard, R. Some potential societal developments, 1970-2000. Institute for the Future Monograph No. 7, 1970
- Bunge, M. What is a quality of life indicator? Social Indicators Research, 1975, 2(1), 65-81.
- Burke, R.J., et al. Defining and measuring perceived quality of life. In Measures and determinants of the quality of life in Canadian society, Symposium at the annual conference of the Association of Schools of Business, McGill University, Montreal, 1972a.
- Burke, R.J. Example of the short form of the York University Quality of Life Questionnaire. Interim report to the Canada Department of Labour, York University, 1972b.
- Burstein, M., et al. Canadian work values. Department of Manpower and Immigration. Ottawa: Information Canada, 1973-74.
- Burton, M. Semantic dimensions of occupation names. In Shepard, R.N., Romney, A.K. & Nerlove, S.B., (Eds.), Multi-dimensional scaling. (2 vols.) New York: Seminar Press, 1972.
- (*)
- Baier, K. Towards a definition of "quality of life". In Clark, R.O. and List, P.C. (Eds.), Environmental spectrum. New York, 1974.

- Campbell, A., et al, The quality of American life: perceptions, evaluations, and satisfactions. N.Y., Russell Sage, 1976.
- Campbell, A. & Converse, P. The human meaning of social change. New York: Russell Sage Foundation, 1972.
- Caporaso, J. & Roos, L. (Eds.) Quasi-experimental approaches: testing theory and evaluating policy. Evanston, Ill.: Northwestern University Press, 1973.
- Caro, F.G. (Ed.) Readings in evaluation research. New York: Russell Sage Foundation, 1971.
- Cebula, R.J. & Vedder, R.K. A note on migration, economic opportunity and the quality of life. Journal of Regional Science, 1973, 13, 205-213.
- Christian, D.E. International social indicators: the OECD experience. Social Indicators Research, 1974, 1(2), 169-187.
- Cook, T.J., et al. (Eds.) Policy impact analysis: an interdisciplinary approach. In press.
- Cook, T.J. & Scioli, F.P., Jr. A research strategy for analyzing the impact of public policy. Administrative Science Quarterly, 1972, 17, 328-339.
- Dalkey, N.C., et al. Studies in the quality of life - Delphi and decision-making. Lexington, Mass.: D.C.Heath and Co. and the RAND Corporation: Santa Monica, Calif. 1972.
- Dillman, D.A. & Christenson, J.A. Towards the assessment of public values. Unpublished manuscript, Dept. of Sociology, Washington State University, 1971.
- Dobson, R., et al. Multidimensional scaling of consumer preferences for a public transportation system: an application of two approaches. Socio-Economic Planning Sciences, 1974, 8, 23-36.
- Downey, L.W. Alberta 1971: toward a social audit - a report to the people of Alberta about the quality of life in Alberta. Human Resources Research Council of Alberta, January, 1972.
- Dror, Y. Design for policy sciences. New York: American Elsevier, 1971a.
- Dror, Y. Ventures in policy sciences. San Francisco: Chandler, 1971b.

- Dye, T.R. Understanding public policy. New Jersey: Prentice-Hall, 1971.
- Economic Council of Canada, Eighth annual review: design for decision-making. An application to human resources policies. Ottawa: Information Canada, 1971.
- Economic Council of Canada, Eleventh annual review: economic targets and social indicators. Ottawa: Information Canada, 1974.
- Etzioni, A. Policy research. American Sociologist (Supplementary issue), 1971, 6, 8-12.
- Fairweather, G.W. Methods for experimental social innovation. New York: Wiley, 1967.
- Foster, R. & Corbeau, A. Industrial location decisions and the perceived quality of life. Paper presented at the Social Indicators Conference, Edmonton, Alberta, May 29-31, 1975.
- Freedman, J. & Shaver, P. What makes you happy? Psychology Today, October, 1975, pp. 66-72.
- Freeman, H.E. & Sherwood, C.C. Social research and social policy. New Jersey: Prentice-Hall, 1970.
- Gitter, A.G. & Franklin, S. Subjective quality of life indicators of sixteen aspects of life. Report No. 58, Boston University, Communications Research Center, 1971.
- Gitter, A.G. & Knoche, E. Importance ratings of sixteen aspects of life. Report No. 59, Boston University, Communications Research Center, 1971.
- Green, P.E., et al. Dimensional interpretation and configuration invariance in multidimensional scaling: an empirical study. Multivariate Behavioral Research, 1969, 4, 159-180.
- Green, P.E. & Carmone, F.G. Marketing research applications of nonmetric scaling methods. In R.N. Shepard et al (Eds.), Multidimensional scaling. Vol. 1. New York: Seminar Press, 1972.
- (*)
- Harland, D. Social indicators toward the measurement of quality of life. Ottawa: Social and Human Analysis Branch, Department of Regional Economic Expansion, 1972.

* Grigsby, J.E., untitled abstract, Institute for Social Research, 1972.

- Harman, H.H. Modern factor analysis. University of Chicago Press, Chicago: 1970.
- Henderson, D.W. Social indicators: a rationale and research framework. Ottawa: Economic Council of Canada, 1974.
- Horowitz, I.L. & Katz, J.E., Social science and public policy in the United States. New York: Praeger, 1975.
- House, P., et al. How do you know where you are going? In Multiple criteria decision-making, Seminar at the University of South Carolina, 1972.
- Hyde, A. A review of the area participation, openness and responsiveness. Ottawa: the Commission on Post-Secondary Education in Ontario, 1971.
(*)
- Jones, M.V. & Flax, M.J. The quality of life in metropolitan Washington, D.C.: some statistical benchmarks. Washington, D.C.: the Urban Institute, 1970.
- Kamrany, N.M. & Christakis, A.N. The role of social indicators in the process of national policy planning. Paper presented at the International Seminar on Ekistics and the Future of Human Settlements, Athens, 1969.
- Kish, L. Survey sampling. New York: Wiley, 1965.
- Kruskal, J.B. Multidimensional scaling by optimizing goodness of fit to a nonmetric hypothesis. Psychometrika, 1964a, 29, 1-27.
- Kruskal, J.B. Nonmetric multidimensional scaling: a numerical method. Psychometrika, 1964b, 29, 115-129.
- Kruskal, J.B. How to use M-D-SCAL, a program to do multidimensional scaling and multidimensional unfolding. Unpublished manuscript, Bell Telephone Laboratories, March 1968.
- Land, K.C. On the definition of social indicators. American Sociologist, 1971, 6, 323. (abstract)
- Lasswell, H.D. A pre-view of policy sciences. San Francisco: Chandler, 1971.
- Lerner, D. & Lasswell, H.D. The policy sciences. Stanford: Stanford University Press, 1965.
- Lingoes, J.C. & Pfaff, M. Measurement of subjective welfare and satisfaction. Paper presented at the annual meeting of the American Economic Association and the Association for the Study of the Grants Economy, New Orleans, 1971.
- * Institute for Social Research, Study abstracts presented at the conference on subjective measures of QOL, Ann Arbor, Mich. 1972

- Little, D.L. STAPOL: a simulation of the impact of policy, values and technological and societal developments on the quality of life. Institute for the Future Monograph No. 12, 1970.
- Liu, B.-C. Quality of life indicators: a preliminary investigation. Social Indicators Research, 1974a, 1(2), 187-208.
- Liu, B.-C. Variations in state quality of life. Review of Social Economy, 1974b, 32, 137-147.
- Liu, B.-C. Quality of life: concept, measure and results. The American Journal of Economics and Sociology, 1975a, 34(1), 1-13.
- Liu, B.-C. Economic growth and quality of life: empirical results and policy implications for small SMSA's. Paper presented at the Social Indicators Conference, Edmonton, Alberta, May 29-31, 1975b.
- Liu, B.-C. Differential net migration rates and the quality of life. The Review of Economics and Statistics, 1975, in press.
- Macy, B. & Foster, R. A tentative comparison of metropolitan quality of life: Canada and the U.S. Paper presented at the conference on Growth Centers and Development Policy, Dalhousie University, April, 1975.
- Maslove, A.M. Indicators and policy formation. Paper presented at the Second Annual Social Policy Conference, School of Social Work, Carleton University, April 23-25, 1975.
- (*)
- Messick, S.J. Some recent theoretical developments in multi-dimensional scaling. Educational and Psychological Measurement, 1956, 16, 82-100.
- Messick, S.J. The perceived structure of political relationships. Sociometry, 1961, 24, 270-278.
- Michalos, A.C. Fifth working outline of quality of life: a comparative social report for Canada and the U.S. Unpublished manuscript, University of Guelph, 1973.
- Michalos, A.C. Measuring the quality of life. In W.Shea (Ed.), Values and the quality of life. Book in preparation.
- (*)
- McCall, Storrs. Quality of life. Social Indicators Research, 1975, 2 (2), 229-249.

- Miller, J.E., et al. An analytical approach to the interpretation of multidimensional scaling solutions. American Psychologist, 1964, 19, 579-580. (abstract)
- Organization for Economic Cooperation and Development, Subjective elements of well-being and their measurement. Manpower and Social Affairs Directorate, Social Affairs Division, Working Party on Social Indicators, Paris, 1972.
- Parsons, T., et al. Theories of society. (2 vols.) New York: Free Press of Glencoe, 1961.
- Peredo, S. Good guys and bad guys. The Canadian Magazine, December 7, 1974, pp. 23-25.
- Porter, J. Perspectives on Perspective Canada. Social Sciences in Canada, 1975, 3(1-2), 23-26.
- Portugal, A.H. Individual satisfaction with the experience of working life. Phase II report on fundamental social concern C-3, 7th meeting of the OECD working party on social indicators, Paris, 1974.
- Ranking the cities. Time, september 29, 1975, pp. 47-48.
- Raynauld, A. Social indicators: the need for a broader socio-economic framework. Canadian Public Administration, 1975, 91-103.
- Reicken, H.W., et al. Social experimentation: a method for planning and evaluating social intervention. New York: Academic Press, 1974.
- Rhine, R.J. A concept formation approach to attitude acquisition. Psychological Review, 1958, 65, 362-370.
- Robinson, T.R. Indicators of the quality of life: a policy advisor's perspective. Paper presented at the First National Social Science Conference, Ottawa, November 20-22, 1975.
- Rodgers, W.L. and Converse, P.E., Measures of the perceived overall quality of life. Social Indicators Research, 1975, 2 (2), 127-153.
- Rokeach, M., Values as subjective social indicators. ISR Study abstracts, Michigan, 1972.
- Rossi, P.H. and Williams, W. (Eds.), Evaluating social programs: theory, practice and politics. N.Y., Seminar Press, 1972.

- Runkel, P.J. and McGrath, J.E., Research on human behaviour. New York: Holt, Rinehart, Winston, 1972.
- Sawchuk, R. and Gitter, A.G., Eight subjective indicators of quality of life. Report No. 51, Boston University, Communications Research Center, 1971.
- Schindeler, F. and Lanphier, C.M., Social science research and participatory democracy in Canada. Canadian Public Administration, 1974, 12, 451-498.
- Schneider, M., The quality of life in large American cities: objective and subjective social indicators. Social Indicators Research, 1975, 1, (4), 495-510.
- Science Council of Canada, Toward a national science policy for Canada. Report No. 4, Ottawa: Queen's Printer, 1968.
- Sheldon, E.B. and Land, K.C., Social reporting for the 1970's: a review and programmatic statement. Policy Sciences, Summer, 1972.
- Shepard, R.N., et al (Eds.), Multidimensional scaling (2 vols.) New York: Seminar Press, 1972.
- Shepard, R.N., The analysis of proximities: multidimensional scaling with an unknown distance function. Psychometrika, 1962a, 27, 125-139; 1962b, 27, 219-246.
- Shepard, R.N., Analysis of proximities as a technique for the study of information processing in man. Human Factors, 1963, 5, (1), 33-47.
- Skippon, R., A multivariate analysis of popular conceptions and attitudes regarding the etiology of male homosexuality. Unpublished doctoral dissertation, University of Ottawa, 1974.
- Stanford Research Institute, Toward master social indicators. (Research memorandum EPRC-6747-2), Menlo Park, Calif.: Educational Policy Research Center, 1961.
- Statistics Canada, Perspective Canada: a compendium of social statistics. Office of the Senior Advisor on Integration. Ottawa: Information Canada, 1974.
- Stefflre, V.J., Some applications of multidimensional scaling to social science problems, in Shepard, R.N., et al (Eds.), Multidimensional scaling, Vol. II. N.Y.: Seminar Press, 1972.
- Strumpel, B. and Gurin, G., Indicators of changes in people's goals, opportunities and economic well-being. ISR Study Abstract, 1972.
- Suchman, E.A., Evaluative research: principles and practice in public service and social action programs. New York: Russell Sage Foundation, 1967.

- Torgerson, W.S. Theory and methods of scaling. New York: Wiley, 1958.
- Triandis, H.C. Exploratory factor analyses of the behavioral component of social attitudes. Journal of Abnormal and Social Psychology, 1964, 68, 420-430.
- Tucker, L.R. An inter-battery method of factor analysis. Psychology, 1958, 23, 111-136.
- Tunstall, D.B. Developing a social statistics publication. Paper presented at the annual meeting of the American Statistical Association, 1970.
- United Nations, Food and Agriculture Organization, Essentials of rural welfare. New York: 1949.
- United Nations, Report on international definition and measurement of standards and levels of living. New York: 1954.
- United States, Dept. of Health, Education and Welfare. Toward a social report. Washington: U.S. Government Printing Office, 1969.
- United States, Office of Management and Budget, Executive Office of the President. A social statistics publication. Draft No. 5, November, 1970.
- Walters, D. Social intelligence and social policy. Paper presented at the seminar on social indicators, Canadian Council on Social Development, Ottawa, 1972.
- Wilcox, L.D., et al. Social indicators and societal monitoring. An annotated bibliography. New York: Elsevier, 1972.
- Williams, W. Social policy research and analysis. San Francisco, Chandler, 1971.
- Wish, M., et al. Differences in perceived similarity of nations. In Shepard, R.N. et al, Multidimensional scaling, Vol. 2. New York: Seminar Press, 1972.
- Wrigley, C. & Neuhaus, J.O. The matching of two sets of factors. Contract Memorandum Report A-32, University of Illinois, 1955.
- Ziller, R. C. Self-other orientations and quality of life. Social Indicators Research, 1974, 1(3), 301-327.

APPENDIX A-1

SAMPLE OF QUESTIONNAIRE AND ANSWER BOOKLET FOR ASCRIPTIVE
SIMILARITY RATINGS

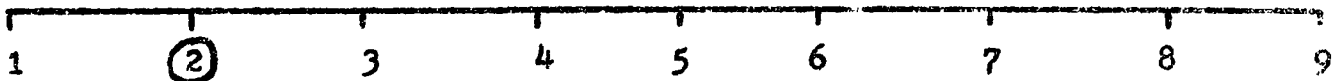
INSTRUCTIONS

The following is a judgment task concerning "quality of life". Below you will find a series of pairs of items, labelled "A" and "B", indicating components of "quality of life". Your task is to indicate your judgment of the similarity between members of each pair by CIRCLING a number on a nine-point scale in your answer booklet.

EXAMPLE:

- A. Job Satisfaction
B. Mental Health

extremely	very	moderately	somewhat	somewhat	moderately	very	extremely
similar	similar	similar	similar	dis- similar	dis- similar	dis- similar	dis- similar



In each pair of items below indicating components of "quality of life", circle the appropriate number on the nine-point scale in your answer booklet.

Try to use all nine categories in making your judgments of the similarity or dissimilarity of the item pairs, and be sure to make a decision for each pair.

1. A. Safeguards for Privacy
B. Freedom of Expression
2. A. Legal Rights
B. Safeguards for Privacy
3. A. Legal Rights
B. Public Safety
4. A. Absence of Discrimination
B. Security of Property Rights
5. A. Public Safety
B. Education
6. A. Leisure Time
B. Consumer Protection
7. A. Health
B. Absence of Discrimination
8. A. Employment
B. National Identity
9. A. Health
B. Employment
10. A. Population Density
B. Leisure Time
11. A. Freedom of Expression
B. Legal Rights
12. A. Security of Property Rights
B. Safeguards for Privacy
13. A. Consumer Protection
B. Legal Rights

ALSOER BOOKLET

1

extremely similar	very similar	moderately similar	somewhat similar		somewhat dis- similar	moderately dis- similar	very dis- similar	extremely dis- similar
----------------------	-----------------	-----------------------	---------------------	--	-----------------------------	-------------------------------	-------------------------	------------------------------

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

APPENDIX A-2

SAMPLE OF QUESTIONNAIRE AND ANSWER BOOKLET FOR ASCRIPTIVE
ABSOLUTE IMPORTANCE RATINGS

INSTRUCTIONS

Please read each of the following items indicating components of "quality of life", and give your own opinion regarding the importance of each of the items by circling a number on the nine-point scale provided in your answer booklet.

1. International Cooperation
2. Absence of Discrimination
3. Safeguards for Privacy
4. Consumer Protection
5. Public Safety
6. Population Density
7. Transportation Facilities
8. Leisure Time
9. National Identity
10. Housing
11. Communication
12. Electoral Rights
13. Financial Resources
14. Education
15. Freedom of Expression
16. Employment
17. Legal Rights
18. Health
19. Protection of the Environment
20. Security of Property Rights

	extremely important		very important			moderately important		somewhat important	
1.	1	2	3	4	5	6	7	8	9
2.	1	2	3	4	5	6	7	8	9
3.	1	2	3	4	5	6	7	8	9
4.	1	2	3	4	5	6	7	8	9
5.	1	2	3	4	5	6	7	8	9
6.	1	2	3	4	5	6	7	8	9
7.	1	2	3	4	5	6	7	8	9
8.	1	2	3	4	5	6	7	8	9
9.	1	2	3	4	5	6	7	8	9
10.	1	2	3	4	5	6	7	8	9

APPENDIX A-3

QUESTIONNAIRE FOR ASCRIPTIVE RELATIVE IMPORTANCE RATINGS

INSTRUCTIONS

Please read each of the following items indicating components of "quality of life". Assign a 1, 2, and 3 to the first, second, and third most important items to you. Then assign 18, 19, and 20 to the three least important items to you.

- | | |
|-----------------------------------|-------|
| 1. International Cooperation | _____ |
| 2. Absence of Discrimination | _____ |
| 3. Safeguards for Privacy | _____ |
| 4. Consumer Protection | _____ |
| 5. Public Safety | _____ |
| 6. Population Density | _____ |
| 7. Transportation Facilities | _____ |
| 8. Leisure Time | _____ |
| 9. National Identity | _____ |
| 10. Housing | _____ |
| 11. Communication | _____ |
| 12. Electoral Rights | _____ |
| 13. Financial Resources | _____ |
| 14. Education | _____ |
| 15. Freedom of Expression | _____ |
| 16. Employment | _____ |
| 17. Legal Rights | _____ |
| 18. Health | _____ |
| 19. Protection of the Environment | _____ |
| 20. Security of Property Rights | _____ |

APPENDIX A-4

SAMPLE OF QUESTIONNAIRE AND ANSWER BOOKLET FOR TESTIMONIAL
SIMILARITY RATINGS

Name: _____

PART **B**

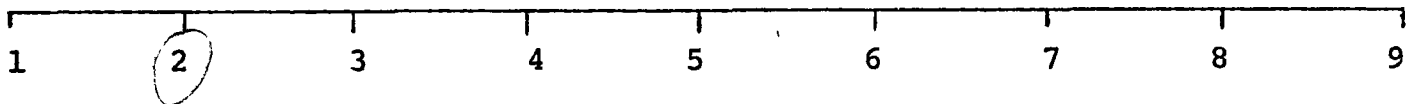
INSTRUCTIONS

The following is a judgment task concerning "quality of life". Below you will find a series of pairs of items, labelled "A" and "B", indicating components of "quality of life". Your task is to indicate your judgment of the similarity between members of each pair by CIRCLING a number on a nine-point scale in your answer booklet.

EXAMPLE:

- A. Job satisfaction
- B. Mental health

extremely	very	moderately	somewhat	somewhat	moderately	very	extremely
similar	similar	similar	similar	dis- similar	dis- similar	dis- similar	dis- similar



In each pair of items below indicating components of "quality of life", circle the appropriate number on the nine-point scale in your answer booklet.

Try to use all nine categories in making your judgments of the similarity or dissimilarity of the item pairs, and be sure to make a decision for each pair.

1. A Social Acceptance
B Leisure
2. A Education
B Physical Environment
3. A Social Acceptance
B Employment
4. A Family
B Employment
5. A Freedom
B Physical Environment
6. A Friends
B Freedom
7. A Personal Well-being
B Friends
8. A Education
B Freedom
9. A Social Acceptance
B Personal Well-being
10. A Employment
B Freedom
11. A Education
B Personal Well-being
12. A Leisure
B Friends
13. A Physical Environment
B Leisure
14. A Employment
B Income
15. A Friends
B Income

APPENDIX A-4

185

extremely similar	very similar	moderately similar	somewhat similar	somewhat dis- similar	moderately dis- similar	very dis- similar	extremely dis- similar
----------------------	-----------------	-----------------------	---------------------	-----------------------------	-------------------------------	-------------------------	------------------------------

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

APPENDIX A-5

QUESTIONNAIRE AND ANSWER BOOKLET FOR TESTIMONIAL ABSOLUTE
IMPORTANCE RATINGS

INSTRUCTIONS

Please read each of the following items representing components of "quality of life", and give your own opinion regarding the importance of each of the items by circling a number on the nine-point scale provided in your answer booklet.

1. Education
2. Employment
3. Family
4. Freedom
5. Friends
6. Income
7. Leisure
8. Personal Well-being
9. Physical Environment
10. Social Acceptance

[illegible]

APPENDIX A-6

QUESTIONNAIRE FOR TESTIMONIAL RELATIVE IMPORTANCE RATINGS

INSTRUCTIONS

Please read each of the following items representing components of "quality of life".

Rank order these items from 1 to 10 in terms of their importance to you.

- | | | |
|-----|----------------------|-------|
| 1. | Education | _____ |
| 2. | Employment | _____ |
| 3. | Family | _____ |
| 4. | Freedom | _____ |
| 5. | Friends | _____ |
| 6. | Income | _____ |
| 7. | Leisure | _____ |
| 8. | Personal Well-being | _____ |
| 9. | Physical Environment | _____ |
| 10. | Social Acceptance | _____ |

APPENDIX A-7

COMPARISON OF FACTORS AND ITEMS FROM THE DALKEY MODEL WITH
COMPONENTS OF THE TESTIMONIAL ITEMS USED IN THE STUDY

COMPARISON OF FACTORS AND ITEMS FROM THE DALKEY MODEL WITH COMPONENTS OF THE TESTIMONIAL ITEMS USED IN THE STUDY

Dalkey Model ¹		Testimonial Model	
Factor	Items	Item	Components ²
Comfort	economic well-being, leisure, relaxation, good <u>health</u>	Personal Well-Being	love, understanding, law, happiness, security, <u>peace</u> , <u>privacy</u> , <u>health</u> , <u>involvement</u> , good government
Peace of Mind	emotional stability, lack of conflict, fear, anxiety, suffering, pain, humiliation, belittlement, escape, fantasy		
<u>Privacy</u>			
<u>Involvement</u>	participation, concern, altruism consideration		

<u>Social Acceptance</u>	popularity, feeling of being wanted, needed; loneliness, impersonality, flattering, positive feedback, reinforcement	<u>Social Acceptance</u>	goals, success, status, <u>power</u> , <u>aggression</u> , competition, equality, cooperation, emotions religion, <u>social acceptance</u>
Dominance	superiority, dependence, impotence, helplessness, <u>aggression</u> , violence, hostility, <u>power</u> , control independence		
Self-Respect	self-acceptance, self satisfaction, self confidence, egoism, security, stability, sense of premanence, familiarity, self-knowledge, self-awareness, growth		

<u>Dalkey Model</u>		<u>Testimonial Model</u>	
<u>Factor</u>	<u>Items</u>	<u>Item</u>	<u>Components</u>
Novelty	change, newness <u>variety</u> , surprise boredom, amusing, humorous, witty	Leisure	culture, <u>diversity</u> , leisure
Challenge	stimulation, competitiveness, competition, ambition, luck, <u>opportunity</u> , social mobility, <u>educational</u> , in- tellectually stimulating	<u>Education</u>	<u>education</u> , <u>opportunity</u>
Love	caring, affection communication, interpersonal understanding, <u>friendship</u> , com- panionship, honesty, sincerity truthfulness, tolerance, accept- ance of others, faith, religious awareness	<u>Friends</u>	<u>friends</u>
Achievement	accomplishment, <u>job</u> satisfaction, success, failure, defeat, losing, <u>money</u> , material greed, status, acquisitiveness, reputation, re- cognition, prestige	<u>Employment</u> <u>Income</u>	<u>job</u> , mobility <u>money</u> , housing standard of living, trans- portation
Individuality	conformity, spon- taneity, impulsive, uninhibited, <u>freedom</u>	<u>Freedom</u>	<u>freedom</u>

Dalkey Model		Testimonial Model	
Factor	Items	Item	Components
<u>Sex</u>	Sexual satisfaction, sexual pleasure	Family	marriage, <u>sex</u> population, family
		Physical Environment	physical environment

- 1 N.C. Dalkey et al, op.cit., Table 3, page II-218
- 2 Only those components are included which were grouped by at least two judges, although virtually all were found in both lists.
- 3 Similar items, factors, components underlined are found in both lists

APPENDIX B-1

MATRIX OF MEAN SIMILARITY RATINGS FOR EACH OF THE 190
ASCRPTIVE ITEM PAIRS (N=150)

APPENDIX B-1

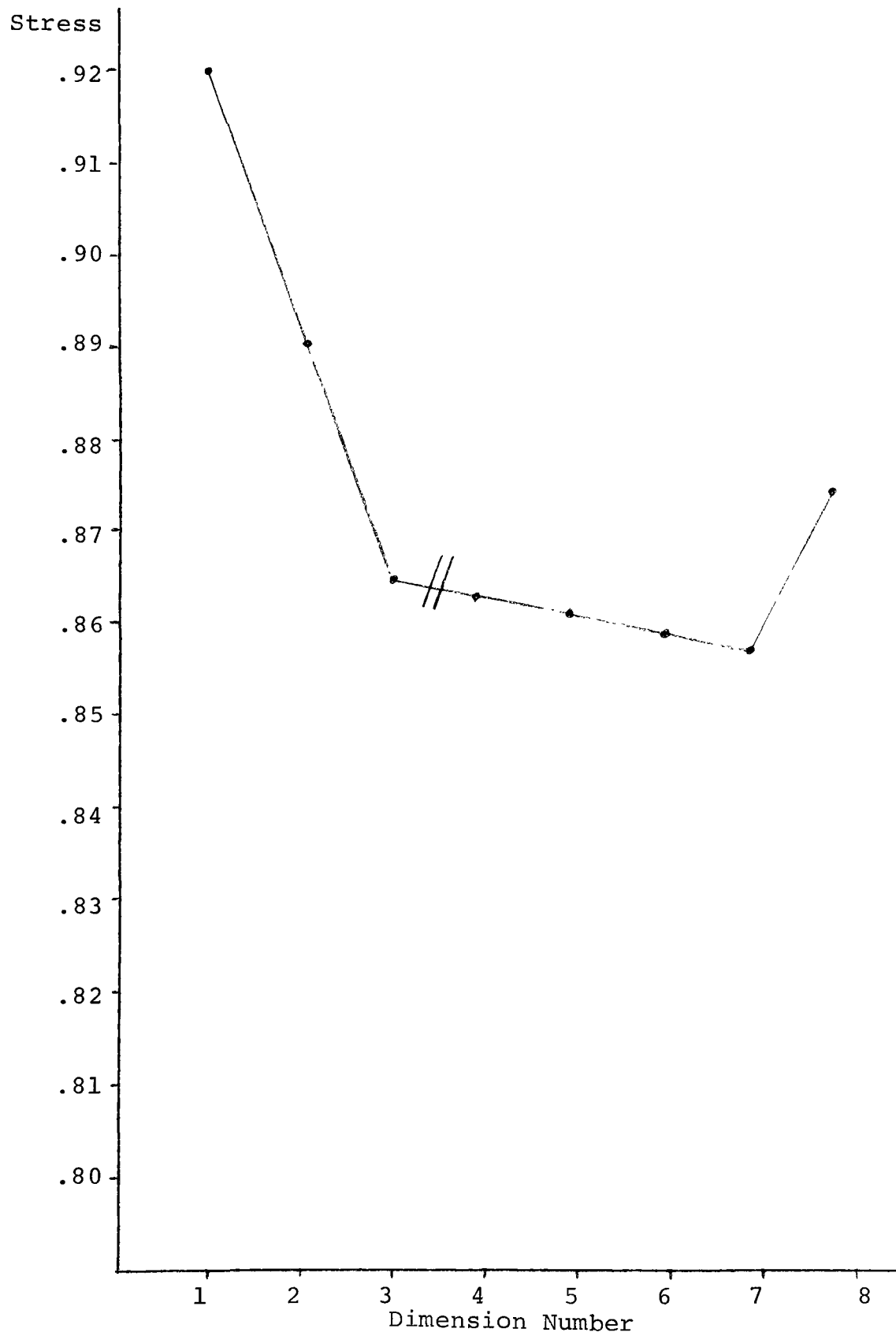
MATRIX OF MEAN SIMILARITY RATINGS FOR EACH OF THE 190 ASCRIPTIVE ITEM PAIRS (N=150).

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	4.3	2.5	5.2	5.3	4.7	2.5	3.0	3.9	4.4	5.5	2.7	5.5	5.5	6.9	2.5	4.8	6.1	4.6	5.1
2		2.9	3.1	4.9	5.1	4.2	4.3	5.8	5.9	5.3	4.7	4.7	3.8	5.8	4.7	4.0	3.8	5.8	4.5
3			2.6	3.8	2.8	2.9	2.8	5.0	4.6	5.3	3.1	4.0	5.2	5.9	4.0	5.4	3.5	3.3	4.5
4				5.1	4.2	5.0	5.3	6.5	6.0	6.3	5.2	4.7	4.0	6.0	5.6	6.2	2.8	5.2	4.2
5					3.8	5.7	5.2	5.9	5.4	2.9	4.9	3.4	3.4	3.4	3.6	4.4	4.0	5.0	5.1
6						5.5	4.1	6.5	5.5	3.5	3.2	4.4	4.7	5.0	3.5	6.3	3.0	5.2	4.0
7							3.6	3.9	6.2	6.8	4.0	5.6	5.6	6.8	4.3	6.8	5.7	6.0	6.4
8								3.9	4.2	6.6	3.1	6.9	5.3	5.8	4.5	5.7	3.6	2.9	5.6
9									3.5	6.1	3.6	4.8	5.3	6.4	4.4	5.7	6.1	6.1	5.4
10										5.7	3.8	2.9	4.7	5.1	2.6	6.3	6.4	4.9	4.4
11											3.3	3.0	3.2	5.5	4.4	3.1	3.7	3.8	4.1
12												2.9	3.8	5.3	2.3	2.8	4.3	2.2	2.9
13													2.9	4.0	3.6	3.4	3.3	5.3	3.6
14														2.9	4.2	4.5	2.5	3.3	4.0
15															3.5	3.4	4.0	4.0	3.3
16																4.0	4.8	4.1	4.9
17																	4.4	3.3	2.9
18																		2.9	2.4
19																			2.5

APPENDIX B-2

PLOT OF STRESS VS. DIMENSION FOR 20 ASCRIPTIVE ITEMS (N=150)

PLOT OF STRESS VS. DIMENSION FOR 20 ASSCRIPTIVE ITEMS (N=150).



APPENDIX B-3

ROTATED SCALE VALUES FOR EACH ASRIPTIVE ITEM ON ONE
DIMENSION

ROTATED SCALE VALUES FOR EACH ASRIPTIVE ITEM ON ONE DIMENSION.

Item Content	Scale Value
16. Communication	2.422
13. Environment	1.521
20. Financial Resources	1.086
8. Discrimination	1.053
5. Public Safety	0.373
19. Employment	0.163
7. Electoral Rights	0.111
17. Leisure Time	0.049
6. Consumer Protection	0.046
10. International Cooperation	-0.022
4. Property Rights	-0.023
11. Health	-0.024
9. National Identity	-0.026
2. Privacy	-0.039
15. Transportation	-0.081
12. Education	-1.026
18. Housing	-1.048
1. Freedom of Expression	-1.051
3. Legal Rights	-1.694
14. Population Density	-1.792

APPENDIX B- 4

ROTATED SCALE VALUES FOR EACH ASRIPTIVE ITEM ON TWO
DIMENSIONS

ROTATED SCALE VALUES^a FOR EACH ASCRIPTIVE ITEM ON TWO DIMENSIONS.

Item Content	Dimensions	
	I	II
I. Political		
1. Freedom of Expression	-0.953	0.125
2. Privacy	-0.036	-0.037
3. Legal Rights	-1.271	-0.768
4. Property Rights	-0.040	0.240
5. Public Safety	0.144	-0.883
6. Consumer Protection	0.100	0.716
7. Electoral Rights	-0.029	0.210
8. Discrimination	0.959	-0.101
9. National Identity	-0.112	0.080
10. Int'l. Cooperation	-0.040	0.240
II. Social		
11. Health	-0.029	0.210
12. Education	-0.333	1.886
13. Environment	1.139	-0.079
14. Population Density	-1.063	-1.171
15. Transportation	-0.144	0.127
16. Communication	1.982	-0.193
17. Leisure Time	0.040	0.488
18. Housing	-0.953	0.126
19. Employment	0.011	-0.055
III. Economic		
20. Financial Resources	0.629	-1.162

a values underlined are highest for each item

APPENDIX B-5

ROTATED SCALE VALUES FOR EACH ASCRIPTIVE ITEM ON THREE
DIMENSIONS

ROTATED SCALE VALUES^a FOR EACH ASCRIPTIVE ITEM ON THREE DIMENSIONS.

Item Content	Dimensions		
	I	II	III
I. Political			
1. Freedom	-0.587	0.039	<u>0.715</u>
2. Privacy	0.010	-0.065	<u>-1.004</u>
3. Legal Rights	<u>-1.151</u>	-0.719	<u>-0.038</u>
4. Property Rights	<u>0.026</u>	<u>0.269</u>	-0.197
5. Public Safety	0.042	<u>-0.821</u>	-0.551
6. Consumer Protection	0.074	<u>0.478</u>	<u>-0.774</u>
7. Electoral Rights	0.005	<u>0.142</u>	<u>-0.050</u>
8. Discrimination	0.562	<u>-0.009</u>	<u>0.950</u>
9. National Identity	-0.093	<u>0.270</u>	<u>-0.198</u>
10. Int'l. Cooperation	0.025	<u>0.270</u>	-0.198
II. Social			
11. Health	0.006	<u>0.142</u>	-0.049
12. Education	-0.307	<u>1.672</u>	0.091
13. Environment	0.599	<u>0.009</u>	<u>1.035</u>
14. Population Density	-0.764	<u>-0.856</u>	<u>0.851</u>
15. Transportation	<u>-0.161</u>	<u>0.121</u>	-0.037
16. Communication	<u>1.686</u>	-0.198	-0.205
17. Leisure Time	<u>0.062</u>	<u>0.344</u>	-0.280
18. Housing	-0.641	<u>0.144</u>	<u>0.655</u>
19. Employment	0.064	-0.081	<u>-0.989</u>
III. Economic			
20. Financial Resources	0.543	<u>-0.929</u>	0.502

a values underlined are highest for each item

APPENDIX B-6

INTERCORRELATION MATRIX BETWEEN ASRIPTIVE QOL ITEMS (N=78)

APPENDIX B-6

INTERCORRELATION MATRIX BETWEEN ASCRIPTIVE QOL ITEMS^a (N=78).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	.06																			
3	-.03	.35 ^b																		
4	.02	.28	.44																	
5	.03	.10	.31	.44																
6	-.01	-.07	.33	.37	.30															
7	.03	.16	.38	.41	.48	.41														
8	.03	-.11	.08	.06	.28	.21 ^c	.38													
9	.39	.01	.03	.09	.28	.07	.16	.21												
10	-.08	.34	.44	.27	.28	.38	.52	.18	.08											
11	.01	.03	.05	.05	.26	.03	.22	.33	.28	.02										
12	.01	.12	.43	.32	.32	.15	.22	.01	.17	.29	.44									
13	.01	-.13	.20	.18	.33	.25	.41	.23	.15	.38	.15	.29								
14	.00	-.04	.06	.18	.12	.10	.33	.26	.06	.30	.30	.25	.56							
15	.03	.25	.31	.01	.15	.19	.03	.04	.06	.09	.32	.44	.20	.24						
16	.00	.16	.20	.17	.29	.22	.40	.13	.11	.31	-.06	-.04	.44	.37	.12					
17	.00	.26	.50	.30	.33	.40	.33	-.07	.06	.44	.17	.68	.33	.10	.43	.15				
18	-.07	-.08	.16	.14	.54	.20	.46	.30	.07	.37	.10	.22	.40	.50	.04	.41	.26			
19	.20	.05	.05	.04	.29	.10	.20	.14	-.01	.13	.37	.38	.10	.34	.24	.05	.33	.46		
20	.02	.13	.46	.28	.53	.44	.40	.25	.23	.47	.19	.44	.38	.21	.42	.28	.62	.35	.27	

a item numbers are random (as on questionnaire)

b .01 level of significance (r=.283)

c .05 level of significance (r=.217)

APPENDIX B-7

UNROTATED FACTOR MATRIX OF ASRIPTIVE QOL ITEMS ON SEVEN
FACTORS (N=78)

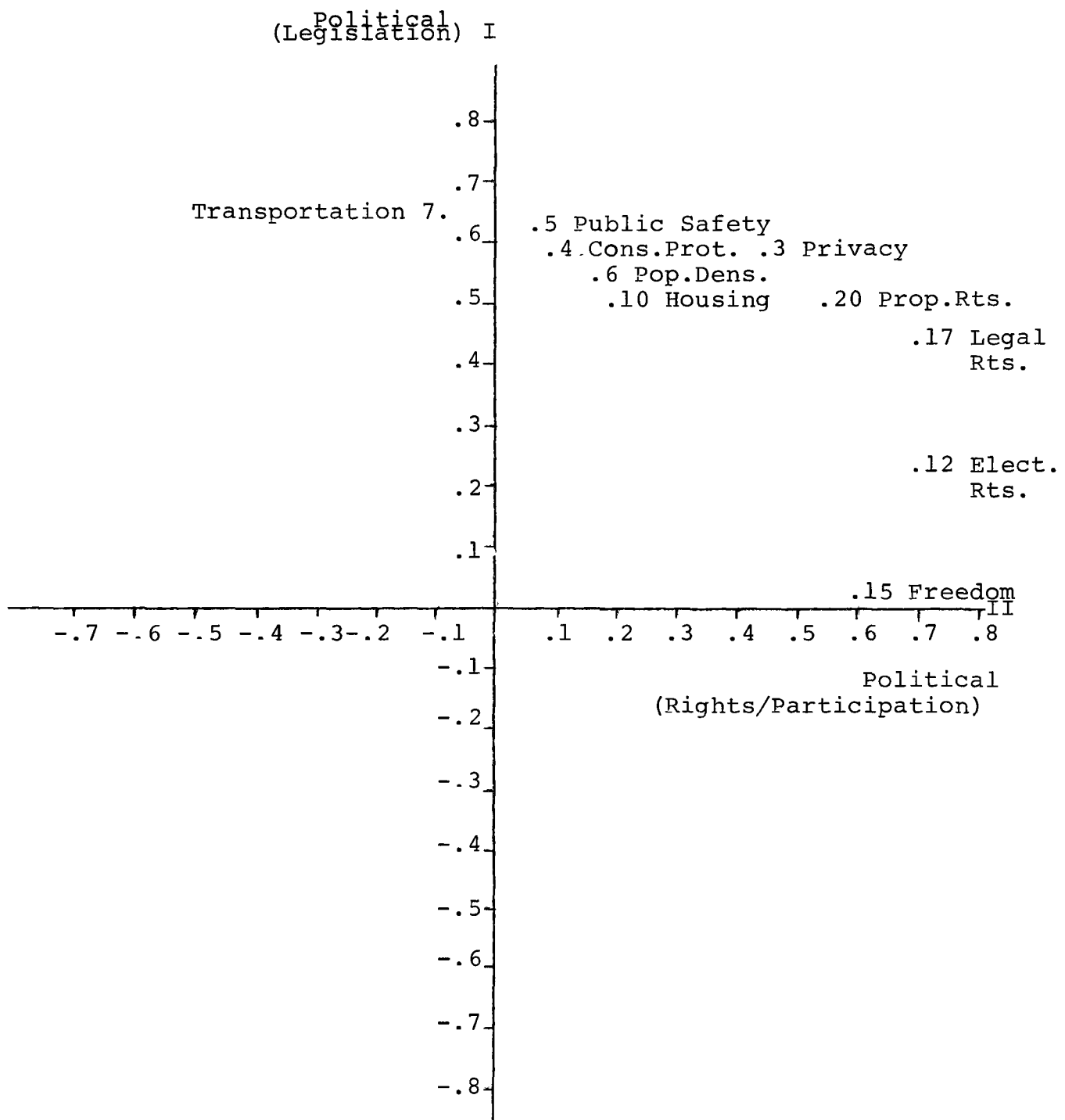
UNROTATED FACTOR MATRIX OF ASCRIPTIVE QOL ITEMS ON SEVEN FACTORS (N=78).

Item Content ^a	Factors						
	I	II	III	IV	V	VI	VII
I. Political							
1. Int'l. Cooperation	-.037	-.023	.177	-.356	-.073	.059	.407
2. Discrimination	-.246	.641	-.132	-.141	-.696	-.060	.000
3. Privacy	-.559	.399	-.166	-.011	.063	.039	-.104
4. Consumer Protection	-.452	.210	-.219	-.186	.069	-.097	-.114
5. Public Safety	-.642	-.089	-.053	-.254	.112	-.267	.021
9. National Identity	-.248	-.124	.195	-.616	.035	.230	.229
12. Electoral Rights	-.607	.276	.429	.139	.144	.040	-.025
15. Freedom	-.401	.239	.337	.155	-.065	.226	-.029
17. Legal Rights	-.700	.442	.126	.232	.222	.027	.158
20. Property Rights	-.728	.123	.002	-.029	.191	.050	.082
II. Social							
6. Population Density	-.484	.038	-.214	-.042	.295	.013	-.066
7. Transportation	-.676	-.155	-.276	-.180	-.046	-.101	-.174
8. Leisure Time	-.324	-.367	.017	-.240	-.012	-.038	-.218
10. Housing	-.613	.094	-.301	.061	-.092	.038	-.052
11. Communication	-.375	-.146	.670	-.193	-.130	.005	-.409
14. Education	-.489	-.478	.094	.292	-.331	.253	-.020
16. Employment	-.431	-.210	-.362	.022	-.203	.154	.133
18. Health	-.606	-.453	-.125	.179	-.071	-.333	.158
19. Environment	-.434	-.138	.432	.183	-.138	-.402	.224
III. Economic							
13. Financial Resources	-.583	-.324	-.113	.140	.036	.368	.039
% total variance explained	28.2	10.5	9.4	7.4	5.9	5.4	5.2
cumulative %	28.2	38.6	48.0	55.3	61.3	66.7	71.9

a item numbers are random (as on questionnaire)

APPENDIX B-8

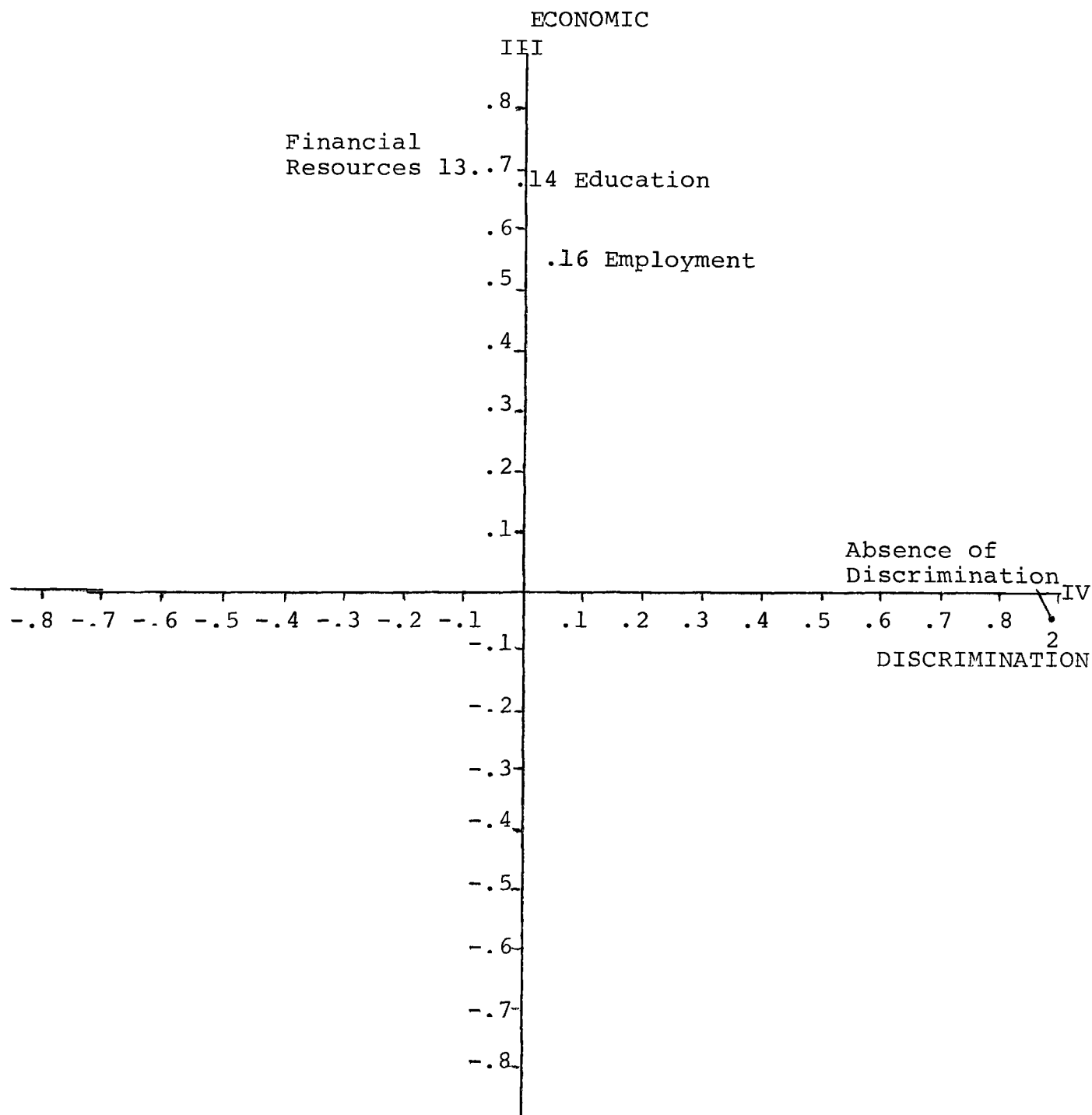
PROJECTIONS OF ASCRIPTIVE QOL ITEMS ON FACTORS I AND II

PROJECTIONS OF ASCRIPTIVE QOL ITEMS^a ON FACTORS I AND II.

a items included are those whose loadings are above ± 0.35 and highest across both factors.

APPENDIX B-9

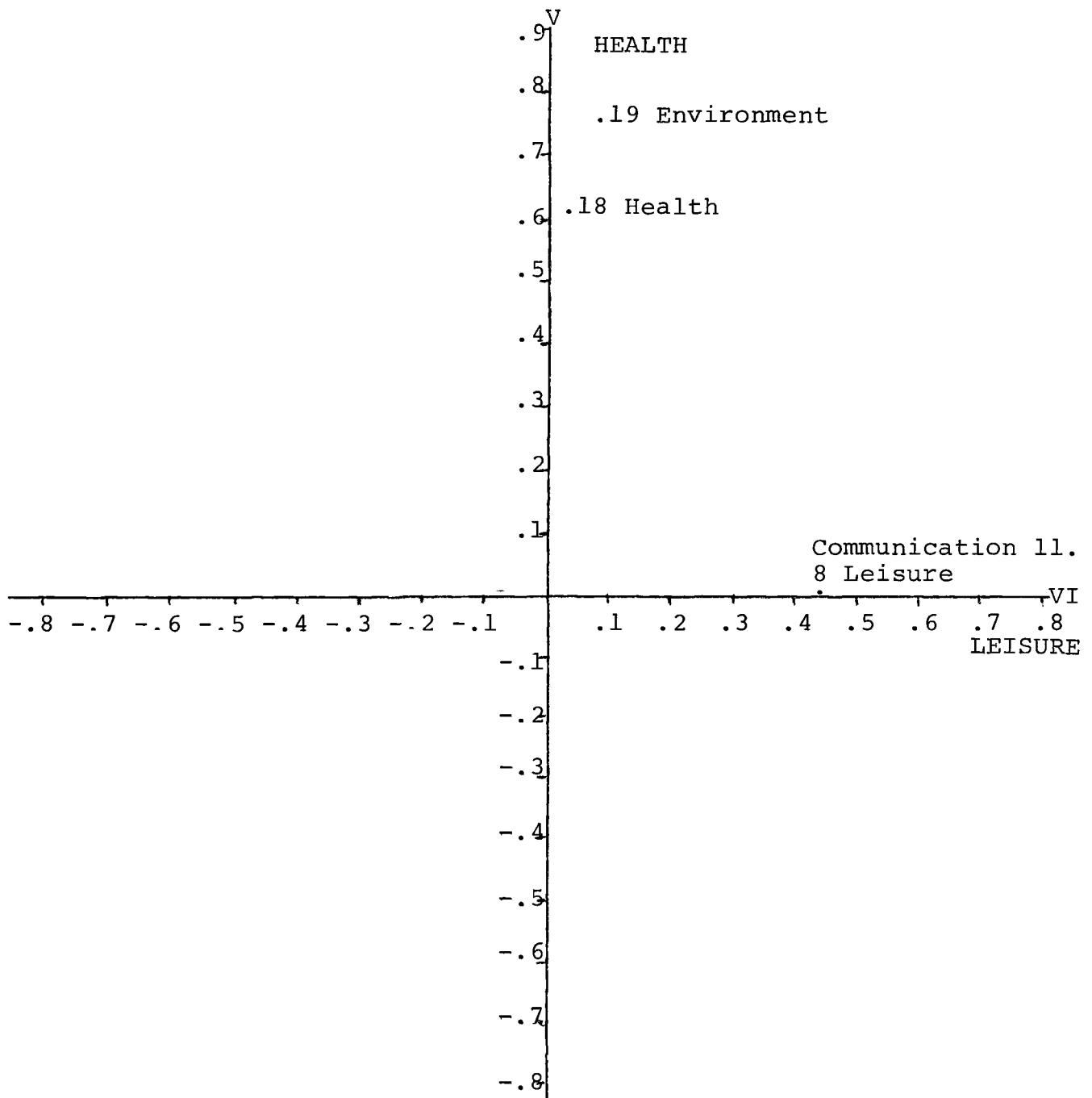
PROJECTIONS OF ASCRIPTIVE QOL ITEMS ON FACTORS III AND IV

PROJECTIONS OF ASCRIPTIVE QOL ITEMS^a ON FACTORS III AND IV.

a items included are those whose loadings are above +/-0.35 and highest across both factors.

APPENDIX B-10

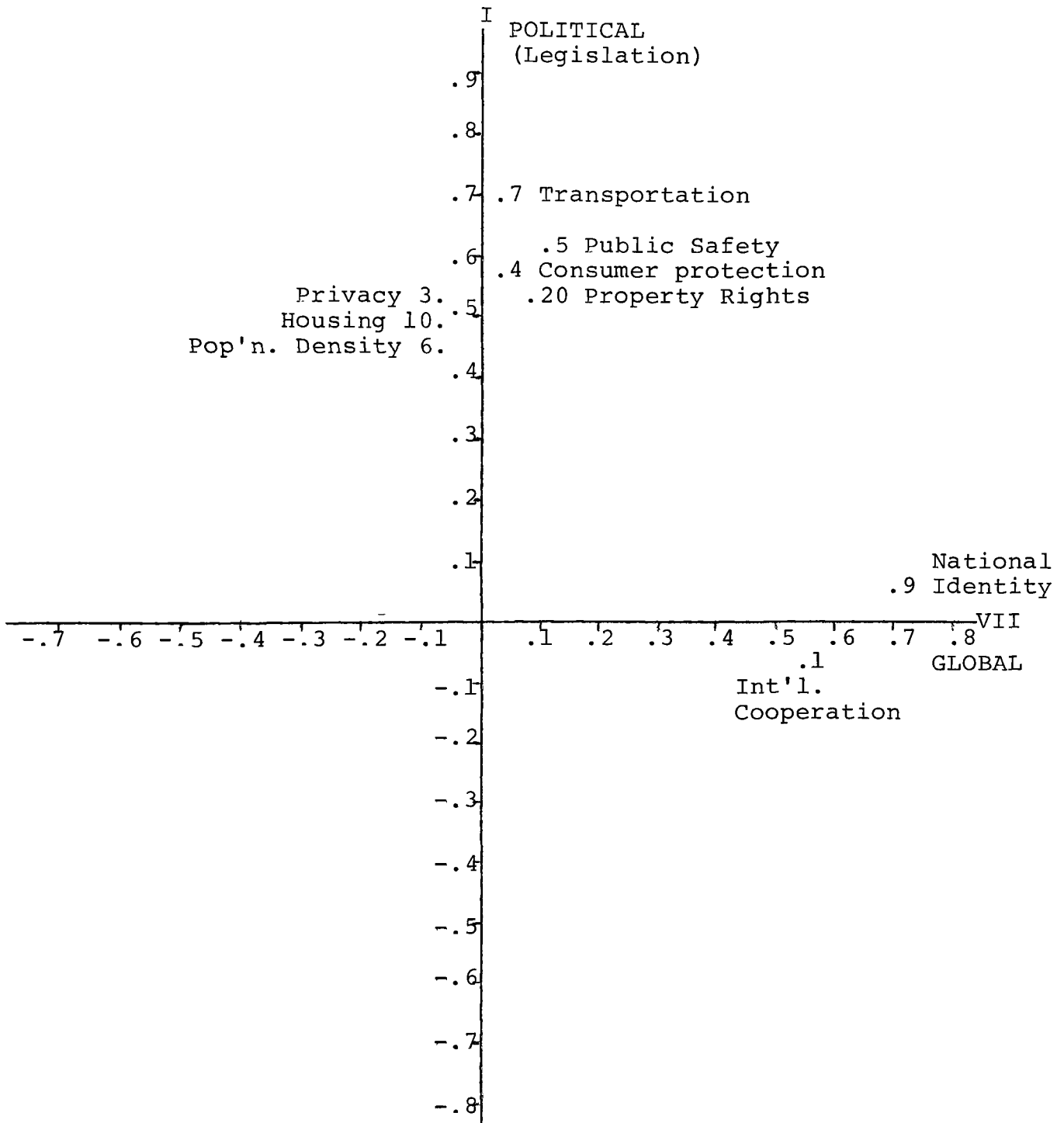
PROJECTIONS OF ASCRIPTIVE QOL ITEMS ON FACTORS V AND VI

PROJECTIONS OF ASCRIPTIVE QOL ITEMS^a ON FACTORS V AND VI.

a items included are those whose loadings are above ± 0.35 and highest across both factors

APPENDIX B-11

PROJECTIONS OF ASCRIPTIVE QOL ITEMS ON FACTORS I AND VII

PROJECTIONS OF ASCRIPTIVE QOL ITEMS^a ON FACTORS I AND VII.

a items included are those whose loadings are above ± 0.35 and highest across both factors.

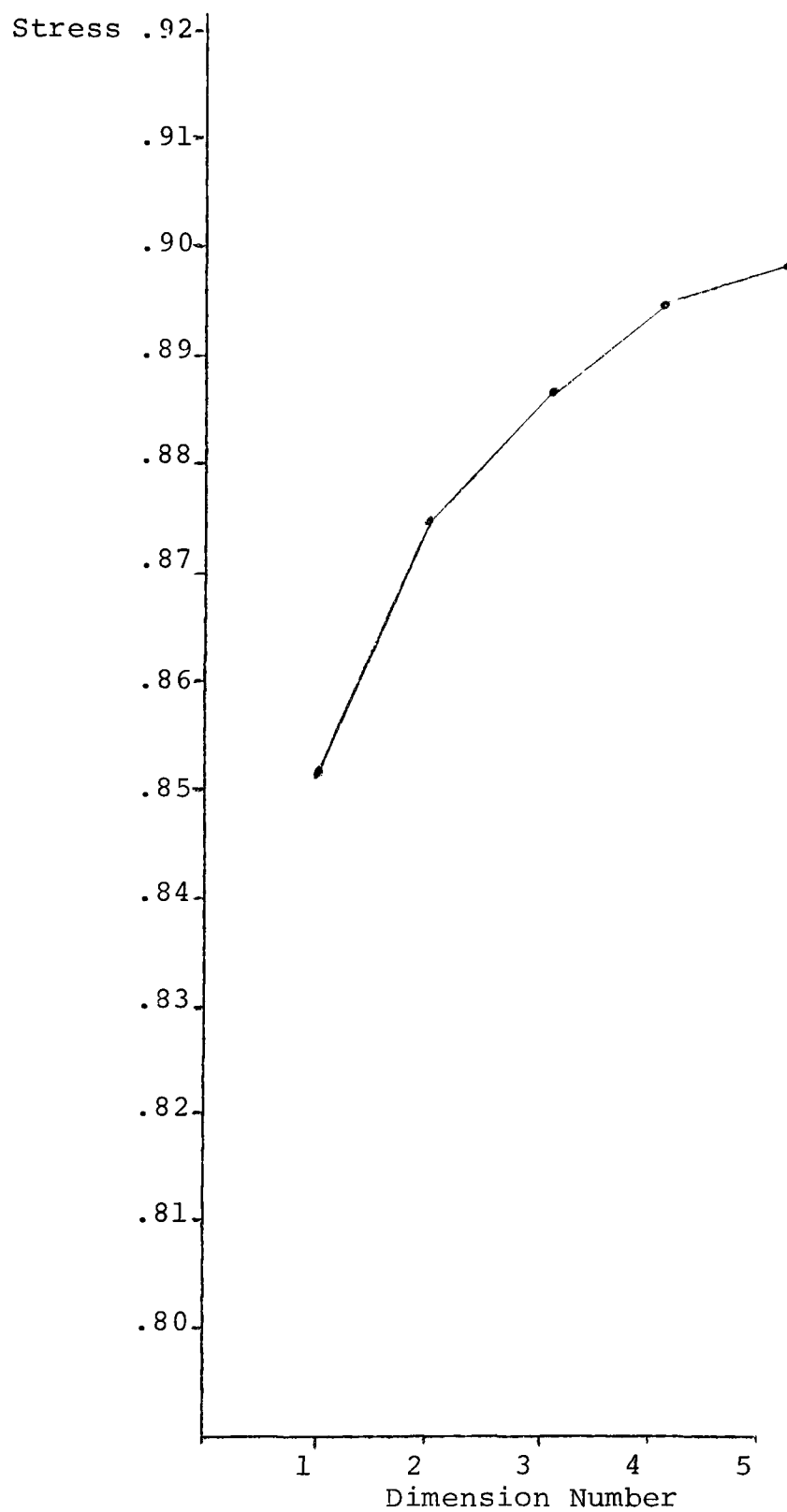
APPENDIX B-12

MATRIX OF MEAN SIMILARITY RATINGS FOR EACH OF THE 45 TESTI-
MONIAL ITEM PAIRS (N=105)

APPENDIX B-13

PLOT OF STRESS VS. DIMENSION FOR 10 TESTIMONIAL QOL ITEMS.

PLOT OF STRESS VS. DIMENSION FOR 10 TESTIMONIAL QOL ITEMS.



APPENDIX B-14

ROTATED SCALE VALUES FOR EACH TESTIMONIAL QOL ITEM ON ONE
DIMENSION

ROTATED SCALE VALUES FOR EACH TESTIMONIAL QOL ITEM ON ONE
DIMENSION (N=105).

Item Content	Scale Values
10. Personal Well-Being	2.279
6. Income	0.145
7. Friends	0.144
5. Employment	0.136
8. Freedom	0.136
4. Physical Environment	0.072
9. Family	0.060
1. Social Acceptance	-0.445
3. Education	-0.447
2. Leisure	-2.079

APPENDIX B-15

INTERCORRELATION MATRIX BETWEEN TESTIMONIAL QOL ITEMS (N=101)

INTERCORRELATION MATRIX BETWEEN TESTIMONIAL QOL ITEMS^a (N=101).

	1	2	3	4	5	6	7	8	9	10
2	<u>.38^b</u>									
3	<u>.24^c</u>	<u>.25</u>								
4	<u>.42</u>	<u>.38</u>	<u>.39</u>							
5	<u>.20</u>	<u>.40</u>	<u>.46</u>	<u>.49</u>						
6	<u>.37</u>	<u>.66</u>	<u>.19</u>	<u>.32</u>	<u>.38</u>					
7	<u>.41</u>	<u>.18</u>	<u>.29</u>	<u>.43</u>	<u>.42</u>	<u>.43</u>				
8	<u>.38</u>	<u>.39</u>	<u>.41</u>	<u>.54</u>	<u>.45</u>	<u>.25</u>	<u>.39</u>			
9	<u>.41</u>	<u>.42</u>	<u>.26</u>	<u>.43</u>	<u>.47</u>	<u>.38</u>	<u>.49</u>	<u>.31</u>		
10	<u>.34</u>	<u>.45</u>	<u>.23</u>	<u>.40</u>	<u>.52</u>	<u>.41</u>	<u>.29</u>	<u>.30</u>	<u>.47</u>	

a item numbers are random (as on questionnaire)

b .01 level of significance (r=.254)

c .05 level of significance (r=.195)

APPENDIX B-16

UNROTATED FACTOR MATRIX OF TESTIMONIAL QOL ITEMS ON TWO
FACTORS (N=101)

UNROTATED FACTOR MATRIX OF TESTIMONIAL QOL ITEMS^a ON TWO
FACTORS (N=101).

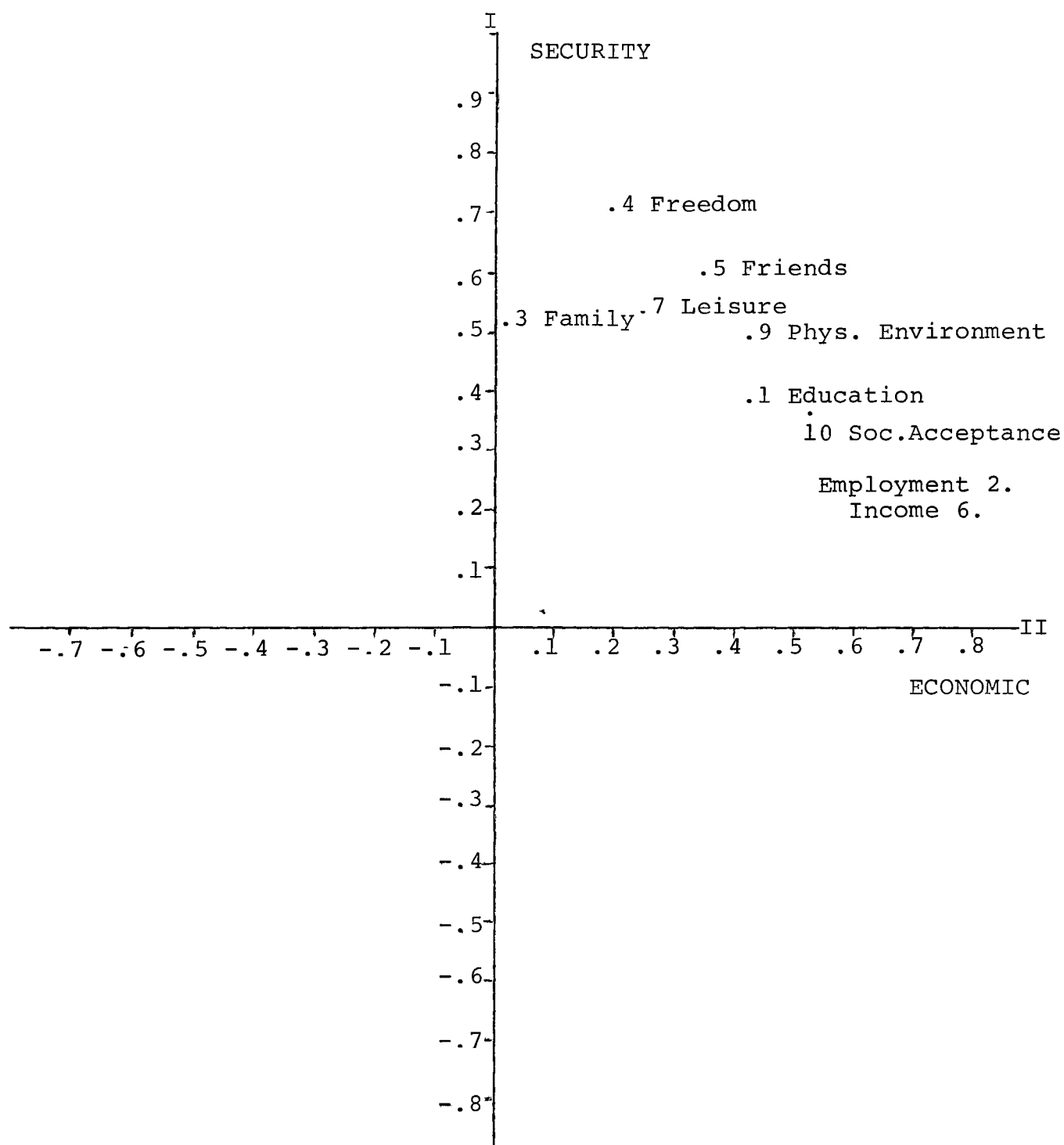
Item Content	Factors	
	I	II
1. Education	-.555	-.020
2. Employment	-.657	-.479
3. Family	-.484	.256
4. Freedom	-.679	.303
5. Friends	-.685	.138
6. Income	-.648	-.451
7. Leisure	-.592	.150
8. Personal Well-Being	-.639	.244
9. Phys. Environment	-.674	.019
10. Social Acceptance	-.614	-.103

a item numbers correspond to those on the
questionnaire.

APPENDIX B-17

PROJECTIONS OF TESTIMONIAL QOL ITEMS ON FACTORS I AND II

PROJECTIONS OF TESTIMONIAL QOL ITEMS ON FACTORS I AND II.



APPENDIX B-18

FACTOR SCORE COEFFICIENTS FOR ASCRIPTIVE QOL ITEMS ON SEVEN
FACTORS

FACTOR SCORE COEFFICIENTS^a FOR ASCRIPTIVE QOL ITEMS ON SEVEN FACTORS (N = 78)

Item Content	Factors						
	I	II	III	IV	V	VI	VII
1. Int'l. Cooperation	-.042	.016	-.004	-.007	.053	-.032	.275
2. Discrimination	-.035	-.063	.067	<u>1.223</u>	.041	.018	<u>.076</u>
3. Privacy	<u>.153</u>	.078	-.024	<u>.016</u>	-.112	.013	-.064
4. Consumer Protection	<u>.176</u>	-.050	-.096	-.175	-.001	.016	-.024
5. Public Safety	<u>.206</u>	-.026	-.089	-.083	.066	.005	.084
6. Population Density	<u>.139</u>	-.034	.006	<u>.173</u>	-.055	.041	-.016
7. Transportation	<u>.292</u>	-.223	.049	<u>.033</u>	-.016	.118	-.030
8. Leisure	<u>.073</u>	-.033	.008	-.030	-.025	<u>.079</u>	.010
9. National Identity	.021	-.024	.034	-.034	-.091	-.024	<u>.615</u>
10. Housing	.120	-.014	.039	<u>-.219</u>	-.066	.005	-.106
11. Communication	-.073	.104	-.118	<u>-.005</u>	-.028	<u>.812</u>	-.108
12. Electoral Rights	-.017	<u>.239</u>	-.101	.172	.006	<u>.084</u>	-.027
13. Financial Resources	-.019	.014	<u>.319</u>	.084	-.138	-.011	.077
14. Education	<u>-.254</u>	.178	<u>.540</u>	.062	-.074	.024	-.081
15. Freedom	<u>-.060</u>	.151	.035	<u>-.176</u>	-.034	-.035	.018
16. Employment	.012	-.022	<u>.161</u>	-.032	-.053	-.068	.046
17. Legal Rights	.093	<u>.593</u>	-.060	-.299	.019	-.394	-.051
18. Health	.090	-.255	.121	.081	<u>.558</u>	-.002	-.100
19. Environment	-.131	.049	-.102	.015	<u>.514</u>	-.078	.127
20. Property Rights	<u>.126</u>	.057	.030	.029	-.020	.039	.072

a highest values are underlined

APPENDIX B-19

FACTOR SCORE COEFFICIENTS FOR TESTIMONIAL QOL ITEMS ON TWO
FACTORS

FACTOR SCORE COEFFICIENTS^a FOR TESTIMONIAL QOL ITEMS ON
TWO FACTORS (N=101).

Item Content	Factors	
	I	II
1. Education	.079	.044
2. Employment	-.167	.502
3. Family	.161	-.069
4. Freedom	.325	-.090
5. Friends	.218	-.014
6. Income	-.120	.402
7. Leisure	.146	.010
8. Personal Well-Being	.246	-.079
9. Phys. Environment	.138	.069
10. Soc. Acceptance	.046	.111

a highest values are underlined