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THE UNIVERSITY OF ALBERTA

A CROSS-SECTIONAL STUDY OF ATTITUDINAL FUNCTION FLUCTUATION

BY



PETER BRAUN

A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled

A CROSS-SECTIONAL STUDY OF ATTITUDINAL FUNCTION FLUCTUATION submitted by Peter H. Braun in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Supervisor . . . . .

. R.S. MacArthur . . . . .

. J. R. [Signature] . . . . .

. [Signature] . . . . .

. J. B. [Signature] . . . . .

. Henry F. Karpis .  
External Examiner

Date June 16, 1972 . . . . .

## ABSTRACT

Two methodological problems which seem to make it difficult to conduct research in the area of age-related changes in attitude were identified. The first of these concerned the examination of the stability of attitudes in relation to age, whereas the second concerned the classification of subjects into age groups such that those belonging to a given age group are maximally similar to each other and, simultaneously, maximally different from those in the remaining age groups. Since an analysis of function fluctuation requires the availability of suitable age groups, the classification problem was attended to first.

A data matrix consisting of the responses of 4334 subjects to 477 items was utilized for this purpose. The subjects were at 50 age levels -- from 15 to 64 years. This matrix was reduced to one of 'age-representative' responses by averaging the responses of all subjects at the same age to each of the 477 items. The resulting 477 x 50 (items by age levels) matrix was factor analysed in a fashion described as Q-technique by Cattell (1966). The factor matrix was rotated to oblique simple structure, and the following five age groups were inferred from the factor loadings: (A) Youth -- aged 15 to 18, (B) Young Adults -- 19 to 26, (C) Adults -- 27 to 39, (D) Middle Aged -- 40 to 52, and (E) Seniors -- 53 to 64.

These age groups were then examined with regard to function fluctuation on ten available scales in a variety of ways: (1) the means of the five age groups on each scale were tested for equality using a one-way ANOVA in order to infer age-related trends in the constructs represented by these scales. (2) The variances of the five age groups



were tested for equality on each of the scales. (3) The profiles of the five age groups on the items of each scale were tested for parallelism in order to obtain information about the internal stability of the ten scales. (4) The Alpha reliabilities of the five age groups were compared for each scale. (5) The variance-covariance matrices of the five age groups were tested for equality on each scale, and (6) the stability of the scale intercorrelations of the five age groups was examined.

The results from the one-way ANOVA's showed that the responses to each of the ten scales had an age-related trend comparable to the well-known developmental growth curves. The test for parallelism of the age group profiles showed that the responses to four scales yielded parallel profiles. The response variation among the five age groups was found to differ significantly on 9 of the 10 scales (on seven of them, it decreased as a function of age). It was conjectured that this latter effect contributed to the inequalities found among the variance-covariance matrices. Also, the fluctuations among the scale intercorrelations of the five age groups were shown to be related to the observed differences in response variation.

It was concluded that the methods for studying fluctuation may be classified into two kinds: those which estimate fluctuation through (1) a comparison of means (ANOVA for total scores and profile analysis for item scores), and (2) a comparison of variances and/or covariances (Alpha, variance-covariance matrices, scale intercorrelations). The first of these approaches seemed to yield relatively clear-cut results, while the second invariably gave results which were either inconclusive or very difficult to interpret.

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## CHAPTER I

### INTRODUCTION

Adults seem to spend a fair amount of their time trying to make reasonable guesses about the covert psychological characteristics of other people, for example, about their abilities, attitudes, motives, and intentions (Flavell, et al, 1968, p. 5). Similarly, they think about society, its institutions, laws, problems, and mores. The conclusions related to such thinking are generally referred to as attitudes, and they belong to a class of psychological variables which in this research will be called 'non-cognitive constructs' in line with the definition of this term presented by Cronbach ( 1970 ).

Our current knowledge about the development and the stability or long term changes of many non-cognitive constructs is rather fragmentary. Only a few specific constructs such as, for example, vocational interest ( Campbell, 1971 ) or rigidity ( Schale, 1958 ) have been investigated more extensively in this respect. The main emphasis in the area of developmental researches has been on cognitive and sensory-motor abilities. For example, of the 300 references in Schale's ( 1968 ) book "Theory and Methods of Research on Aging", only 27 deal with non-cognitive topics under the general heading of personality changes related to aging. In the cognitive and sensory-motor areas, research seems to have revealed fairly stable developmental patterns. With regard to the area of personality, Wallach's (1963, p. 270) conclusion that "the extent to which thinking about the social environment follows similar or different ontogenetic patterns must remain an open

question at this point" seems to be valid.

Two methodological problems appear to make it difficult to conduct research in the area of age-related changes in attitude. The first of these concerns the examination of the stability (reliability) of the constructs under investigation. The univariate analysis of variance model (ANOVA) presented by Baltes (1968) as a panacea for research designs on aging often proves unsuitable for investigating attitudinal functions because it is insensitive to certain kinds of fluctuations attributable to changes in the meaning of the construct itself. For example, if several different age groups are compared on a given construct by using the ANOVA model, one would only be able to test the group means for equality. No indication of that function's stability (or lack of it) for the various age groups would become available. However, as indicated in the review of research presented later, it would be unsafe to assume a priori that attitudinal functions remain stable over a large range of ages or a long period of time.

The second problem concerns the classification of the subjects into age groups. As a prerequisite for using inferential models such as analysis of variance, the subjects need to be classified into suitable groups. Hence, as a subsidiary problem, the classification or grouping of the subjects at different ages into "optimal" age groups needs to be dealt with. It is desirable to group subjects in such a way that those belonging to a given group are maximally similar to each other and, simultaneously, maximally different from those in the other age groups. Such a grouping, if it were possible, would come close to the concept of developmental stages, and the results

based upon them would be more dependable.

The present research attempts to examine the possibility of overcoming the above methodological problems. The following sections give fuller details. Since the classification of subjects into suitable age groups must precede an analysis of function fluctuation, it is considered first in the sequel.

#### CLASSIFYING SUBJECTS INTO OPTIMAL AGE GROUPS

The first problem dealt with in this research concerns the division of a long age range, 15 to 64 years, into appropriate age groupings. In previous developmental researches, the independent variable "age" was usually divided into a number of segments arbitrarily. For example, Heron & Chown ( 1967 ) grouped their subjects by decades such that all those aged 20 to 29 formed the first group, those from 30 to 39 formed the second, etc. Other researchers have used age groups spanning half a decade such as 20 to 24, 25 to 29, 30 to 34, etc. ( Jones & Conrad, 1933; Neugarten & Gutman, 1964; Veroff, et al, 1960), while Campbell ( 1971 ), and Rosen & Neugarten ( 1960 ) used dichotomous groups -- a "younger" and an "older" sample. This may have been a consequence of the rather small number of subjects available to the researchers. Such groupings which are guided primarily by the exigencies of circumstances or considerations of convenience, rather than by empirical evidence or theoretical formulations, may have been partly responsible in the past for relatively poor or inconclusive results.

### A Procedure for Classifying Age Levels

In this study, the variables to be classified are the chronological age levels for which a factor analytic technique, sometimes called inverse factor analysis or Q-analysis ( Cattell, 1966 ) seemed to be the best and was used. The problem can be operationalized as follows: If it is true that people at certain ages exhibit attitudes and values leading to responses different from those of people at other ages, then an inverse factor analysis or Q-analysis of age-representative scores should yield factors which are interpretable in terms of age groups akin to 'developmental stages'. If these assumptions are not true, then such a factor analysis will not yield meaningful groupings of the age levels.

The input data for such an analysis consisted of a response matrix of the type shown in Table 1.1 where the variables to be factored are the different chronological ages ranging from 15 to 64 years. The row headings consist of the item ( or stimulus ) serial numbers. The data consist of the mean responses to each of the  $n$  items (  $n=477$  ) given by all the subjects at each of the 50 age levels. Hence, column  $j$  in the matrix of Table 1.1 would be an estimate of central tendency of the responses of subjects at age  $j$  to each of the  $n$  items. The objective is to combine the age levels into a smaller number of classes such that those levels grouped together are 'factorially' alike.

It can be mentioned in passing that the resulting age groups should consist of age levels which are contiguous and, therefore, can be called 'developmental stages', otherwise the results will not be easy to interpret. For example, it would not be meaningful if age 15, 16,

TABLE 1.1

A MATRIX OF MEANS OF THE RESPONSES GIVEN TO 477 STIMULI  
BY FIFTY AGE LEVELS

| =====    |  |                    |             |             |   |        |   |   |   |             |
|----------|--|--------------------|-------------|-------------|---|--------|---|---|---|-------------|
| Stimuli  |  | Mean Responses     |             |             |   |        |   |   |   |             |
|          |  | Age of Respondents |             |             |   |        |   |   |   |             |
|          |  | j = 15             | 16          | 17          | . | .      | . | . | . | 64          |
| Item # 1 |  | $IM_{1,15}$        | $IM_{1,16}$ | $IM_{1,17}$ |   |        |   |   |   | $IM_{1,64}$ |
| 2        |  | $IM_{2,15}$        | $IM_{2,16}$ | $IM_{2,17}$ |   |        |   |   |   | $IM_{2,64}$ |
| 3        |  | $IM_{3,15}$        | $IM_{3,16}$ | $IM_{3,17}$ |   |        |   |   |   | $IM_{3,64}$ |
| .        |  | .                  | .           | .           |   | etc, . | . | . | . | .           |
| .        |  | .                  | .           | .           |   |        |   |   |   | .           |
| .        |  | .                  | .           | .           |   |        |   |   |   | .           |
| n=477    |  | $IM_{n,15}$        | $IM_{n,16}$ | $IM_{n,17}$ |   |        |   |   |   | $IM_{n,64}$ |

17, 36, and 49 were in a given age group.

Another practical difficulty may be mentioned here. In Q-analysis,  $n$  must be greater than  $j$ , otherwise the correlation matrix is overdetermined. Since  $j$  was 50 here,  $n$  needed to be at least 50, preferably more. In this research,  $n$  was 477.

#### FUNCTION FLUCTUATION: ITS MEANING AND EXAMINATION

If developmental research is classified into five general areas, viz.:

1. sensory and perceptual problems,
2. learning,
3. cognition,
4. personality,
5. "inner experience" (Szekely, 1965),

the present research will fall under (4). This area may be viewed broadly as encompassing the "total configuration of an individual's attitudes, values, beliefs, motivations, and activity patterns" (Chown, in Schale, 1968, p. 134 ). Within this totality, the present research is concerned with studying the stability of attitudes. Attitude is defined as a mental disposition or feeling with regard to an object or issue ( Webster's Dictionary, 1971 ). This definition encompasses such concepts as values, beliefs, interests ( as evidenced in activity patterns), and motivations. The present research is limited to those non-cognitive constructs which have been defined as attitudes by Rockeach ( 1968, p. 134 ) in the following words:

An attitude is a relatively enduring organization of beliefs about an object or situation predisposing one to respond in some preferential manner.

However, when one considers developmental problems, one generally looks at the life-span ( or part of the life span ) of man in an attempt to discover regularities of progression, or stages. "Since certain experiences in life are similar for many people, one may hope to find some similarities in the effect of age upon them" ( Chown, in Schale, 1968, p. 135; c.f., Kiell, 1964 ).

Attitude change implies a change "within the person". Such a change may take place under the influence of many variables. Chronological age, the environment, the culture, and the times in which a person lives -- all may have a bearing on his attitudes. Some writers have preferred to use the term "function" to denote that a change in a psychological construct is taking place concomitant with change in another variable, e.g., time or age ( Anderson, 1958, 1959; Szekely, 1965; Thoughless, 1936 ). The mathematical notion of a function is well suited to illustrate the present problem.

Andree (1962, p.1) explains "function" in this way:

Possibly the most fundamental mathematical notion is that of a function. In brief, the statement "y is a function of x" means that if a suitable value of x is given, then a corresponding value of y is determined in some fashion. The word function is used to describe the correspondence.

In the physical sciences, functions have been studied for a long time by means of experimental procedures. Once a functional correspondence is firmly established, it becomes a law, for example, Ohm's Law. Such a law can then be used to predict an unknown variable from a knowledge of the other variables in the function.

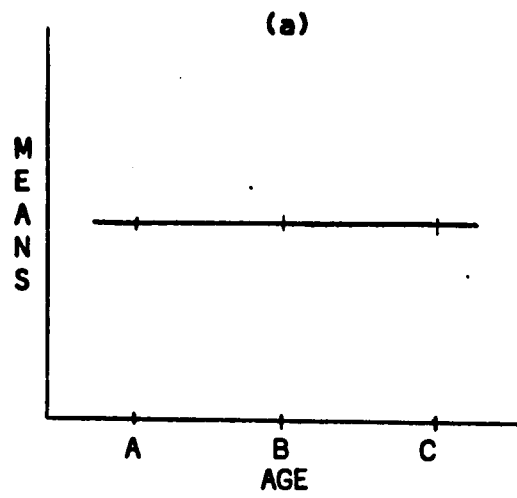


In the present research, the independent variable is chronological age, and attitude change is viewed as a function of age. Hence, in this research, the term "function" denotes the correspondence or relationship between chronological age and a psychological construct. In the specific case in which such a construct is measured in terms of a single variable, one could plot this relationship as illustrated in Figure 1.1, where age is plotted on the X-axis and the magnitude of the function on the Y-axis.

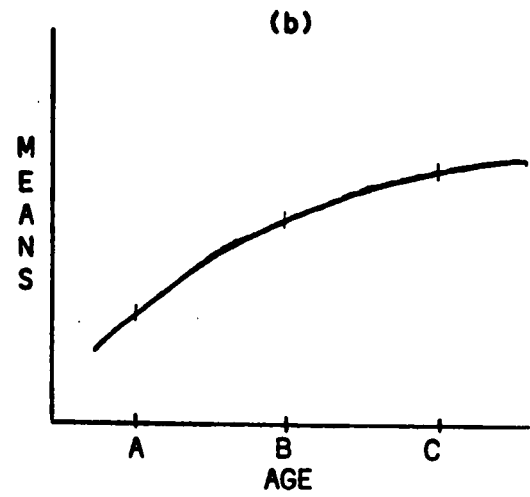
In Figure 1.1, (a) represents a function which does not change; (b) depicts what is usually called a "growth curve"; (c) illustrates a fluctuating function, and (d) a disappearing function. As will be shown in Chapter IV, each of these types of functions (as well as combinations of them ) characterize the area of personality.

In the psychological context, Anderson & Zingle ( 1961 ) defined function fluctuation as "a quantitative change among testing occasions in the function being measured". This definition implies that any change whatever is classified as fluctuation. Hence, the functions b, c, and d depicted in Figure 1.1 would be classified as fluctuating. For the purpose of this research, it is proposed to adopt the above definition of function fluctuation. It is argued that such graphs as a "growth curve" may be viewed as a part of a cyclic function because they have both duration ( a fractional cycle ) and magnitude - the two characteristics which define fluctuation.

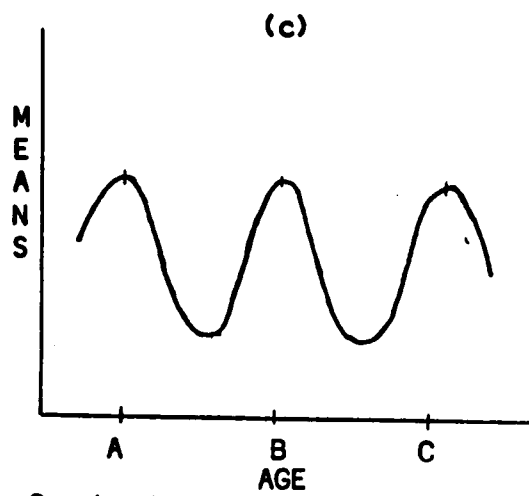
Psychological functions may fluctuate due to short-term influences as in the work of Anderson & Zingle ( 1961 ). They may also undergo trend-like, long-term changes arising from influences of maturation,



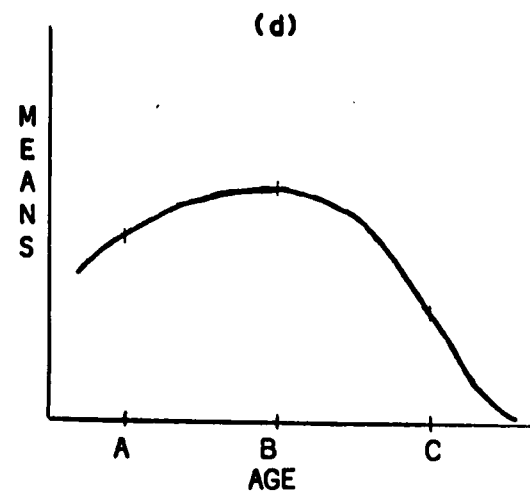
Graph of a stable, unchanging function.



Graph of a function depicting a "growth curve."



Graph of a fluctuating function.



Graph of a disappearing function.

Figure 1.1: Graphic representation of functions.

acculturation, and the like. The present research is concerned with the latter only.

A psychological construct is generally appraised by means of responses to several highly correlated stimuli or items of a questionnaire provided that the items also represent a common idea. For example, the construct "loneliness" can be appraised by asking subjects to respond to several items dealing with the various aspects of loneliness, such as (a) lack of friends, (b) feelings of isolation or rejection, (c) lack of social contacts, etc. These items seem to explicate "loneliness" when judged rationally. They may also show high intercorrelations. If the two conditions are satisfied, the items can be said to measure "loneliness". The responses to the items, when combined appropriately, will yield scores on the construct (scale scores). The implications of the presence of high correlations are: (a) the items composing the scale share substantial variance with one another, (b) the construct may be viewed as a unidimensional variable.

It should be noticed that a construct could also be composed of several related facets or dimensions. For example, "loneliness" could be viewed as being composed of three facets (a) lack of friends, (b) feelings of isolation, and (c) lack of social contacts. One could succeed in making "tests" in which the scores on each facet occurred independently of the others. In such a case, the construct would be viewed as being multi-variate or hierarchical, depending upon the magnitude of the correlations.

Both of these views have implications for a study of function fluctuation. If the construct in question is univariate, one only needs to compare the mean scores of selected age groups to study fluctuation.

The differences among these means can be tested for significance by analysis of variance methods. The means can also be plotted as a function of age and fluctuations can be inferred from the trend of the plot.

If, on the other hand, a construct is multi-variate, one should first assess if the items defining it retain their relationships over the range in which the function is to be examined. If they do, one can proceed to treat the function as a univariate domain. However, if the relationship among the items changes, one can infer that the construct changes its meaning. In this case, the scale scores of various age groups are not comparable because they measure different aspects of the construct in the different age groups.

Suppose, for example, that the loneliness scale mentioned above is administered to three age groups and that the subjects in each age group scored high on a different dimension of loneliness from amongst the above three given and low on the remaining two. Then the scoring pattern of the three age groups on the three dimensions would resemble an identity matrix. Assuming equal weights for the three dimensions, the scale scores of each age group would be identical. An empirical example of such a case is given by Aaronson (1960). He derived a scale which he called "Index of Aging" by selecting all those items from the MMPI which correlated with age. However, on the basis of the scoring patterns, he concluded that "the dimension measured by this index seems to be a transition from concern with control of impulses to concern with physical and mental health". This means that people at different ages scored high on different items. Thus, whatever the scale measured, it was not the same construct (i.e., the same "concern")

In the young and the old. Such internal fluctuation of a function is, of course, a reliability problem. However, it is not the usual test reliability such as KR20 or Alpha coefficient of Cronbach (1951) which is one's concern here, but rather, the stability of the function. In other words, Alpha could only provide an index of the internal consistency of the function at a given age, but not across various ages. It could well happen that the Alphas obtained from the item-covariance matrices of two or more age groups are statistically identical, and yet the corresponding matrices are not. This restricts the use of such indices as Alpha for the purpose of examining function stability. In this research, therefore, an attempt was made to find a more appropriate procedure for examining the internal stability of attitudinal functions, as described below.

#### A Procedure for Assessing Function Fluctuation

A psychological function can fluctuate in terms of (a) the magnitude of the composite score derived from the items, and (b) the inter-relationship among the items.

Age group differences in the means of the composite scores can be tested with conventional ANOVA techniques (Campbell & Stanley, 1961). These are well known and need not be elaborated here. Therefore, the rest of this section will deal with testing the stability of the relationships between the items over the range of the function.

Assume that the range is divided into three consecutive parts. The subjects in each part will, then, constitute an age group. The three groups are labelled here A, B, and C. Suppose further that all subjects have responded to four items partially defining a psychologi-

cal construct. Then the mean score for each item can be calculated for every group and plotted as shown in Figure 1.2.

In the above example, the subjects in group C tend to score higher on all the items than the subjects in B who in turn tend to score higher than those in A. The three age groups are said to have parallel profiles on the items so that a composite score would appropriately represent this function.

In Figure 1.3 on the other hand, mean scores on items 1 and 3 appear to be monotonically increasing with age, whereas those on item 4 have a U-shaped distribution, and the ones on item 2 an inverted U-shaped distribution. A composite score is not meaningful for these age groups because the different facets of the construct are looked at differently by various age groups. In other words, the item profiles are not parallel. Such a function would lack internal stability over the range of the age groups.

The internal stability of a function could, therefore, be assessed through testing the item profiles for parallelism, that is, by means of profile analysis (c.f. Morrison, 1967, pp. 186-190). The procedure involves one-way multivariate analysis of variance on the differences between the means of adjacent age-groups. For example, using the above illustration of three age groups and four items, the null-hypothesis would be written as follows:

$$H_0: \begin{bmatrix} \mu_{A1} - \mu_{A2} \\ \mu_{A2} - \mu_{A3} \\ \mu_{A3} - \mu_{A4} \end{bmatrix} = \begin{bmatrix} \mu_{B1} - \mu_{B2} \\ \mu_{B2} - \mu_{B3} \\ \mu_{B3} - \mu_{B4} \end{bmatrix} = \begin{bmatrix} \mu_{C1} - \mu_{C2} \\ \mu_{C2} - \mu_{C3} \\ \mu_{C3} - \mu_{C4} \end{bmatrix}$$

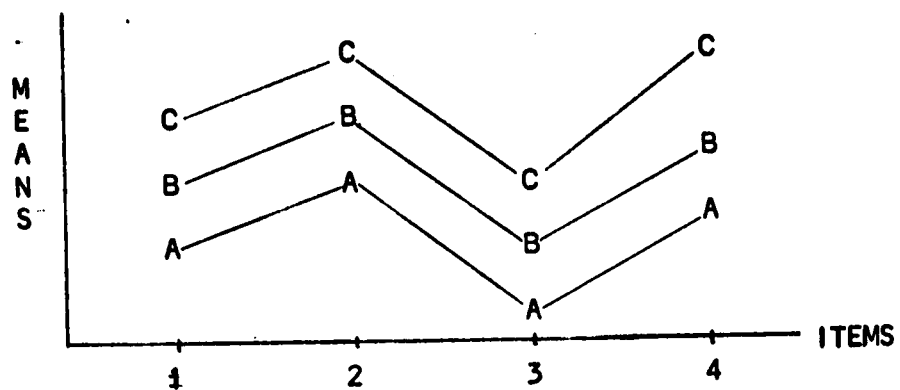


Figure 1.2

Plot of Three Age Groups on Four Parallel Items

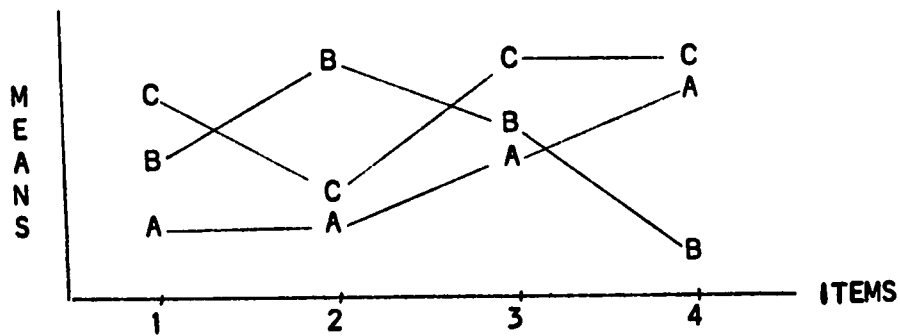


Figure 1.3

Plot of Three Age Groups on Four Non-Parallel Items

This procedure, then, amounts to a multivariate test of interaction between age and the variables measuring the construct. Morrison (1967) suggested that a test for equality of group means on the composite scores should only be carried out if the no-interaction hypothesis is tenable, that is, if the group profiles are parallel.

Once a construct has been classified as parallel or stable for all the age groups under consideration, then one can test the group means on the construct for equality, and plot a curve to represent the trend of the group means. Inferences regarding the developmental nature of the construct can then be made. The unstable constructs, in turn, can be further examined for the possible antecedents of the unreliability, such as disappearance of the function in the age range under consideration, errors of measurement, extreme function fluctuation, or changes in the meaning of the function.



## SIGNIFICANCE OF THE STUDY

Scientific progress depends on the availability of adequate measurement techniques. Hence, new discoveries are often a consequence of applying recent measurement techniques to the problem at hand. The researcher's desire to extrapolate useful information from available data requires the choice of an analytic model from the various available ones. However, since analytic models such as factor analysis or analysis of variance are essentially mathematical models, one can not always assume that the data "fit" the model. If the fit is poor, inconclusive or erroneous conclusions may result.

The present research is exploratory in the sense that it is an attempt to apply some recent methodological techniques to analyse attitudinal data. Its contribution, therefore, is more of a practical than theoretical nature -- It evaluates the usefulness of some recent techniques of multi-variate analysis for the purpose of studying function fluctuation. It is hoped that the results will assist in developing analytic models which increasingly approximate the state of nature and, therefore, extend the boundaries of knowledge.

## CHAPTER II

### REVIEW OF RELEVANT LITERATURE

To date, two broad approaches have been used to study the variation in functions with age: cross-sectional and longitudinal.

Schale ( 1965 ) called them conventional designs. For a review of their relative utility, one could refer to Baltes ( 1968 ) or Travers ( 1964, p. 404-425 ). Whereas in one way or the other, these two models were used as early as 1741 (cf. Suessmilch, 1741, p. 226), attempts at their integration and formalization are rather recent, mostly in the 1960's ( Baltes, 1968; Kessen, 1960; Kuhlen, 1963; Rao & Rao, 1966; Schale, 1965; Thomae, 1959 ). In particular, Schale (1965 ) has made a notable contribution by representing his general developmental model as a basis for formulating research strategies in the area of relating psychological constructs to age.

Two reasons appear to be responsible for this sudden interest in formulating research models: (a) due to the access to high speed digital computers, the constraints in regard to data analysis which formerly discouraged the execution of complex designs, are no longer present ( cf. Howarth & Braun, 1972 ), (b) observed discrepancies in the results of cross-sectional and longitudinal investigations ( cf. Damon, 1965; Kuhlen, 1963 ) highlighted the need for re-evaluating the assumptions underlying these two methods. For example, cross-sectional studies of intelligence produce the well-known aging curves which suggest that intellectual functioning increases till about age 20, then reaches a plateau between ages 20 and 30, followed by a gradual but slow decline

(Jones & Conrad, 1933; Schaie, 1959a). Longitudinal studies, on the other hand, suggest an increase in intellectual functioning until the ages of forty or even fifty (Bailey, 1955; Bailey & Oden, 1955; Glanzer & Glaser, 1959; Kallman & Jarvik, 1959; Owens, 1966). Similar discrepancies have been found in aging studies of religious interests (Bender, 1954) and attitudes (Nelson, 1954). Also, investigations of physical variables such as height and grip strength have revealed discrepancies among methods (Damon, 1965; Juergens, 1966). The fore-going, then, would indicate the necessity for a theoretical model capable of taking these discrepancies or inconsistencies into account.

The different strategies of cross-sectional and longitudinal methods can be formalized as follows (Baltes, 1968):

(a) Cross-sectional Method: Samples ( $S_1 - S_n$ ) at age levels ( $A_1 - A_n$ ) are observed once ( $O_1$ ) on the same dependent variable(s) at the same point of time ( $T_1$ ).

(b) Longitudinal Method: One sample ( $S_1$ ) is observed on several occasions ( $O_1 - O_n$ ) on the same dependent variable(s) when  $S_1$  is at age levels ( $A_1 - A_n$ ). By definition, therefore, testing occasions ( $O_1 - O_n$ ) correspond with different times of measurement ( $T_1 - T_n$ ), and different ages ( $A_1 - A_n$ ) of the subjects.

Age (A) is the independent variable while the dependent variables are the Ss' responses (R). Hence, what one is interested in is the functional relation  $R = f(A)$  (Kessen, 1960). If R is a single variable, the design is called univariate, otherwise multivariate. In terms of the conventional analysis of variance (ANOVA) classifications (cf. Campbell & Stanley, 1963), both the strategies furnish one-way analysis of variance designs with age as the independent variable.

Methodologically, the important difference between the cross-sectional and longitudinal designs lies in the use of independent sampling ( $S_1 - S_n$ ) in the cross-sectional method versus dependent sampling ( $S_1$ ) in the longitudinal one. In both methods, differences between observations on the various samples are attributed to the levels ( $A_1 - A_n$ ) of the factor age. Both models are equally powerful if the assumption that the differences between age groups can be interpreted exclusively as age effects is sound and tenable. Since this assumption is generally not tenable, both the designs have methodological deficiencies.

Most of these deficiencies have, as their basis, the fact that the age samples differ not only with respect to chronological age but also with respect to other sources of variation. Apart from the generation effects to be discussed later, several design specific effects can also be identified. Some of these will be briefly discussed here. For a more complete discussion, the reader is referred to Baltes (1968) and Travers (1964).

Selective Sampling. Due to the repeated but voluntary participation required of subjects in longitudinal studies, the latter never seem to satisfy the criteria of random sampling required for statistical inference. By contrast, cross-sectional samples can fulfil this requirement easily. From the very outset, longitudinal samples are often biased since only those willing to co-operate over a length of time can be used. It has also been shown that volunteer subjects tend to be of higher average intelligence and higher socio-economic status than random ones

( Rose, 1965; Streib, 1966). Such selective sampling impairs the comparability of the results from longitudinal and cross-sectional studies, and also the generalizability of the results from longitudinal studies.

Selective Survival. Selective survival implies that death does not strike at random. Hence, a given population at birth ( cohort ) changes its composition in conjunction with the aging process as a result of selective survival (Damon, 1965; Jarvik & Falek, 1963; Riegel et al., 1967a, b ). Evidence indicates that survivors tend to be more intelligent, less dogmatic and less rigid than non-survivors. In contrast to selective sampling, selective survival affects both longitudinal and cross-sectional samples equally. It tends to be in the direction of positive sampling bias.

Selective Drop-out. This is what Campbell & Stanley (1963) defined as experimental mortality. It may occur during the course of the experiment if subjects lose interest, move away, etc. This drop-out is selective if there is a correlation between the dependent variables and the characteristics related to the drop-out. In this case, the remaining sample is no longer comparable to the original one. Again, it appears that the bias works in a positive direction ( Ames & Walker, 1965 ).

Testing Effects. This is perhaps the single most troublesome methodological problem in longitudinal research. The procedures of analysis used in longitudinal methods have a basic assumption that the repeated testing of the same sample has no effect on the dependent variable and that the memory effect does not exist. However, many studies have cited test-sophistication as sources of error (cf. Kuhlen, 1963;

Owens, 1966 ). This effect also tends to have a positive bias: the brighter subjects becoming sophisticated more quickly.

Generation Effect. Generation effects are different for each of the  $A_1 - A_n$  age samples, both within methods, and across methods, because each sample in the cross-sectional approach may belong to a different generation, whereas in the longitudinal approach all the samples belong to the same generation. Therefore, the issue of generation effects as a source of error bears on the internal validity of cross-sectional studies and the external validity ( generalizability ) of longitudinal ones.

Cross-sectional samples differ not only with respect to age, but may simultaneously differ with respect to generations because the samples are drawn from different cohorts. Thus, "differences between 20- and 40-year-olds tested simultaneously would reflect both age effects and cultural effects, especially with regard to differences in the conditions under which the two age groups were reared" ( Anastasi, 1958, p. 220 ). If generation effects are present, the results of a cross-sectional study can not be interpreted as pure age effects.

In the longitudinal study, all samples are drawn from the same generation. If, however, a generation effect is present, then the findings are generation-specific, that is, they can not be generalized to other generations. If, for example, the results of the Berkeley Growth Study, begun in 1928 ( cf. Bailey, 1949 ), were to be generalized to the birth cohort of 1970, one would need to assume that half a century makes no difference at all.

In summary, it may be concluded that both the conventional methods

have shortcomings as research designs for the assessment of influences on attitude which come with age. It would appear, however, that the cross-sectional approach has clear advantages over the longitudinal. Moreover, a graduate study has to use the cross-sectional approach any way.

Next, two recent attempts to provide more adequate experimental designs for the study of age effects are reviewed and commented upon.

#### General Developmental Model of Schaie ( 1965 )

Apart from some informal suggestions (reviewed by Baltes, 1968) to refine the conventional designs discussed above, Schaie (1965) was the first to present a detailed model suitable to clarify the study of age effects. This model includes both the conventional designs as special cases of a model dealing with sequential research designs. Whereas both conventional designs are unifactorial, using age as the only factor, Schaie expanded his model into a multifactorial one based on three components: age (A), cohort (C), and time of measurement (T). Table 2.1 illustrates a concrete example, using the cohorts of 1880-2000, with an assumed life expectancy of 80 years per cohort, and time intervals of 20 years.

Concern with potential generation effects seemed to be the main reason for extending the conventional designs into the trifactorial model, where the responses (R) of the subjects are a function of age, cohort, and time of measurement e.g.,  $R=f(A,C,T)$ . As can be seen, each column in Table 2.1 represents a cross-sectional (CS) design, and each row ( assuming the same subjects ) a longitudinal (LO) one. In addition, each left-right diagonal represents a time-lag (TL) design

TABLE 2.1

## GENERAL DEVELOPMENTAL MODEL OF SCHAE (1965)

---

| Cohort | Time of Measurement |      |      |      |      |      |      |      |        |           |
|--------|---------------------|------|------|------|------|------|------|------|--------|-----------|
|        | 1880                | 1900 | 1920 | 1940 | 1960 | 1980 | 2000 | 2020 | 2040   | 2060 2080 |
| 1880   | 0                   | 20   | 40   | 60   | 80   |      |      |      |        |           |
| 1900   |                     | 0    | 20   | 40   | 60   | 80   |      |      |        |           |
| 1920   |                     |      | 0    | 20   | 40   | 60   | 80   |      |        |           |
| 1940   |                     |      |      | 0    | 20   | 40   | 60   | 80   | A<br>g |           |
| 1960   |                     |      |      |      | 0    | 20   | 40   | 60   | 80     | e         |
| 1980   |                     |      |      |      |      | 0    | 20   | 40   | 60     | 80        |
| 2000   |                     |      |      |      |      |      | 0    | 20   | 40     | 60 80     |

---



whereby subjects of the same age from different cohorts can be compared.

Two factors are always confounded in any of these three designs: In the cross-sectional, age and cohort effects ( A, C ); in the longitudinal, age and time ( A, T ); and in the time-lag, cohort and time ( C, T ).

In order to separate the three effects A, C, & T, Schaie ( 1965 ) proposes these assumptions for his model: the three factors A, C, & T are conceptualized as independent entities in the sense that they represent three different sources of developmental change. Because of this independence, the effects are regarded as additive or non-interactive. Therefore, the effects of the three components A, C, & T can be separated by algebraic manipulation when independent estimates for the cells of the matrix in Table 2.1 are available.

#### Baltes'(1968) Reformulation of Schaie's Model

Baltes (1968) regards Schaie's (1965) model as inadequate on two counts: first, the additivity assumptions are not tenable, and secondly, the model is overdetermined. He shows that any two factors in the model determine the third, e.g., once age and cohort are known, the time of measurement is determined. Thus, Schaie's  $R = f(A, C, T)$  is really  $R = f(A, C, A+C)$ . He concludes that the two components age and cohort are sufficient, and proposes to use the conventional two way analysis of variance (ANOVA) model. Table 2.2 is an example of this conceptualization. As can be seen, this design contains no empty cells, as does that of Schaie (Table 2.1). Individuals are assigned to the cells on the basis of age and cohort at the time of measurement. The conventional

TABLE 2.2

## TWO-FACTOR DEVELOPMENTAL MODEL OF BALTES (1968)

---

| Cohort               | 0    | 20   | Age<br>40 | 60   | 80   | Design              |
|----------------------|------|------|-----------|------|------|---------------------|
| <hr/>                |      |      |           |      |      |                     |
| Time of Measurements |      |      |           |      |      |                     |
| 1880                 | 1880 | 1900 | 1920      | 1940 | 1960 | Cross-<br>Sectional |
| 1900                 | 1900 | 1920 | 1940      | 1960 | 1980 |                     |
| 1920                 | 1920 | 1940 | 1960      | 1980 | 2000 | Time-Lag            |
| 1940                 | 1940 | 1960 | 1980      | 2000 | 2020 |                     |
| 1960                 | 1960 | 1980 | 2000      | 2020 | 2040 | Longitudinal        |
| 1980                 | 1980 | 2000 | 2020      | 2040 | 2060 |                     |
| 2000                 | 2000 | 2020 | 2040      | 2060 | 2080 |                     |

---

methods (CS, LO, & TL) are again special cases embeded in the design. Age and cohort represent fixed factors where the number of levels in each factor can be varied easily. This is not the case in Schaie's model. With respect to the age factor, the two-way ANOVA might be conceived with and without repeated measurement.

The design not having repeated measures would eliminate most of the shortcomings of the conventional longitudinal method. Such an ANOVA design permits the separation of age and cohort effects without making the a priori assumption of factorial independence. It is, therefore, suited to examine age and cohort effects separately, as well as their interaction effects.

Baltes (1968) concluded that according to his model, the conventional longitudinal and time-lag designs may be considered true experimental designs of the uni-factorial kind, whereas the cross-sectional method "must be considered as an inadequate research design, because age and cohort conditions are varied simultaneously and consequently age and cohort effects are inevitably confounded".

#### Discussion and Critique of Schaie's and Baltes' Models

Baltes (1968) points out that in developmental research, the three dimensions of age, cohort, and time are interdependent. This is true only if one restricts one's point of view to ontogenetic development, that is, if one is interested in development of individuals only. Thus, a model which would include evolutionary effects attributable to the development of the species would require time as an independent dimension. Such a model would consist of several sequences of the kind presented in Table 2.2, measured at different times, and stacked up in the form of a three-dimensional cube.

In this case, time would represent a factor which could be independently varied with respect to the other two factors. Whereas this is not entirely clear, it would appear that this is what Schale (1965) had in mind. However, in view of the staggering data collection problems, such a model does not appear practical for further development. The following comments, then, will be confined strictly to the ontogenetic developmental research model proposed by Baltes (1968).

Baltes (1968) chose the dimensions of age and cohort as the basic factors of his model, leaving out time as the redundant variable which is determined by these two factors. This led him to conclude that the cross-sectional method which confounds age and cohort must be classified as an inadequate research design. If, however, he would have chosen age and time as the basic factors, leaving out cohort as the redundant one, he would, by the same logic, have concluded that the longitudinal method is inadequate and that the cross-sectional and time-lag methods are true experimental designs. As can be seen from Table 2.3, with age and time as basic dimensions, the cross-sectional and time-lag methods represent true unifactorial designs, whereas the longitudinal method confounds age and time in this model. Similarly, it can be shown that time-lag is an inadequate method if cohort and time are chosen as the basic factors. The factors which are chosen, then, determine to some extent the appropriateness of the data collection method used.

Which one of the three possible combinations of factors one would use would, in turn, depend on the purpose of the experiment and the variables to be studied. For example, if one wished to study the development of a given physiological variable such as grip strength,

**TABLE 2.3**  
**DEVELOPMENTAL MODEL USING AGE AND TIME**  
**AS INDEPENDENT VARIABLES**

| ===== |               |      |           |      |      |                     |
|-------|---------------|------|-----------|------|------|---------------------|
| Time  | 0             | 20   | Age<br>40 | 60   | 80   | Design              |
| ----- |               |      |           |      |      |                     |
|       | Birth Cohorts |      |           |      |      |                     |
| 1880  | 1880          | 1860 | 1840      | 1820 | 1800 |                     |
| 1900  | 1900          | 1880 | 1860      | 1840 | 1820 | Time-Lag            |
| 1920  | 1920          | 1900 | 1880      | 1860 | 1840 |                     |
| 1940  | 1940          | 1920 | 1900      | 1880 | 1860 |                     |
| 1960  | 1960          | 1940 | 1920      | 1900 | 1880 | Longitudinal        |
| 1980  | 1980          | 1960 | 1940      | 1920 | 1900 |                     |
| 2000  | 2000          | 1980 | 1960      | 1940 | 1920 | Cross-<br>Sectional |
| ----- |               |      |           |      |      |                     |

one might not be interested so much in that variable's relation to time of measurement. Rather, it would appear that its relationship in a variety of cohorts would be more important. For such an investigation, then, Baltes (1968) model would be the one to use. It would appear that most investigators have intuitively sensed the inappropriateness of the cross-sectional method for this type of problem, because most physiological studies have been longitudinal.

On the other hand, if in an attitudinal study one wanted to partial out the effects of chronological age as against those attributable to the concept of "sociological generation", (c.f., Feuer, 1969, p.25) one would probably prefer to use age and time as the two factors in the research design because the concept of generation is tied to the "generational event" which happened at a fixed time. In this case, the longitudinal method is certainly inappropriate since it consists of retesting the same generation again and again. Hence, a generation effect could not be obtained. A cross-sectional sample, on the other hand, would represent a unifactorial layer of this design, and would, therefore, be appropriate. With a single sample, however, the effects of age and time (generation) could not be empirically separated.

It would appear at this point that the design using cohort and time as factors has no practical applications in aging research.

In summary, it should be evident that Baltes' (1968) conclusion regarding the inappropriateness of the cross-sectional method for developmental research is based on a logical error. It is entirely appropriate to use cross-sectional samples, depending on the objectives of the research. Cross-sectional samples are proper unifactorial

levels in the design using age and time as factors.

The remainder of this chapter deals with theoretical considerations pertaining to the origins of function fluctuation, and the identification of developmental stages in attitude formation.

#### Function Fluctuation: Some Theoretical Background

Psychological functions vary characteristically from person to person, and also in the same person from one occasion to another. Thus, a test applied twice to a group of subjects always gives different results. Apart from the possibility of practice effect and errors of measurement, a change in performance between testing occasions could be attributed to influences of maturation, particularly if the elapsed time interval is long (Thouless, 1936).

It may be useful to discuss here the concepts of traits and states and their relation to the stability of psychological test results. A trait is defined as "any aspect of personality that is reasonably distinctive and characteristic. "The concept of a trait probably provides our most useful means of characterizing a person" (Morgan & King 1966, p. 461). Thus, a trait may be considered as a relatively stable, long-term function. For example, vocational interest is a trait which shows "considerable stability across time on interest measures, much more than one might expect intuitively" (Campbell, 1971, p. 322). A state, on the other hand, is characterized by short-term fluctuations resulting from both physiological and emotive changes in the organism. Thus, it seems likely that a man's responses to the Strong Vocational Interest Blank would be influenced somewhat by whether he is in the state of just having been fired from his job or promoted to a higher

position. Short-term function fluctuation of this sort is, then, a factor influencing performance between testing occasions. Generally, this type of fluctuation is allocated to errors of measurement. It reduces the test-retest correlation and, therefore, decreases a test's stability.

Since much of psychological research, particularly in connection with education, focuses on the ability to learn, correlates of cognitive function fluctuation have perhaps been researched more than non-cognitive ones. Anderson (1958, 1959) claimed that no general factor of short-term cognitive function fluctuation could be observed because "the amount of fluctuation characteristic of any one individual was unpredictably unstable over testing occasions and, consequently, any relatively constant hypothetical correlate such as sex or cognitive abilities or reliable personality traits could not be expected to parallel such changes". It is obvious that in a psychological context where the behavioral events studied always have a multitude of antecedent and concurrent determinants, one would find it difficult to explain all or even a major portion of fluctuation with the help of one general factor. Apart from such relatively obvious variables as fatigue, a substantial number of other variables which correlate with cognitive function fluctuation may occur. Whereas the difficulties encountered in measuring such short-term correlates of fluctuation as relative fatigue may often make research impractical (see Anderson, 1958, 1959), the same does not apply to correlates of long-term fluctuation. Long-term changes in cognitive functions have been successfully investigated by a number of researchers, e.g., Jones &



Conrad (1933); Piaget (1950); Terman & Merrill (1960); Schaie (1959b). Their conclusions seem to indicate that such changes follow stable trends related to age. Similarly, non-cognitive functions relating to vocational interest have been found to follow stable trends (Campbell, 1971). This makes them useful for predictive purposes. As a corollary, therefore, research concerning the long-term stability of attitudes might be fruitful.

#### Identification of Developmental Stages in Attitude Formation

Since developmental stages are not known a priori, one might attempt through appropriate methodology to identify them. If such an endeavor succeeds, one has some contribution to cite. Otherwise, one can do what previous researchers have done.

There is at the present time no empirical evidence that non-cognitive constructs progress through developmental stages during the adult life span (e.g., from 15 years onward). Yet, there is ample evidence that changes do take place ( Aaronson, 1960; Bendig, 1960; Bender, 1958; Heron & Chown, 1967; Kowal, et al, 1964; Madox, 1965; Nelson, 1954; Riegel, et al, 1967 a,b; Schaie, 1958, 1959 b, 1967; Sealy & Cattell, 1965; Slater & Scarr, 1964; Veroff, et al, 1960; Wallach & Kogan, 1961; Weir, 1961; Zborowsky & Eyde, 1962 ).

One suspects, however, that non-cognitive developmental stages exist as they do in the cognitive & psychomotor domains (Piaget, 1950; King & Morgan, 1964, chapter 4).

Some writers have postulated step-wise development in the non-cognitive area. Maslow's (1954) formulation of a "hierarchy of needs", and his (1968) concept of "self-actualizing person" represent such

attempts. The concepts of "insight" or latent-learning (c.f. Tolman, 1932; Harlow, 1949) may also point to some step-wise development.

In addition, the concept of "sociological generation" (Feuer, 1969, p. 25) may be used to postulate attitudinal homogeneity of certain age levels.

In view of the lack of a precise theoretical formulation, it would appear desirable to examine empirically if a given population can be divided into age levels which meet the criterion of minimum within, and maximum between age group variation.

## CHAPTER III

### THE DATA, AND THE CLASSIFICATION OF AGE LEVELS INTO AGE GROUPS

To suit the purpose and scope of the research, data satisfying the following conditions were needed:

- (a) Responses to a variety of items representing a number of attitude scales,
- (b) The respondents should vary in age from about 15 to 64 years so that suitable age groups could be established.

Such data were available from the Youth Research Center, Minneapolis Minnesota. They had been collected as part of a nation-wide attitude survey within the United States during the summer of 1970. The respondents constituted a relatively large sample (N=4334) and ranged in age from 15 to 64 years. They were asked to answer an inventory consisting of 740 items. Most of the items related to moral, religious, racial, political, ethical, and educational issues. Some of them elicited biographical information. There was thus a 4334 x 740 response matrix for developing scales in relation to certain constructs. Since the survey had been conducted through the cooperation and funds of the Lutheran Church, almost all the participants were Lutheran. This limitation of the data should be kept in mind while generalizing the findings reported here.

The rest of this chapter presents information relating to:

- a. The instrument.
- b. The population and the sample.
- c. The collection of the data.

- d. The development of the scales.
- e. The differential weighting of responses to maximize the coefficient Alpha.
- f. The classification of subjects into age groups.

### The Instrument

The questionnaire used for eliciting the subjects' responses consisted of 740 multiple choice items with 2 to 7 alternative responses to an item. These items were related to a wide variety of attitudes and biographical information. The total item pool can be classified into seven broad categories:

- |                                        |         |
|----------------------------------------|---------|
| 1. opinion items                       | (n=222) |
| 2. value items                         | (n= 34) |
| 3. views about religion and the church | (n=160) |
| 4. institutional loyalty items         | (n= 32) |
| 5. perception of self and others       | (n=156) |
| 6. life style descriptions             | (n= 14) |
| 7. biographical data                   | (n=122) |

A more complete description of the sources of the items and the theoretical basis for their inclusion in the instrument etc., is available in Strommen, Underwager, and Brekke (1970). A copy of the instrument is included in Appendix A.

### The Population and the Sample

The population for this research consisted of all persons, aged 15 to 64 who were registered as members of the Lutheran Church in the United States of America. From this population, a two-stage random

sample was obtained as follows:

1. 376 congregations were selected at random from the total list of registered congregations of the Lutheran Church.
2. From the membership lists of these selected congregations, subjects were randomly selected for participation such that the probability of selection of any subject was 1/667.

#### The Collection of Data

Of the 376 selected congregations, only 316 agreed to participate in the survey, the rest having declined. Research workers went out to each of the participating congregations and contacted the selected subjects for answering the questionnaire. A total of 6949 congregation members were contacted. Of these, 2385 did not respond to the questionnaire. Preliminary tabulations of the responses of each subject indicated that 130 respondents had omitted more than 140 of the 740 items. These were excluded as not being sufficiently complete. It was also found that 100 subjects had either omitted to mention their age, or fell outside the age range 15 to 64 years. They too were excluded. The final sample (N=4334) represented 63% of all those who had been asked to participate.

#### The Development of the Scales

Since the present research deals with non-cognitive constructs, all biographical items were excluded when scales were being derived. This left 618 items for further analysis, representing a variety of social environment variables in the sense in which the term was used by Wallach (1963).

The 618 items by 4334 subjects response matrix was analysed by means of cluster and factor analytic techniques (Gupta, 1968; Gupta & Burnett, 1972; Harman, 1967; Howarth and Braun, 1972; Loevinger, et al, 1953). They yielded fifty attitudinal scales containing 477 or 77% of the 618 items. The scales ranged in size from four to eighteen items, with an average number of about nine items per scale. The reliability (coefficient Alpha) of these scales ranged from low .50's to about .90.

#### The Differential Weighting of Responses

The problem of scoring the item responses within each scale was tackled next. The actual responses given to the various items usually are no more than an ordinal representation of the assumed underlying continuum which has been artificially divided into multiple choice categories (Likert, 1932). They were, therefore, differentially weighted in order to maximize the internal consistency (Alpha) of each scale (Wang & Stanley, 1970). The technique known as scaling by reciprocal averages was used for this purpose. Guttman (1941) had presented the original rationale for accomplishing this while Mosier (1946) worked out an iterative procedure for obtaining the differential weights.

Briefly speaking, the method starts with a priori ordinal weights for the response categories of the items in a scale and then uses mathematical equations to maximize a certain function. In the process, differential weights on a 9 point continuum become available such that the coefficient Alpha for each scale is maximized if these weights are used. Omitted responses were given the weighted average response

weight calculated separately for each item in a scale.

Scale scores were then obtained by adding the weights assigned to the responses of each subject, dividing this sum by the number of items in the scale, multiplying by 10, and rounding to the nearest integer, as shown below:

$$\text{Integer scale score} = 0.5 + (\text{Sum of weights}/n) \times 10$$

Thus, all scale scores fell within the range of 10 to 90.

#### CLASSIFICATION OF THE AGE LEVELS INTO AGE GROUPS

The ages of the subjects ranged from 15 to 64 years. This natural division into 50 groups is too large. It was felt that useful generalizations for as many as 50 years were rather impractical. Therefore, an attempt was made to subdivide the entire age range into fewer classes, such that those age levels belonging to a given class, or age group, would be maximally similar to each other and, simultaneously, maximally different from any other age group. In statistical language, this grouping should be such that the resulting age groups satisfy the conditions of 'minimum within' and 'maximum between' age group variation. Inverse factor analysis or Q-analysis (Cattell, 1966) seemed to be a suitable procedure for this purpose. As Cattell pointed out, the very objective of the technique is to group a set of objects on the basis of common characteristics. In the present research, the objects to be grouped were the 50 age levels.

For this purpose, it was decided to use the 477 items which constituted the 50 scales. The remaining items were not considered relevant and were, therefore, excluded from further analysis.

The procedure used for this analysis was as follows:

1. The response matrix of size  $4334 \times 477$  (subjects by items) was transposed to yield a  $477 \times 4334$  (items by subjects) matrix.
2. This matrix was re-arranged such that all the subjects of a given age level were juxtaposed together. The number of subjects at each age level is given in Table 3.1.
3. For each age level, the mean of the responses to each item was calculated using the reciprocal averages weights. This reduced the  $477 \times 4334$  matrix to one of size  $477 \times 50$ . Each column entry of the latter contained the average of the responses of a given age level to each of the 477 items, represented symbolically in Table 3.2. These means can be called "age-representative responses".
4. In order to bring the entries, that is, the means, in the 477 rows of this matrix to a common metric or scale, the means in each row of the matrix were transformed to z-scores.
5. All possible intercorrelations were then calculated for the 50 columns of this matrix, resulting in a  $50 \times 50$  correlation matrix.
6. This correlation matrix was factored using Kaiser's (1963) method of image analysis.
7. The resulting factor pattern was rotated to simple structure using the oblique rotation procedure of Harris & Kaiser (1964).

A detailed description of the techniques used above is presented in the next section. Suffice it to say here that the first three factors from the image analysis factor pattern were used. Attempts to rotate additional factors yielded only uninterpretable factors. The oblique factor pattern is given in Table 3.3. For



TABLE 3.1

## THE 4334 SUBJECTS CLASSIFIED BY AGE

---

| Age            | N   | Age | N   |
|----------------|-----|-----|-----|
| <hr/>          |     |     |     |
| 15             | 108 | 40  | 107 |
| 16             | 163 | 41  | 86  |
| 17             | 151 | 42  | 98  |
| 18             | 137 | 43  | 108 |
| 19             | 128 | 44  | 104 |
| 20             | 81  | 45  | 98  |
| 21             | 93  | 46  | 93  |
| 22             | 69  | 47  | 99  |
| 23             | 92  | 48  | 98  |
| 24             | 62  | 49  | 90  |
| 25             | 74  | 50  | 81  |
| 26             | 71  | 51  | 80  |
| 27             | 74  | 52  | 83  |
| 28             | 87  | 53  | 83  |
| 29             | 96  | 54  | 81  |
| 30             | 77  | 55  | 90  |
| 31             | 78  | 56  | 68  |
| 32             | 73  | 57  | 66  |
| 33             | 81  | 58  | 66  |
| 34             | 77  | 59  | 83  |
| 35             | 79  | 60  | 66  |
| 36             | 87  | 61  | 47  |
| 37             | 101 | 62  | 48  |
| 38             | 95  | 63  | 38  |
| 39             | 106 | 64  | 33  |
| <hr/>          |     |     |     |
| Total N = 4334 |     |     |     |
| <hr/>          |     |     |     |

TABLE 3.2

## TRANSPOSED MATRIX OF "AGE REPRESENTATIVE RESONSES"

---

| Items | Ages |    |   |   |    |
|-------|------|----|---|---|----|
|       | 15   | 16 | . | . | 64 |

---

|     |                  |              |          |  |              |
|-----|------------------|--------------|----------|--|--------------|
| 1   | $\bar{M}_{1,15}$ | $M_{1,16}$   | ETC. . . |  | $M_{1,64}$   |
| 2   | $M_{2,15}$       | $M_{2,16}$   |          |  | $M_{2,64}$   |
| 3   | $M_{3,15}$       | $M_{3,16}$   |          |  | $M_{3,64}$   |
| .   | .                | .            |          |  | .            |
| .   | .                | .            |          |  | .            |
| .   | .                | .            |          |  | .            |
| 477 | $M_{477,15}$     | $M_{477,16}$ |          |  | $M_{477,64}$ |

---

TABLE 3.3  
ROTATED FACTOR PATTERN MATRIX

| Age In Years | I     | II    | III   | Age Group   |
|--------------|-------|-------|-------|-------------|
| 15           | -97 * | 17    | 09    | Youth       |
| 16           | -84 * | -10   | -07   |             |
| 17           | -84 * | -10   | -07   |             |
| 18           | -62 * | -35   | -10   |             |
| 19           | -45   | -48 * | -11   |             |
| 20           | -25   | -70 * | -01   | Young Adult |
| 21           | -16   | -75 * | -08   |             |
| 22           | 04    | -89 * | 01    |             |
| 23           | -05   | -63 * | -31   |             |
| 24           | 07    | -59 * | -28   |             |
| 25           | -03   | -45 * | -44   |             |
| 26           | 14    | -53 * | -41   |             |
| 27           | 05    | -25   | -51 * |             |
| 28           | 05    | 05    | -51 * |             |
| 29           | 07    | -37   | -53 * |             |
| 30           | 16    | 04    | -41 * | Adult       |
| 31           | -01   | -02   | -64 * |             |
| 32           | 14    | 12    | -50 * |             |
| 33           | 36 *  | -13   | -16   |             |
| 34           | 20    | 08    | -53 * |             |
| 35           | 17    | 25    | -39 * |             |
| 36           | 12    | 29    | -35 * |             |
| 37           | 14    | 46    | -51 * |             |
| 38           | 04    | 13    | -34 * |             |
| 39           | 20    | 35    | -46 * |             |
| 40           | -11   | 68 *  | -29   |             |
| 41           | -11   | 57 *  | -40   |             |
| 42           | 02    | 60 *  | -22   |             |
| 43           | 19    | 31 *  | -08   |             |
| 44           | 28    | 29 *  | -08   |             |
| 45           | 20    | 26 *  | 25    | Middle Aged |
| 46           | 25    | 27 *  | 03    |             |
| 47           | 20    | 46 *  | 02    |             |
| 48           | 01    | 63 *  | -15   |             |
| 49           | 13    | 45 *  | 00    |             |
| 50           | 14    | 40 *  | 18    |             |
| 51           | -04   | 46 *  | 24    |             |
| 52           | 02    | 65 *  | 11    |             |
| 53           | 22    | 22    | 45 *  |             |
| 54           | 19    | 39    | 42 *  |             |
| 55           | 24    | 15    | 58 *  | Senior      |
| 56           | 27    | 17    | 31 *  |             |
| 57           | 37    | -05   | 64 *  |             |
| 58           | 04    | 24    | 54 *  |             |
| 59           | 24    | 19    | 62 *  |             |
| 60           | 21    | 23    | 57 *  |             |
| 61           | 46    | -07   | 54 *  |             |
| 62           | 24    | 13    | 53 *  |             |
| 63           | 29    | 08    | 61 *  |             |
| 64           | 24    | 07    | 57 *  |             |

\*All entries in the table are multiplied by 100.

forming age groups or classes it was decided to use the highest factor loading in each row. These have been emphasized by stars in Table 3.3. As can be seen, this rule yielded five age groups which, with only one exception, were contiguous in terms of age. These age groups were named as follows:

| AGE GROUP | NAME         | SIZE OF THE GROUP |
|-----------|--------------|-------------------|
| 15 - 18   | YOUTHS       | 559               |
| 19 - 26   | YOUNG ADULTS | 670               |
| 27 - 39   | ADULTS       | 1111              |
| 40 - 52   | MIDDLE AGED  | 1225              |
| 53 - 64   | SENIORS      | 769               |

The exception to age contiguity occurred at age 33 which loaded highest with, but opposite to, the YOUTH group. Since no clear and convincing explanation was available for this exception, age 33 was arbitrarily included with the ADULT group.

A few remarks about the bipolarity of factors 2 and 3 may be appropriate here. Since the age levels factored here form a continuum which is to be segmented, one would expect that the points representing the age levels in the factor space might form a somewhat continuous configuration. Indeed, if these points were plotted in a 3-dimensional space, the resulting configuration of points would resemble the shape of a spiral stairway. Hence, some of the factor axes drawn through such a configuration of points can be expected to have bipolar loadings. Those age groups loading on the same factor might be considered to represent, in some sense, mirror-images of each other.

## TECHNICAL DETAILS REGARDING THE CLASSIFICATION OF AGE LEVELS

In order to obtain responses which can be considered representative of a given age level for a given item, it was decided to use the mean of the responses of all the subjects at the same age on that particular item. For this, the 4334 subjects were arranged in ascending order by age. In this fashion, all those at the same age were juxtaposed together. The mean response to each of the 477 items was then calculated for each age level separately for each item. The reciprocal averages weights were used for this purpose. This reduced the  $477 \times 4334$  (items by subjects) matrix to one of size  $477 \times 50$ . Each column entry of the latter contained the average of the responses of a given age level to each of the 477 items. The entries in this matrix were called "age-representative responses."

This matrix was not directly useful for calculating inter-correlations among the age levels because (a) the scale origins were not the same for all the items, (b) the dispersion of the age representative responses for each of the 477 items was not the same. These limitations are elaborated below.

### The Effect of Different Scale Origins and Dispersions

Even though all the 477 items had been rescaled to a 9 point scale using the technique of reciprocal averages (Guttman, 1941; Mosier, 1946), the scale origins varied considerably, that is, the mean response of the 4334 subjects to each of the 477 items were not the same on this 9 point scale. This is a natural phenomenon. How-

ever, its impact upon the correlation matrix is serious. Consider the illustration shown in Table 3.4 which represents the hypothetical responses of three age-levels on four items.

If intercorrelations among these 3 age-levels were calculated, the resulting unit correlations would be entirely attributable to variation in the scale origins of the items. If each of the 4 items were transformed to a common origin as shown in Table 3.5 by deviating all scores around their row mean, then the intercorrelations among the age levels would become zero, which would be the correct correlation in view of the fact that, relative to each other, the 3 age levels do not share variance with one another on the items. In other words, the unit intercorrelations in the hypothetical example of Table 3.4 are attributable entirely to the procedure used for scoring the four items. If this artifact is removed, no common variance remains. The resulting response matrix is called an ipsative matrix, and the properties of such matrices have been outlined in detail by Clemans (1965).

The preceding example illustrates one of the properties of ipsative measures - they permit relative, rather than absolute comparisons. Cattell (1944) discussed this aspect by stating that psychological measurements could be expressed in three kinds of measures: (a) "raw" or "interactive" measures which are independent of other measures on the same sampling unit and also of measures on other sampling units, (b) "normative" measures where each score of the individual sampling unit depends upon the scores obtained by the other sampling units, and (c) "ipsative" measures where each measure for a sampling unit depends on the measures obtained for the remaining variables by the same sampling unit.

TABLE 3.4  
HYPOTHETICAL EXAMPLE OF THE RESPONSES OF THREE AGE LEVELS TO 4 ITEMS

| Items | Age Levels |    |     | Correlation Matrix |    |     |
|-------|------------|----|-----|--------------------|----|-----|
|       | I          | II | III | I                  | II | III |
| 1     | 2          | 3  | 4   | 1                  | 1  | 1   |
| 2     | 3          | 4  | 5   | 1                  | 1  | 1   |
| 3     | 5          | 6  | 7   | 1                  | 1  | 1   |
| 4     | 6          | 7  | 8   |                    |    |     |

TABLE 3.5  
HYPOTHETICAL EXAMPLE OF IPSATIVE RESPONSES OF THREE AGE LEVELS TO  
FOUR ITEMS

| Items | Age Levels |    |     |
|-------|------------|----|-----|
|       | I          | II | III |
| 1     | -1         | 0  | 1   |
| 2     | -1         | 0  | 1   |
| 3     | -1         | 0  | 1   |
| 4     | -1         | 0  | 1   |

In the usual matrix notation where the column headings represent the variables selected by the researcher (independent variables) and the row headings represent the sampling units or subjects, "normative" measures would be obtained by standardizing the column entries and "ipsative" ones by standardizing the row entries. Since the properties of ipsative measures do not seem to be as known as those of normative ones, their brief discussion might be appropriate here.

Reconsider the hypothetical response matrix of Table 3.4 where the intercorrelations among the age levels are unity. For those data, an analysis of variance yields an  $F$ -ratio = 1.2 which is insignificant. Hence, the conclusion that the three age levels belong to the same population would appear supported. Yet, it is quite apparent that age level I scores consistently below age level II which, in turn, scores consistently below age level III. When these responses are ipsatized, the matrix shown in Table 3.5 results. Column intercorrelations in this matrix are zero and the  $F$ -test is out of question since the pooled within-group variation is zero. Thus, on the basis of both correlational analysis and analysis of variance, the ipsative measures would lead to the rejection of the null-hypothesis that the three age levels belong to the same population. This illustrates the point made by Allport and Vernon (1931) that ipsative measures are relative in the sense that they permit comparisons among variables in relation to each other rather than in terms of an absolute scale. Yet, this is precisely the objective of the age-level factor analysis, namely, to group those age-levels which are similar relative to each other. Therefore, it was felt that the ipsative  $477 \times 50$  (Items by



age levels) matrix might be the best starting point for such a factor analysis.

Returning to the 477 x 50 (items by age levels) matrix of the present study, the effects of variation in scale origin among the 477 items were, therefore, controlled by deviating the entries in a row around the mean of that row.

In order to equate the dispersions of the age-representative responses, the item variances for the 50 age levels were standardized to unity. This resulted in giving equal weight to each of the 477 items used in the analysis. All possible intercorrelations among the 50 columns of this matrix were calculated. The resulting 50 x 50 correlation matrix is shown in Table 3.6.

#### Factor Analysis of the Age Levels as Variables

When choosing among alternative factor analytic procedures, consideration was given to the methods used to determine the communalities of the variables, that is, those "parts of the variables which can be said in some sense, to be in common with the remaining variables. These common or 'communality' parts of the original variables are not observable and thus must be determined - or approximated - from the observable data"(Kaiser, 1963, p. 156).

According to Kaiser (1963), the factor analytic method called Image Analysis appears to provide theoretically the most defensible solution to the communality problem. In fact, Image Analysis bypasses the problem of estimating communalities. Therefore, it was chosen for the analysis of the age level intercorrelation matrix (R).

TABLE 3.6  
CORRELATION MATRIX OF MEAN AGE SCORES\*

| AGES | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 15   | 100 | 77  | 76  | 63  | 52  | 50  | 47  | 37  | 28  | 22  | 17  | 14  | 1   |
| 16   | 77  | 100 | 86  | 81  | 75  | 71  | 67  | 60  | 51  | 36  | 36  | 24  | 12  |
| 17   | 76  | 86  | 100 | 82  | 73  | 69  | 67  | 58  | 51  | 38  | 37  | 27  | 17  |
| 18   | 63  | 81  | 82  | 100 | 81  | 77  | 74  | 64  | 62  | 46  | 48  | 36  | 27  |
| 19   | 52  | 75  | 73  | 81  | 100 | 76  | 75  | 68  | 65  | 45  | 54  | 39  | 28  |
| 20   | 50  | 71  | 69  | 77  | 76  | 100 | 79  | 72  | 63  | 50  | 49  | 41  | 27  |
| 21   | 47  | 67  | 67  | 74  | 75  | 79  | 100 | 74  | 66  | 58  | 51  | 51  | 35  |
| 22   | 37  | 60  | 58  | 64  | 68  | 72  | 74  | 100 | 60  | 51  | 46  | 48  | 25  |
| 23   | 28  | 51  | 51  | 62  | 65  | 63  | 66  | 60  | 100 | 51  | 58  | 49  | 40  |
| 24   | 22  | 36  | 38  | 46  | 45  | 50  | 58  | 51  | 51  | 100 | 44  | 46  | 35  |
| 25   | 17  | 36  | 37  | 48  | 54  | 49  | 51  | 46  | 58  | 44  | 100 | 45  | 39  |
| 26   | 14  | 24  | 27  | 36  | 39  | 41  | 51  | 48  | 49  | 46  | 45  | 100 | 37  |
| 27   | 1   | 12  | 17  | 27  | 28  | 27  | 35  | 25  | 40  | 35  | 39  | 37  | 100 |
| 28   | -4  | -5  | -3  | 2   | -1  | 0   | 7   | -4  | 20  | 22  | 24  | 21  | 31  |
| 29   | 7   | 22  | 23  | 32  | 39  | 37  | 39  | 36  | 54  | 37  | 46  | 45  | 42  |
| 30   | -17 | -14 | -8  | -11 | -8  | -6  | -4  | -5  | 5   | 14  | 11  | 18  | 15  |
| 31   | -3  | 3   | 11  | 11  | 17  | 15  | 21  | 19  | 27  | 22  | 40  | 37  | 36  |
| 32   | -16 | -21 | -12 | -14 | -16 | -12 | -3  | -2  | 3   | 11  | 10  | 22  | 19  |
| 33   | -14 | -16 | -19 | -20 | -24 | -13 | -6  | -4  | -8  | 10  | 0   | 6   | 5   |
| 34   | -26 | -20 | -15 | -10 | -9  | -15 | -9  | -2  | 3   | 9   | 23  | 21  | 16  |
| 35   | -29 | -26 | -23 | -27 | -22 | -26 | -26 | -19 | -6  | -6  | 0   | -2  | 6   |
| 36   | -24 | -33 | -24 | -22 | -25 | -24 | -24 | -23 | -9  | -5  | -1  | 13  | 20  |
| 37   | -41 | -43 | -37 | -34 | -33 | -39 | -35 | -39 | -15 | -10 | -6  | 1   | 12  |
| 38   | -12 | -13 | -11 | -7  | -6  | -6  | -4  | -8  | 4   | 0   | 8   | 6   | 11  |
| 39   | -35 | -40 | -33 | -36 | -39 | -34 | -31 | -33 | -11 | -5  | -6  | -3  | 10  |
| 40   | -23 | -39 | -32 | -40 | -40 | -45 | -42 | -43 | -31 | -28 | -20 | -21 | -3  |
| 41   | -26 | -31 | -26 | -28 | -21 | -29 | -29 | -32 | -14 | -18 | -10 | -5  | 1   |
| 42   | -36 | -47 | -43 | -41 | -37 | -51 | -48 | -50 | -33 | -28 | -17 | -23 | -6  |
| 43   | -31 | -34 | -36 | -36 | -40 | -35 | -41 | -33 | -30 | -23 | -22 | -23 | -11 |
| 44   | -40 | -43 | -43 | -44 | -40 | -45 | -40 | -42 | -26 | -23 | -18 | -23 | -7  |
| 45   | -20 | -37 | -40 | -42 | -48 | -39 | -41 | -39 | -40 | -31 | -34 | -39 | -33 |
| 46   | -37 | -41 | -40 | -39 | -42 | -40 | -40 | -37 | -32 | -24 | -26 | -30 | -15 |
| 47   | -42 | -49 | -47 | -50 | -55 | -54 | -57 | -51 | -46 | -38 | -37 | -38 | -15 |
| 48   | -35 | -47 | -43 | -46 | -43 | -49 | -49 | -51 | -47 | -30 | -25 | -27 | -9  |
| 49   | -38 | -43 | -43 | -43 | -39 | -46 | -47 | -46 | -39 | -36 | -34 | -27 | -21 |
| 50   | -30 | -42 | -44 | -44 | -43 | -48 | -49 | -44 | -44 | -34 | -36 | -33 | -33 |
| 51   | -22 | -30 | -34 | -36 | -32 | -37 | -46 | -37 | -41 | -46 | -37 | -40 | -38 |
| 52   | -34 | -52 | -49 | -54 | -53 | -61 | -60 | -56 | -53 | -49 | -44 | -37 | -23 |
| 53   | -29 | -39 | -38 | -44 | -43 | -41 | -47 | -41 | -45 | -39 | -46 | -43 | -37 |
| 54   | -30 | -45 | -47 | -56 | -56 | -58 | -60 | -52 | -60 | -45 | -53 | -41 | -43 |
| 55   | -21 | -39 | -39 | -47 | -42 | -41 | -46 | -35 | -49 | -47 | -48 | -39 | -40 |
| 56   | -31 | -39 | -43 | -46 | -44 | -39 | -45 | -32 | -45 | -38 | -37 | -29 | -25 |
| 57   | -18 | -30 | -35 | -44 | -48 | -34 | -38 | -34 | -42 | -34 | -46 | -45 | -38 |
| 58   | -12 | -26 | -31 | -31 | -33 | -33 | -37 | -33 | -46 | -44 | -45 | -41 | -35 |
| 59   | -23 | -38 | -44 | -48 | -49 | -43 | -48 | -44 | -54 | -44 | -52 | -51 | -43 |
| 60   | -23 | -39 | -43 | -48 | -49 | -45 | -52 | -42 | -60 | -44 | -50 | -50 | -44 |
| 61   | -29 | -35 | -41 | -42 | -41 | -41 | -41 | -35 | -40 | -33 | -38 | -34 | -36 |
| 62   | -24 | -32 | -36 | -40 | -42 | -38 | -40 | -40 | -41 | -42 | -47 | -45 | -31 |
| 63   | -18 | -33 | -40 | -43 | -46 | -41 | -40 | -34 | -47 | -43 | -54 | -49 | -34 |
| 64   | -17 | -31 | -35 | -39 | -37 | -37 | -39 | -31 | -45 | -33 | -42 | -31 | -46 |

\*ALL ENTRIES IN TABLE ARE MULTIPLIED BY 100

## CORRELATION MATRIX OF MEAN AGE SCORES (CONT.)\*

| AGES | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 15   | -4  | 7   | -17 | -3  | -16 | -14 | -26 | -29 | -24 | -41 | -12 | -35 | -23 |
| 16   | -5  | 22  | -14 | 3   | -21 | -16 | -20 | -26 | -33 | -43 | -13 | -40 | -39 |
| 17   | -3  | 23  | -8  | 11  | -12 | -19 | -15 | -23 | -24 | -37 | -11 | -33 | -32 |
| 18   | 2   | 32  | -11 | 11  | -14 | -20 | -10 | -27 | -22 | -34 | -7  | -36 | -40 |
| 19   | -1  | 39  | -8  | 17  | -16 | -24 | -9  | -22 | -25 | -33 | -6  | -39 | -40 |
| 20   | 0   | 37  | -6  | 15  | -12 | -13 | -15 | -26 | -24 | -39 | -6  | -34 | -45 |
| 21   | 7   | 39  | -4  | 21  | -3  | -6  | -9  | -26 | -24 | -35 | -4  | -31 | -42 |
| 22   | -4  | 36  | -5  | 19  | -2  | -4  | -2  | -19 | -23 | -39 | -8  | -33 | -43 |
| 23   | 20  | 54  | 5   | 27  | 3   | -8  | 3   | -6  | -9  | -15 | 4   | -11 | -31 |
| 24   | 22  | 37  | 14  | 22  | 11  | 10  | 9   | -6  | -5  | -10 | 0   | -5  | -28 |
| 25   | 24  | 46  | 11  | 40  | 10  | 0   | 23  | 0   | -1  | -6  | 8   | -6  | -20 |
| 26   | 21  | 45  | 18  | 37  | 22  | 6   | 21  | -2  | 13  | 1   | 6   | -3  | -21 |
| 27   | 31  | 42  | 15  | 36  | 19  | 5   | 16  | 6   | 20  | 12  | 11  | 10  | -3  |
| 28   | 100 | 34  | 30  | 27  | 20  | 20  | 20  | 10  | 25  | 15  | 15  | 30  | 9   |
| 29   | 34  | 100 | 13  | 42  | 17  | 6   | 21  | 11  | 17  | 13  | 17  | 9   | -9  |
| 30   | 30  | 13  | 100 | 25  | 27  | 18  | 23  | 24  | 17  | 14  | 8   | 28  | 8   |
| 31   | 27  | 42  | 25  | 100 | 28  | 9   | 33  | 14  | 23  | 19  | 25  | 22  | 4   |
| 32   | 20  | 17  | 27  | 28  | 100 | 20  | 31  | 23  | 29  | 26  | 8   | 36  | 18  |
| 33   | 20  | 6   | 18  | 9   | 20  | 100 | 21  | 14  | 15  | 16  | 10  | 21  | 1   |
| 34   | 20  | 21  | 23  | 33  | 31  | 21  | 100 | 30  | 27  | 31  | 19  | 22  | 18  |
| 35   | 10  | 11  | 24  | 14  | 23  | 14  | 30  | 100 | 21  | 36  | 12  | 31  | 25  |
| 36   | 25  | 17  | 17  | 23  | 29  | 15  | 27  | 21  | 100 | 38  | 13  | 33  | 23  |
| 37   | 15  | 13  | 14  | 19  | 26  | 16  | 31  | 36  | 38  | 100 | 17  | 38  | 31  |
| 38   | 15  | 17  | 8   | 25  | 8   | 10  | 19  | 12  | 13  | 17  | 100 | 24  | 9   |
| 39   | 30  | 9   | 28  | 22  | 36  | 21  | 22  | 31  | 33  | 38  | 24  | 100 | 37  |
| 40   | 9   | -9  | 8   | 4   | 18  | 1   | 18  | 25  | 23  | 31  | 9   | 37  | 100 |
| 41   | 8   | -3  | 20  | 14  | 20  | -1  | 16  | 25  | 15  | 33  | 7   | 27  | 38  |
| 42   | 7   | -20 | 7   | 2   | 18  | 3   | 16  | 14  | 13  | 41  | 8   | 25  | 31  |
| 43   | 1   | -13 | 9   | -5  | 7   | 11  | 7   | 24  | 17  | 22  | 16  | 29  | 24  |
| 44   | 3   | -14 | 8   | 0   | 0   | 0   | 12  | 15  | 16  | 27  | 11  | 25  | 26  |
| 45   | -10 | -38 | -2  | -29 | 1   | 16  | -1  | 4   | -2  | 6   | -1  | 9   | 24  |
| 46   | 0   | -21 | 0   | -8  | -7  | 7   | 5   | 10  | 8   | 22  | 3   | 21  | 23  |
| 47   | 1   | -21 | -3  | -13 | 1   | 5   | 5   | 18  | 14  | 32  | 0   | 26  | 32  |
| 48   | -2  | -22 | 0   | -1  | 9   | -3  | 13  | 14  | 19  | 31  | 15  | 26  | 39  |
| 49   | 0   | -19 | -7  | -4  | 0   | -5  | 7   | 12  | 18  | 22  | 0   | 17  | 20  |
| 50   | -20 | -36 | -6  | -16 | -4  | 0   | -2  | 0   | 0   | 19  | 16  | 7   | 18  |
| 51   | -27 | -36 | -8  | -27 | -6  | -12 | -11 | 7   | -3  | 11  | -6  | 0   | 22  |
| 52   | -12 | -39 | 0   | -20 | 0   | -4  | 0   | 9   | 12  | 22  | -4  | 11  | 34  |
| 53   | -24 | -45 | -10 | -33 | -19 | -10 | -18 | 2   | -9  | 3   | -4  | 1   | 11  |
| 54   | -22 | -49 | -14 | -33 | -11 | -2  | -8  | 5   | -1  | 9   | -4  | 4   | 17  |
| 55   | -32 | -49 | -17 | -42 | -20 | -7  | -22 | -8  | -11 | -7  | -11 | -5  | 11  |
| 56   | -24 | -29 | -17 | -26 | -1  | 2   | -4  | 11  | 14  | 15  | -7  | -1  | 16  |
| 57   | -18 | -47 | -11 | -43 | -20 | 10  | -23 | -13 | -16 | -15 | -15 | -3  | 0   |
| 58   | -25 | -42 | -24 | -35 | -34 | -16 | -25 | -20 | -7  | -7  | -11 | -10 | 6   |
| 59   | -22 | -56 | -15 | -45 | -21 | -3  | -31 | -8  | -12 | -11 | -12 | -2  | 7   |
| 60   | -31 | -48 | -18 | -39 | -14 | -4  | -19 | -6  | -8  | -2  | -18 | -5  | 15  |
| 61   | -20 | -35 | -19 | -41 | -17 | 4   | -15 | -6  | -6  | -4  | -20 | -2  | 6   |
| 62   | -23 | -42 | -21 | -35 | -25 | -3  | -26 | -7  | -6  | -4  | -4  | -2  | 5   |
| 63   | -27 | -43 | -15 | -42 | -15 | 0   | -29 | -6  | -11 | -6  | -16 | -3  | 6   |
| 64   | -30 | -41 | -12 | -40 | -23 | -9  | -15 | -5  | -12 | -9  | -20 | -15 | 1   |

\*ALL ENTRIES IN TABLE ARE MULTIPLIED BY 100

## CORRELATION MATRIX OF MEAN AGE SCORES (CONT.)\*

| AGES | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 15   | -26 | -36 | -31 | -40 | -20 | -37 | -42 | -35 | -38 | -30 | -22 | -34 | -29 |
| 16   | -31 | -47 | -34 | -43 | -37 | -41 | -49 | -47 | -43 | -42 | -30 | -52 | -39 |
| 17   | -26 | -43 | -36 | -43 | -40 | -40 | -47 | -43 | -43 | -44 | -34 | -49 | -38 |
| 18   | -28 | -41 | -36 | -44 | -42 | -39 | -50 | -46 | -43 | -44 | -36 | -54 | -44 |
| 19   | -21 | -37 | -40 | -40 | -48 | -42 | -55 | -43 | -39 | -43 | -32 | -53 | -43 |
| 20   | -29 | -51 | -35 | -45 | -39 | -40 | -54 | -49 | -46 | -48 | -37 | -61 | -41 |
| 21   | -29 | -48 | -41 | -40 | -41 | -40 | -57 | -49 | -47 | -49 | -46 | -60 | -47 |
| 22   | -32 | -50 | -33 | -42 | -39 | -37 | -51 | -51 | -46 | -44 | -37 | -56 | -41 |
| 23   | -14 | -33 | -30 | -26 | -40 | -32 | -46 | -47 | -39 | -44 | -41 | -53 | -45 |
| 24   | -18 | -28 | -23 | -23 | -31 | -24 | -38 | -30 | -36 | -34 | -46 | -49 | -39 |
| 25   | -10 | -17 | -22 | -18 | -34 | -26 | -37 | -25 | -34 | -36 | -37 | -44 | -46 |
| 26   | -5  | -23 | -23 | -23 | -39 | -30 | -38 | -27 | -27 | -33 | -40 | -37 | -43 |
| 27   | 1   | -6  | -11 | -7  | -33 | -15 | -15 | -9  | -21 | -33 | -38 | -23 | -37 |
| 28   | 8   | 7   | 1   | 3   | -10 | 0   | 1   | -2  | 0   | -20 | -27 | -12 | -24 |
| 29   | -3  | -20 | -13 | -14 | -38 | -21 | -21 | -22 | -19 | -36 | -36 | -39 | -45 |
| 30   | 20  | 7   | 9   | 8   | -2  | 0   | -3  | 0   | -7  | -6  | -8  | 0   | -10 |
| 31   | 14  | 2   | -5  | 0   | -29 | -8  | -13 | -1  | -4  | -16 | -27 | -20 | -33 |
| 32   | 20  | 18  | 7   | 0   | 1   | -7  | 1   | 9   | 0   | -4  | -6  | 0   | -19 |
| 33   | -1  | 3   | 11  | 0   | 16  | 7   | 5   | -3  | -5  | 0   | -12 | -4  | -10 |
| 34   | 16  | 16  | 7   | 12  | -1  | 5   | 5   | 13  | 7   | -2  | -11 | 0   | -18 |
| 35   | 25  | 14  | 24  | 15  | 4   | 10  | 18  | 14  | 12  | 0   | 7   | 9   | 2   |
| 36   | 15  | 13  | 17  | 16  | -2  | 8   | 14  | 19  | 18  | 0   | -3  | 12  | -9  |
| 37   | 33  | 41  | 22  | 27  | 6   | 22  | 32  | 31  | 22  | 19  | 11  | 22  | 3   |
| 38   | 7   | 8   | 16  | 11  | -1  | 3   | 0   | 15  | 0   | 16  | -6  | -4  | -4  |
| 39   | 27  | 25  | 29  | 25  | 9   | 21  | 26  | 26  | 17  | 7   | 0   | 11  | 1   |
| 40   | 38  | 31  | 24  | 26  | 24  | 23  | 32  | 39  | 20  | 18  | 22  | 34  | 11  |
| 41   | 100 | 35  | 16  | 17  | 10  | 14  | 20  | 26  | 27  | 17  | 23  | 36  | -4  |
| 42   | 35  | 100 | 15  | 27  | 21  | 25  | 32  | 40  | 34  | 24  | 20  | 45  | 20  |
| 43   | 16  | 15  | 100 | 30  | 25  | 24  | 32  | 23  | 18  | 19  | 19  | 18  | 18  |
| 44   | 17  | 27  | 30  | 100 | 21  | 30  | 36  | 30  | 31  | 27  | 16  | 20  | 25  |
| 45   | 10  | 21  | 25  | 21  | 100 | 22  | 25  | 22  | 16  | 26  | 24  | 27  | 29  |
| 46   | 14  | 25  | 24  | 30  | 22  | 100 | 40  | 27  | 31  | 27  | 24  | 26  | 27  |
| 47   | 20  | 32  | 32  | 36  | 25  | 40  | 100 | 36  | 38  | 27  | 31  | 36  | 30  |
| 48   | 26  | 40  | 23  | 30  | 22  | 27  | 36  | 100 | 33  | 37  | 28  | 40  | 27  |
| 49   | 27  | 34  | 18  | 31  | 16  | 31  | 38  | 33  | 100 | 32  | 31  | 36  | 26  |
| 50   | 17  | 24  | 19  | 27  | 26  | 27  | 27  | 37  | 32  | 100 | 26  | 40  | 35  |
| 51   | 23  | 20  | 19  | 16  | 24  | 24  | 31  | 28  | 31  | 26  | 100 | 40  | 28  |
| 52   | 36  | 45  | 18  | 20  | 27  | 26  | 36  | 40  | 36  | 40  | 40  | 100 | 38  |
| 53   | -4  | 20  | 18  | 25  | 29  | 27  | 30  | 27  | 26  | 35  | 28  | 38  | 100 |
| 54   | 4   | 23  | 22  | 26  | 36  | 27  | 32  | 31  | 40  | 40  | 38  | 45  | 47  |
| 55   | -10 | 15  | 10  | 18  | 32  | 20  | 30  | 22  | 23  | 34  | 40  | 38  | 48  |
| 56   | 8   | 20  | 19  | 16  | 28  | 21  | 30  | 28  | 22  | 24  | 28  | 37  | 28  |
| 57   | -10 | 2   | 14  | 14  | 43  | 18  | 25  | 6   | 16  | 26  | 18  | 28  | 45  |
| 58   | 0   | 14  | 7   | 18  | 16  | 21  | 25  | 15  | 21  | 32  | 36  | 36  | 43  |
| 59   | 1   | 15  | 13  | 21  | 39  | 22  | 31  | 21  | 27  | 40  | 36  | 42  | 51  |
| 60   | -4  | 16  | 16  | 15  | 37  | 17  | 31  | 25  | 28  | 36  | 39  | 41  | 46  |
| 61   | -10 | 14  | 13  | 21  | 29  | 24  | 31  | 14  | 25  | 20  | 26  | 23  | 33  |
| 62   | -5  | 11  | 14  | 19  | 21  | 21  | 34  | 17  | 29  | 33  | 27  | 32  | 47  |
| 63   | -7  | 12  | 14  | 14  | 37  | 20  | 26  | 13  | 14  | 34  | 26  | 36  | 46  |
| 64   | -6  | 10  | 11  | 11  | 31  | 16  | 22  | 12  | 20  | 30  | 34  | 34  | 39  |

\*ALL ENTRIES IN TABLE ARE MULTIPLIED BY 100

## CORRELATION MATRIX OF MEAN AGE SCORES (CONT.)\*

| AGES | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 15   | -30 | -21 | -31 | -18 | -12 | -23 | -23 | -29 | -24 | -18 | -17 |
| 16   | -45 | -39 | -39 | -30 | -26 | -38 | -39 | -35 | -32 | -33 | -31 |
| 17   | -47 | -39 | -43 | -35 | -31 | -44 | -43 | -41 | -36 | -40 | -35 |
| 18   | -56 | -47 | -46 | -44 | -31 | -48 | -48 | -42 | -40 | -43 | -39 |
| 19   | -56 | -42 | -44 | -48 | -33 | -49 | -49 | -41 | -42 | -46 | -37 |
| 20   | -58 | -41 | -39 | -34 | -33 | -43 | -45 | -41 | -38 | -41 | -37 |
| 21   | -60 | -46 | -45 | -38 | -37 | -48 | -52 | -41 | -40 | -40 | -39 |
| 22   | -52 | -35 | -32 | -34 | -33 | -44 | -42 | -35 | -40 | -34 | -31 |
| 23   | -60 | -49 | -45 | -42 | -46 | -54 | -60 | -40 | -41 | -47 | -45 |
| 24   | -45 | -47 | -38 | -34 | -44 | -44 | -44 | -33 | -42 | -43 | -33 |
| 25   | -53 | -48 | -37 | -46 | -45 | -52 | -50 | -38 | -47 | -54 | -42 |
| 26   | -41 | -39 | -29 | -45 | -41 | -51 | -50 | -34 | -45 | -49 | -31 |
| 27   | -43 | -40 | -25 | -38 | -35 | -43 | -44 | -36 | -31 | -34 | -46 |
| 28   | -22 | -32 | -24 | -18 | -25 | -22 | -31 | -20 | -23 | -27 | -30 |
| 29   | -49 | -49 | -29 | -47 | -42 | -56 | -48 | -35 | -42 | -43 | -41 |
| 30   | -14 | -17 | -17 | -11 | -24 | -15 | -18 | -19 | -21 | -15 | -12 |
| 31   | -33 | -42 | -26 | -43 | -35 | -45 | -39 | -41 | -35 | -42 | -40 |
| 32   | -11 | -20 | -1  | -20 | -34 | -21 | -14 | -17 | -25 | -15 | -23 |
| 33   | -2  | -7  | 2   | 10  | -16 | -3  | -4  | 4   | -3  | 0   | -9  |
| 34   | -8  | -22 | -4  | -23 | -25 | -31 | -19 | -15 | -26 | -29 | -15 |
| 35   | 5   | -8  | 11  | -13 | -20 | -8  | -6  | -6  | -7  | -6  | -5  |
| 36   | -1  | -11 | 14  | -16 | -7  | -12 | -8  | -6  | -6  | -11 | -12 |
| 37   | 9   | -7  | 15  | -15 | -7  | -11 | -2  | -4  | -4  | -6  | -9  |
| 38   | -4  | -11 | -7  | -15 | -11 | -12 | -18 | -20 | -4  | -16 | -20 |
| 39   | 4   | -5  | -1  | -3  | -10 | -2  | -5  | -2  | -2  | -3  | -15 |
| 40   | 17  | 11  | 16  | 0   | 6   | 7   | 15  | 6   | 5   | 6   | 1   |
| 41   | 4   | -10 | 8   | -10 | 0   | 1   | -4  | -10 | -5  | -7  | -6  |
| 42   | 23  | 15  | 20  | 2   | 14  | 15  | 16  | 14  | 11  | 12  | 10  |
| 43   | 22  | 10  | 19  | 14  | 7   | 13  | 16  | 13  | 14  | 14  | 11  |
| 44   | 26  | 18  | 16  | 14  | 18  | 21  | 15  | 21  | 19  | 14  | 11  |
| 45   | 36  | 32  | 28  | 43  | 16  | 39  | 37  | 29  | 21  | 37  | 31  |
| 46   | 27  | 20  | 21  | 18  | 21  | 22  | 17  | 24  | 21  | 20  | 16  |
| 47   | 32  | 30  | 30  | 25  | 25  | 31  | 31  | 31  | 34  | 26  | 22  |
| 48   | 31  | 22  | 28  | 6   | 15  | 21  | 25  | 14  | 17  | 13  | 12  |
| 49   | 40  | 23  | 22  | 16  | 21  | 27  | 28  | 25  | 29  | 14  | 20  |
| 50   | 40  | 34  | 24  | 26  | 32  | 40  | 36  | 20  | 33  | 34  | 30  |
| 51   | 38  | 40  | 28  | 18  | 36  | 36  | 39  | 26  | 27  | 26  | 34  |
| 52   | 45  | 38  | 37  | 28  | 36  | 42  | 41  | 23  | 32  | 36  | 34  |
| 53   | 47  | 48  | 28  | 45  | 43  | 51  | 46  | 33  | 47  | 46  | 39  |
| 54   | 100 | 55  | 40  | 47  | 45  | 53  | 56  | 42  | 41  | 47  | 49  |
| 55   | 55  | 100 | 39  | 46  | 47  | 54  | 53  | 48  | 43  | 51  | 47  |
| 56   | 40  | 39  | 100 | 31  | 26  | 30  | 44  | 37  | 28  | 31  | 29  |
| 57   | 47  | 46  | 31  | 100 | 42  | 57  | 54  | 49  | 46  | 53  | 38  |
| 58   | 45  | 47  | 26  | 42  | 100 | 52  | 47  | 37  | 42  | 40  | 38  |
| 59   | 53  | 54  | 30  | 57  | 52  | 100 | 58  | 49  | 53  | 53  | 49  |
| 60   | 56  | 53  | 44  | 54  | 47  | 58  | 100 | 49  | 45  | 52  | 48  |
| 61   | 42  | 48  | 37  | 49  | 37  | 49  | 49  | 100 | 43  | 41  | 41  |
| 62   | 41  | 43  | 28  | 46  | 42  | 53  | 45  | 43  | 100 | 48  | 41  |
| 63   | 47  | 51  | 31  | 53  | 40  | 53  | 52  | 41  | 48  | 100 | 42  |
| 64   | 49  | 47  | 29  | 38  | 38  | 49  | 48  | 41  | 41  | 42  | 100 |

\*ALL ENTRIES IN TABLE ARE MULTIPLIED BY 100

Image analysis requires the calculation of the inverse of  $R$  for the purpose of finding the squared multiple correlations ( $S^2$ ) which are used in the algorithm for obtaining the image covariance matrix ( $G$ ). Using Kaiser's (1963) matrix notation,  $G$  is found as follows:

$$\begin{aligned} G &= (I - S^2 R^{-1}) R (I - R^{-1} S^2) \\ &= R + S^2 R^{-1} S^2 - 2S^2 \end{aligned} \quad (1)$$

where

$R$  = Correlation matrix

$I$  = Identity matrix

$S^2 = (\text{diag } R^{-1})^{-1}$ , the diagonal matrix of variance errors of estimate, or anti-image variances.

This requirement for calculating the inverse of  $R$  presented a problem because ipsative intercorrelation matrices are always singular. The rank of the ipsative correlation matrix is always at least one less than its order due to the rescaling of the raw scores to a common row sum. This introduces a linear dependency among the columns of the ipsative scores matrix. Hence, one must either delete one variable from the ipsative set or utilize the "general inverse" approach developed by Horst (1963).

In the present instance, the above problem was solved by performing the image factor analysis twice, each time deleting a different age level. It was found that the factor loadings of the 48 age levels common to both analyses were identical to at least the third decimal place. Hence, it was felt that the loss in accuracy resulting from inserting the factor loadings found for age 17 by deleting age 64 into

the factor matrix which had been obtained by deleting age 17 was barely noticable.

#### Factor Analysis versus Simplex Analysis

A word seems in order here about the appropriateness of using factor analysis in the present case. As is apparent from the regularity of the correlation matrix ( Table 3.5 ), the fifty age levels form a continuum. Such data could perhaps better be analyzed using the simplex model because the latter seems to be particularly suited for the analysis of time-series data. The appropriateness of the Simplex model can be judged from the inverse of the correlation matrix (Kaiser, 1963). If  $R^{-1}$  is essentially tri-diagonal, that is, with near zero elements in all but the main diagonal and the immediately adjacent diagonals, it suggests that the Simplex model may be more appropriate. In the present case, inspection of  $R^{-1}$  revealed that the tri-diagonal elements tended to be larger than the off-diagonal ones, but the latter still departed appreciably from zero. Because of this, the Simplex model was not used.

#### Number of Factors and Mode of Rotation of the Factor Pattern

Since the 50 age levels formed a continuum which was to be segmented, one would expect that optimally fitting factors would be oblique. However, the degree of obliquity is unknown. One should, therefore, ideally be able to rotate the factor pattern to various degrees of obliquity, in order to find an optimally oblique fit. A solution to this problem was first presented by Harris & Kaiser (1964) who showed that by varying the parameter  $p$  in equation (2) below, a

whole set of rotations with varying obliquity can be obtained.

$$A = V M^p T D \quad (2)$$

where  $A$  = rotated factor pattern,

$V$  = consists of  $r$  ( $r < n$ ) normalized eigenvectors of  $R^*$ ,

such that  $R^* = V M^2 V'$ ,

$M^2$  = the positive-definite diagonal matrix of order  $r$  of the non-zero eigenvalues of  $R^*$ ,

$T$  = orthonormal transformation matrix which rotates  $V$  according to a maximization criterion (e.g., Varimax),

$D$  = a diagonal matrix to rescale  $L$  into a correlation matrix, where  $L$  is the factor intercorrelation matrix, defined as (3).

$$L = D^{-1} T' M^{(2-2p)} T D^{-1} \quad (3)$$

The parameter  $p$  can vary between 0 and 1. If  $p=1$ , then  $L$  degenerates into an identity matrix. This represents the usual orthogonal solution with uncorrelated factors. The case of  $p=0$  is called the Independent Cluster solution. It yields the most oblique solution. Varying degrees of obliquity can be obtained through intermediate values of  $p$ . The value of  $p=.25$  has been found to give good results with a variety of classic rotation problems (Hakstian, 1969).

In order to obtain a first approximation of the number of factors obtained from the image analysis of the 50 age levels, the first 12 factors were rotated setting  $p=.25$ . Note, however, that the image factor pattern had been obtained by (4):



$$F = S V M \quad (4)$$

where  $F$  = Image factor pattern

$$S^2 = (\text{diag } R^{-1})^{-1}$$

$V$  &  $M^2$  = the eigenvectors and eigenvalues of the image covariance matrix  $G$ , as defined in (1).

Hence,  $F$  had to be rescaled by  $S^{-1}$  before the above rotation was performed.

Inspection of the 12 factor rotation indicated that these were far too many. Subsequent rotations using fewer factors indicated that the three-factor solution yielded the best interpretable pattern. (The fourth and the fifth factors in the respective solutions had only two "high" loadings each and created difficulty in forming age groups.) Hence, the number of factors was set at three. These three factors were then rotated using values of  $p = (0; .25; .5)$ . The respective rotation results are given in Table 3.7. It appeared that the solution with  $p = .25$  yielded the "cleanest" pattern in terms of consecutive age levels grouped together, when the highest loading on each age level was used as the criterion for classification. This solution was adopted for classifying the age levels into age groups.

In each of the above rotations, the maximization criterion  $w$  for determining the transformation matrix  $T$  of (2) was set at  $w=1$ . This is the Varimax criterion (Kaiser, 1958).

TABLE 3.7  
ROTATIONS OF FACTOR PATTERN WITH VARYING OBLIQUITY

| AGE IN<br>YEARS | P = 0 |      |      | P = .25 |      |      | P = .50 |      |      |
|-----------------|-------|------|------|---------|------|------|---------|------|------|
|                 | I     | II   | III  | I       | II   | III  | I       | II   | III  |
| 15              | -115* | 41   | 10   | -97*    | 17   | 09   | -86*    | -02  | 06   |
| 16              | -98*  | 08   | -03  | -84*    | -10  | -07  | -75*    | -24  | -14  |
| 17              | -98*  | 08   | -03  | -84*    | -10  | -07  | -76*    | -24  | -14  |
| 18              | -69*  | -24  | -03  | -62*    | -35  | -10  | -57*    | -43  | -19  |
| 19              | -48*  | -43  | -04  | -45     | -48* | -11  | -43     | -52* | -21  |
| 20              | -22   | -71* | 08   | -25     | -70* | -01  | -27     | -69* | -13  |
| 21              | -12   | -79* | 01   | -16     | -75* | -08  | -19     | -72* | -20  |
| 22              | 13    | -99* | 11   | 04      | -89* | 01   | -03     | -82* | -12  |
| 23              | -02   | -69* | -23  | -05     | -63* | -31  | -07     | -58* | -41  |
| 24              | 12    | -67* | -21  | 07      | -59* | -28  | 03      | -52* | -36  |
| 25              | -02   | -50* | -39  | -03     | -45* | -44  | -03     | -40  | -51* |
| 26              | 18    | -62* | -35  | 14      | -53* | -41  | 11      | -45  | -49* |
| 27              | 06    | -30  | -48* | 05      | -25  | -51* | 06      | -20  | -54* |
| 28              | 02    | 04   | -51* | 05      | 05   | -51* | 07      | 08   | -50* |
| 29              | 09    | -43  | -48* | 07      | -37  | -53* | 07      | -30  | -58* |
| 30              | 15    | 01   | -41* | 16      | 04   | -41* | 16      | 08   | -39* |
| 31              | -05   | -03  | -63* | -01     | -02  | -64* | 02      | 01   | -65* |
| 32              | 12    | 10   | -51* | 14      | 12   | -50* | 16      | 16   | -48* |
| 33              | 42*   | -23  | -16  | 36*     | -13  | -16  | 32*     | -05  | -16  |
| 34              | 20    | 04   | -54* | 20      | 08   | -53* | 21      | 14   | -51* |
| 35              | 15    | 23   | -42* | 17      | 25   | -39* | 19      | 28   | -35* |
| 36              | 09    | 28   | -48* | 12      | 29   | -35* | 15      | 31   | -40* |
| 37              | 09    | 46   | -56* | 14      | 46   | -51* | 19      | 47*  | -44  |
| 38              | 02    | 13   | -35* | 04      | 13   | -34* | 07      | 15   | -32* |
| 39              | 18    | 33   | -50* | 20      | 35   | -46* | 23      | 38   | -40* |
| 40              | -21   | 77*  | -37  | -11     | 68*  | -29  | -03     | 62*  | -20  |
| 41              | -21   | 65*  | -46  | -11     | 57*  | -40  | -04     | 53*  | -33  |
| 42              | -04   | 65*  | -29  | 02      | 60*  | -22  | 08      | 57*  | -14  |
| 43              | 18    | 30*  | -13  | 19      | 31*  | -08  | 19      | 33*  | -03  |
| 44              | 29*   | 25   | -12  | 28      | 29*  | -08  | 27      | 32*  | -01  |
| 45              | 22    | 25*  | 22   | 20      | 26*  | 25   | 18      | 27   | 31*  |
| 46              | 27*   | 24   | -01  | 25      | 27*  | 03   | 24      | 29*  | 08   |
| 47              | 20    | 46*  | -04  | 20      | 46*  | 02   | 21      | 47*  | 10   |
| 48              | -05   | 69*  | -22  | 01      | 63*  | -15  | 6       | 59*  | -06  |
| 49              | 11    | 46*  | -06  | 13      | 45*  | 00   | 15      | 44*  | 07   |
| 50              | 12    | 42*  | 13   | 14      | 40*  | 18   | 13      | 39*  | 25   |
| 51              | -08   | 52*  | 18   | -04     | 46*  | 24   | -02     | 41*  | 30   |
| 52              | -03   | 71*  | 03   | 02      | 65*  | 11   | 06      | 60*  | 21   |
| 53              | 26    | 20   | 41*  | 22      | 22   | 45*  | 19      | 22   | 50*  |
| 54              | 21    | 39*  | 36   | 19      | 39   | 42*  | 17      | 38   | 49*  |
| 55              | 30    | 11   | 55*  | 24      | 15   | 58*  | 19      | 15   | 62*  |
| 56              | 37*   | 11   | 24   | 27      | 17   | 31*  | 28      | 20   | 32*  |
| 57              | 48    | -13  | 63*  | 37      | -05  | 64*  | 29      | 00   | 66*  |
| 58              | 06    | 26   | 50*  | 04      | 24   | 54*  | 02      | 21   | 58*  |
| 59              | 30    | 16   | 58*  | 24      | 19   | 62*  | 19      | 19   | 66*  |
| 60              | 26    | 22   | 53*  | 21      | 23   | 57*  | 18      | 23   | 63*  |
| 61              | 58*   | -18  | 53   | 46      | -07  | 54*  | 38      | -01  | 56*  |
| 62              | 30    | -10  | 50*  | 24      | 13   | 53*  | 20      | 14   | 56*  |
| 63              | 37    | -03  | 59*  | 29      | 08   | 61*  | 23      | 10   | 65*  |
| 64              | 31    | -03  | 55*  | 24      | 07   | 57*  | 19      | 08   | 60*  |

NOTE: ALL ENTRIES IN THE TABLE ARE MULTIPLIED BY 100.

TABLE 3.8  
FACTOR CORRELATIONS FOR THREE FACTOR PATTERNS

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| FACTOR | P = 0 |    |     | P = .25 |    |     | P = .50 |    |     |
|--------|-------|----|-----|---------|----|-----|---------|----|-----|
|        | I     | II | III | I       | II | III | I       | II | III |

---

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| I   | 100 | 79  | 06  | 100 | 67  | 04  | 100 | 49  | 03  |
| II  | 79  | 100 | 29  | 67  | 100 | 25  | 49  | 100 | 18  |
| III | 06  | 29  | 100 | 04  | 25  | 100 | 03  | 18  | 100 |

---

NOTE: ALL ENTRIES IN THE TABLE ARE MULTIPLIED BY 100.

## CHAPTER IV

### EXAMINATION OF FUNCTION FLUCTUATION

As explained earlier (see Chapter 1), the items measuring a given construct may be viewed in two ways:

- (A) as repeated measures of a univariate construct, or
- (B) as several measures of a multivariate construct.

Case (A) will be considered first. In relating a given construct to another variable, such as age, one obtains a function of the relationship of that construct to age. In the case of a univariate construct, this relationship can readily be represented graphically, as illustrated in Figure 1.1 (see Chapter 1) where age was plotted along the X-axis and the magnitude of the construct (measured at the various ages) along the Y-axis. Certain functions were illustrated in Figure 1.1. It was suggested there that the function depicted in Figure 1.1a was not fluctuating, while the remaining three were. Relatively smooth functions such as those depicted in Figure 1.1b & d are more useful for psychological inference and prediction.

The question naturally arises as to what constitutes fluctuation, that is, how far must a given function depart from being parallel to the X-axis to represent a 'fluctuating' function. In statistical terms, this is an analysis of variance problem. One postulates the null-hypothesis that all the populations represented by their respective age groups have identical means and tests it, using the well-known procedures.

As was discussed in Chapter 1, such a univariate analysis of variance is only appropriate if all the items measuring a given construct retain their meaning over the range of the function. Thus, again using Aaronson's (1961) "Index of Aging" as an example, it would be inappropriate to compare the means of a young and an old age group on this index, since in the young age group, the index represents concern with control of impulses, whereas in the old group, the same index represents concern with physical health. This kind of fluctuation represents a change in the very meaning of the construct. Such fluctuations may have several causes, for example, (a) purely semantic influences -- some words mean different things to different age groups; (b) the behavior measured by some items may be confined to certain ages. For example, a scale measuring "Dating Behavior" may be quite reliable for a young adult group but meaningless for a group of middle aged subjects. It would, therefore, seem advisable to test the stability of a given function routinely in order to avoid the problem of inappropriate comparisons. Hence, the scales were analysed in two ways: (A) as univariate scales, using a one-way analysis of variance to test differences among the scale score means of the five age groups found earlier, and (B) as multivariate scales, using multivariate profile analysis to test the age group profiles on all the items of the scales for parallelism.

#### The Selection of Scales for the Analysis

The 50 attitudinal scales derived from the item pool were deemed to be too many for analysis in regard to function fluctuation. As can be seen from the correlation matrix given in Appendix B, some of these

scales were substantially correlated, so that to analyze all of them would have been unnecessary repetition. It was, therefore, felt desirable to select some of the 50 scales such that each selected scale represented a group of related scales and, at the same time, all the selected scales were maximally independent of one another.

Since the procedures used to select an appropriate subset of scales for further analysis are tangential to the main theme of this study, they are presented in Appendix B. Suffice it to say here that ten scales were chosen for studying function fluctuation.

On the basis of an inspection of the items in each of these scales, the following titles seemed appropriate:

1. Loneliness and despair
2. Empathy toward others
3. Socially unsanctioned and questionable behavior
4. Cultural and racial prejudice
5. Family relation stereotypes
6. Acceptance of the authority of religion
7. Conformity to cultural conventions and customs
8. Social distance toward others
9. Attitude toward social reform
10. View of Christ as human.

These ten scales were then analysed with regard to function fluctuation. The following pattern of presentation was adopted:

A. The items of a given scale are listed, together with the overall response frequencies which were observed for the 4334 subjects, and the reciprocal averages weights assigned to the response categories.

- B. A graph of the means of the five age groups is presented, together with the one-way ANOVA results of testing the group means for equality.
- C. A graph of the item mean profiles for each group is given to permit visual assessment of scale parallelism, together with the statistical results of testing the profiles for parallelism.
- D. The results are discussed.

For the purpose of indicating statistical significance, an alpha level of .01 was used throughout.

To facilitate the drawing of the figures, and the identification of the age groups in the tables, the following letter code was adopted for the five age groups:

| GROUP        |            | CODE |
|--------------|------------|------|
| Youths       | (N = 559)  | A    |
| Young Adults | (N = 670)  | B    |
| Adults       | (N = 1111) | C    |
| Middle Aged  | (N = 1225) | D    |
| Seniors      | (N = 769)  | E    |

Thus, the progression in age is from group A to group E.

Note that the profile analyses of the following sections were calculated using the "age representative responses" which had been obtained earlier for the age level analysis. The reason for using these standardized responses (rather than raw scores) was again to permit relative comparisons among items. Also, it improved the interpretability of the graphs of the age group mean profiles. Since these standardized means are linearly related to the raw score means, the transformation had a negligible effect on the F-test for testing parallelism.

Scale # 1: Loneliness and Despair

## A. Items for scale # 1:

Choice of answers for Items 1 and 2: F - Frequently  
O - Occasionally  
N - Never

| Number    | Item                                                 | % Responses and Weights |          |          |         |
|-----------|------------------------------------------------------|-------------------------|----------|----------|---------|
|           |                                                      | F                       | O        | N        | Blank   |
| 1. (631)* | Fought and argued with your immediate family circle. | 15%<br>7                | 66%<br>3 | 15%<br>2 | 5%<br>4 |
| 2. (663)* | Thought of committing suicide.                       | 1%<br>9                 | 19%<br>6 | 74%<br>3 | 6%<br>4 |

Choice of answers for Items 3 to 8: Yes / ? / No

|           | Item                                                                                 | Yes   ?   No   Blank |         |          |         |
|-----------|--------------------------------------------------------------------------------------|----------------------|---------|----------|---------|
|           |                                                                                      | Yes                  | ?       | No       | Blank   |
| 3. (383)* | I often feel as if it would be good to get away from it all.                         | 65%<br>5             | 1%<br>3 | 28%<br>1 | 6%<br>4 |
| 4. (397)* | I often feel left out of things that are going on around here.                       | 34%<br>6             | 2%<br>4 | 59%<br>2 | 4%<br>3 |
| 5. (385)* | There are so many problems to deal with today that sometimes I could just "blow up." | 48%<br>6             | 3%<br>3 | 44%<br>1 | 5%<br>4 |
| 6. (388)* | Sometimes I feel God must hate me because there is so much misery in my life.        | 8%<br>9              | 2%<br>7 | 85%<br>3 | 4%<br>4 |
| 7. (401)* | I feel all alone in the world fairly often.                                          | 19%<br>8             | 2%<br>8 | 75%<br>2 | 5%<br>3 |
| 8. (405)* | I often feel people around here are not too friendly.                                | 26%<br>6             | 1%<br>6 | 67%<br>2 | 7%<br>3 |

\* Serial number of items in the questionnaire.



Results of Analyses for Scale # 1: Loneliness and Despair

B. Univariate analysis of the scale scores for scale # 1.

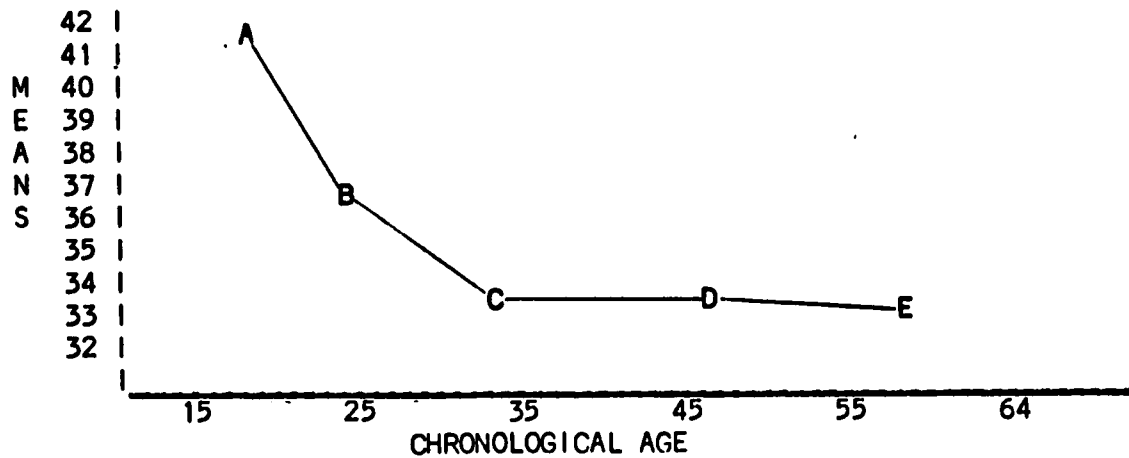


Figure 4.1: Graph of age group means for scale # 1.

TABLE 4.1

MEANS AND STANDARD DEVIATIONS OF SCALE SCORES FOR SCALE # 1

| Age Groups | N    | Means | Standard Deviations |
|------------|------|-------|---------------------|
| A          | 559  | 41.09 | 9.82                |
| B          | 670  | 36.50 | 9.32                |
| C          | 1111 | 33.61 | 9.11                |
| D          | 1225 | 33.76 | 9.40                |
| E          | 769  | 33.49 | 8.93                |

Homogeneity of Variance Test: Chi-Square = 7.09; p = .13

TABLE 4.2

## ANALYSIS OF VARIANCE TABLE FOR SCALE SCORES OF SCALE # 1

| Source | df   | MS     | F     | P       |
|--------|------|--------|-------|---------|
| Groups | 4    | 7002.0 | 81.19 | <.00001 |
| Error  | 4329 | 86.24  |       |         |

TABLE 4.3

## PROBABILITY MATRIX OF PAIRWISE COMPARISONS OF MEANS USING

## SCHEFFE'S MULTIPLE COMPARISON METHOD

| Groups | A | B | C   | D   | E   |
|--------|---|---|-----|-----|-----|
| A      | - | 0 | 0   | 0   | 0   |
| B      | 0 | - | 0   | 0   | 0   |
| C      | 0 | 0 | -   | .99 | .99 |
| D      | 0 | 0 | .99 | -   | .98 |
| E      | 0 | 0 | .99 | .98 | -   |

Note: an entry of zero designates  $p < .00001$

C. Multivariate profile analysis of the five age groups on the eight items of scale # 1: Loneliness and Despair

TABLE 4.4  
AGE GROUP MEANS FOR THE EIGHT ITEMS OF SCALE # 1

| Group | Items |      |       |      |      |      |      |      | Row Mean |
|-------|-------|------|-------|------|------|------|------|------|----------|
|       | 1     | 2    | 3     | 4    | 5    | 6    | 7    | 8    |          |
| A     | 2.41  | 2.23 | 1.36  | 2.12 | 1.92 | 2.39 | 2.21 | 1.82 | 2.12     |
| B     | .45   | .80  | .96   | .99  | .97  | .33  | .40  | -.30 | .57      |
| C     | -.10  | -.27 | .15   | -.22 | -.31 | -.65 | -.53 | -.28 | -.28     |
| D     | -.07  | -.40 | -.29  | -.50 | -.46 | -.37 | -.44 | -.08 | -.26     |
| E     | -.91  | -.55 | -1.11 | -.59 | -.45 | -.27 | .04  | -.19 | -.50     |

TABLE 4.5  
MULTIVARIATE ANALYSIS OF AGE GROUP MEAN PROFILES  
FOR SCALE # 1, USING WILKS' LAMBDA

| Lambda | df1 | df2 | F*   | P       |
|--------|-----|-----|------|---------|
| .159   | 28  | 142 | 3.37 | <.00001 |

\*Rao's approximate F-test using Wilks' Lambda.

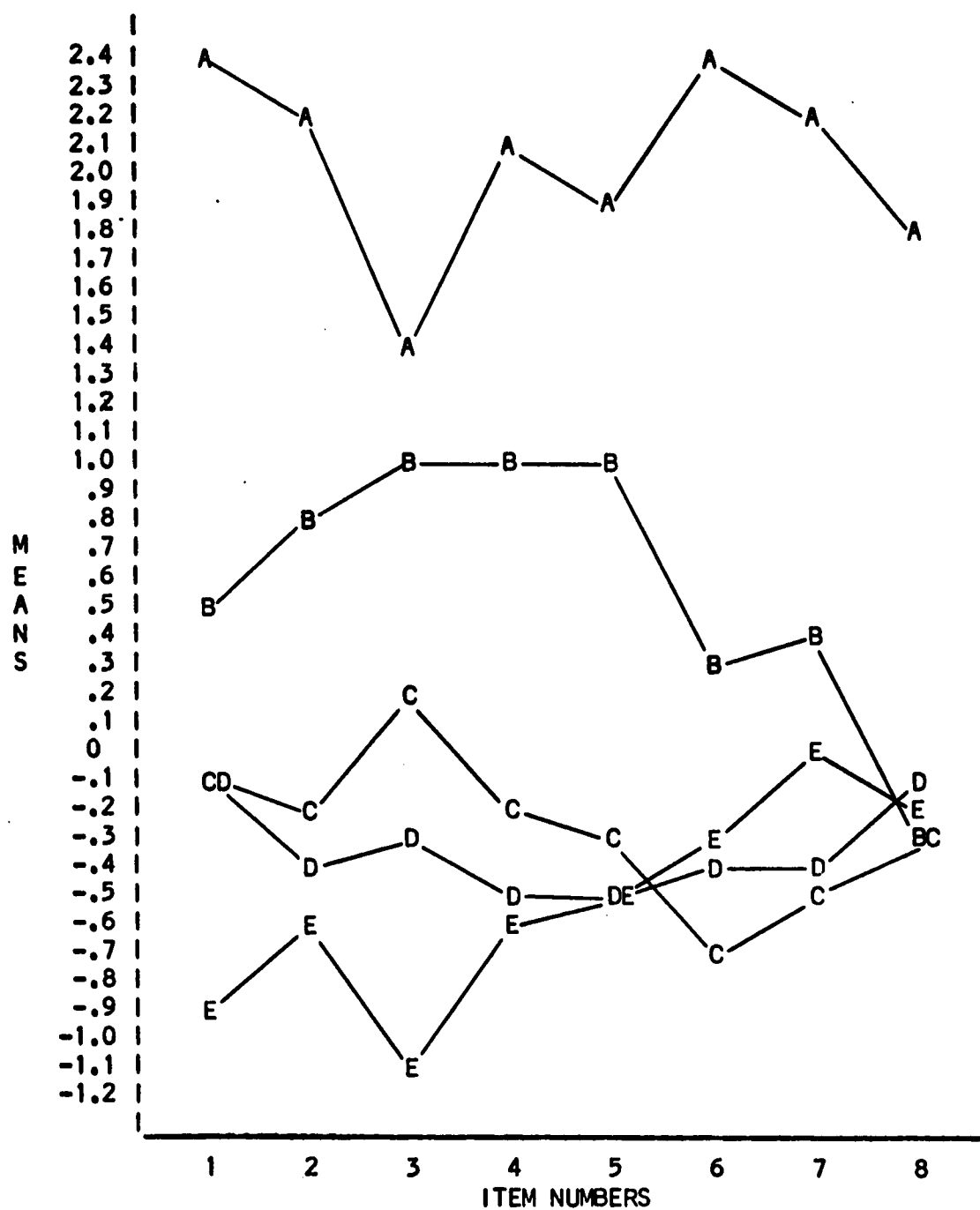


Figure 4.2: Age Group Mean Profiles for the Eight Items of Scale # 1: Loneliness and Despair.

#### D. Discussion of results for scale # 1: Loneliness and Despair.

The F-test for comparing the scale score means of the five age groups indicated that these means are not equal. Using pairwise contrasts, it is apparent that groups A & B differ from each other as well as from the remaining groups, while groups C, D, & E are alike in terms of group means.

The F-test for examining parallelism of group profiles indicated that the age group profiles on the eight items of the scale are not parallel. Further, inspection of Figure 4.2 reveals that items # 1, 2, 3, 4, & 5 are monotonically decreasing in magnitude with age, while items # 6, 7, & 8 appear to have a U-shaped relationship to age. In other words, both the younger and the older age groups score higher on the items # 6, 7, & 8 than those at an intermediate age. These reversals are sufficient to make the age group profiles statistically non-parallel. In addition, they tended to counterbalance the scores on the monotonic items (# 1, 2, 3, 4, & 5) such that the scale means for groups C, D, & E were not significantly different.

In summary, the function lacks internal stability over the range from 15 to 64 years. Hence, the conclusion based upon the scale scores that groups C, D, & E are alike requires some qualifications. These groups are alike only because of the counterbalancing effect of some of the items which effectively cancelled the differences among these groups.

A word should be said here about statistically significant differences versus practically useful differences: whereas it is true that, statistically speaking, the age group profiles are not parallel, it is also true that group A scored much higher than group B which,

In turn, scored higher than groups C, D, or E on all but one item. In other words, the reversals on items 6, 7, & 8 which contributed a lot to making the profiles statistically non-parallel would seem to be of relatively minor practical importance if their magnitude is compared to that observed among groups A & B versus groups C, D, & E. Note also that the mean scale score of group A (Table 4.1) was almost one standard deviation above those of groups C, D, or E. The magnitude of this difference is apparent from Figure 4.2. In view of this, it seems justifiable to say that groups A & B have much stronger feelings of loneliness and despair than groups C, D, or E.

Scale # 2: Empathy Toward Others

## A. Items for scale # 2:

Choice of answers for all items: F - Frequently  
 O - Occasionally  
 N - Never

| Number    | Item                                                                                                                                                                                                         | % Responses and Weights |          |          |         |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------|----------|---------|
|           |                                                                                                                                                                                                              | F                       | O        | N        | Blank   |
| 1. (636)* | Tried to offer comfort or support to a friend or neighbor in event of a death or tragedy, either by talking or by action (e.g., taking a casserole dish to a family where the mother has been hospitalized). | 28%<br>9                | 57%<br>3 | 9%<br>1  | 5%<br>5 |
| 2. (637)* | Expressed concern about a friend's (or neighbor's) welfare by sending a card in time of illness.                                                                                                             | 40%<br>8                | 49%<br>2 | 6%<br>1  | 5%<br>4 |
| 3. (639)* | Visited a friend or neighbor in the hospital.                                                                                                                                                                | 32%<br>9                | 57%<br>3 | 6%<br>1  | 5%<br>5 |
| 4. (640)* | Attended a funeral for a friend or neighbor (non-family member).                                                                                                                                             | 26%<br>9                | 54%<br>3 | 15%<br>1 | 5%<br>4 |
| 5. (641)* | Contributed to a special fund for aiding or helping a friend or neighbor.                                                                                                                                    | 19%<br>9                | 59%<br>4 | 17%<br>1 | 5%<br>4 |
| 6. (664)* | Ran errands for someone who couldn't get them done either temporarily or permanently.                                                                                                                        | 13%<br>9                | 75%<br>4 | 6%<br>1  | 6%<br>4 |

\* Serial number of the items in the questionnaire.

# Results of Analyses for Scale # 2: Empathy Toward Others

## B. Univariate analysis of variance of the scale scores for scale # 2.

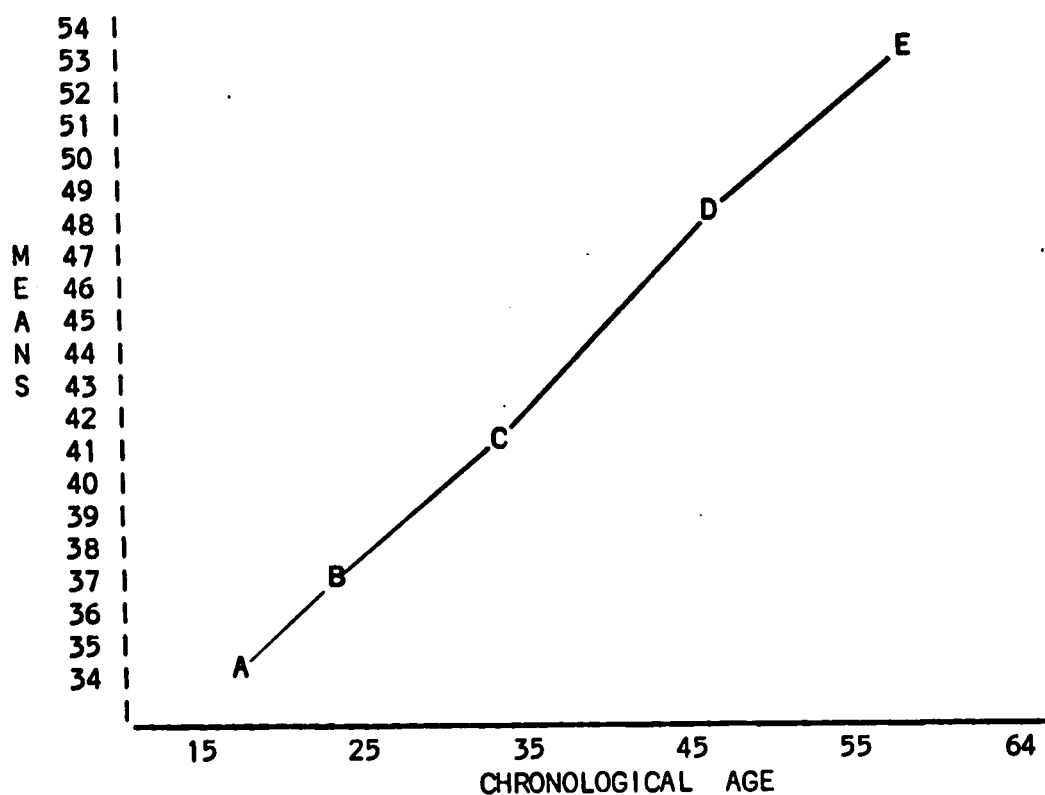


Figure 4.3: Graph of Age Group Means for Scale # 2.

TABLE 4.6

MEANS AND STANDARD DEVIATIONS OF SCALE SCORES FOR SCALE # 2

| Age Groups | N    | Means | Standard Deviations |
|------------|------|-------|---------------------|
| A          | 559  | 34.58 | 14.51               |
| B          | 670  | 37.07 | 15.71               |
| C          | 1111 | 41.24 | 17.02               |
| D          | 1225 | 48.64 | 18.84               |
| E          | 769  | 53.22 | 19.14               |

Homogeneity of Variance Test: Chi-Square = 77.95;  $p < .001$



TABLE 4.7  
ANALYSIS OF VARIANCE TABLE FOR SCALE SCORES OF SCALE # 2

| Source | df   | MS      | F      | P        |
|--------|------|---------|--------|----------|
| Groups | 4    | 45493.5 | 149.21 | < .00001 |
| Error  | 4329 | 304.9   |        |          |

TABLE 4.8  
PROBABILITY MATRIX OF PAIRWISE COMPARISONS OF MEANS OF SCALE # 2  
USING SCHEFFE'S MULTIPLE COMPARISON METHOD

| Groups | A   | B   | C | D | E |
|--------|-----|-----|---|---|---|
| A      | -   | .18 | 0 | 0 | 0 |
| B      | .18 | -   | 0 | 0 | 0 |
| C      | 0   | 0   | - | 0 | 0 |
| D      | 0   | 0   | 0 | - | 0 |
| E      | 0   | 0   | 0 | 0 | - |

Note: an entry of zero designates  $p < .001$

C. Multivariate profile analysis of the five age groups on the items of scale # 2.

TABLE 4.9  
AGE GROUP MEANS FOR THE 6 ITEMS OF SCALE # 2

| Group | Item Number |       |       |       |       |      | Row Mean |
|-------|-------------|-------|-------|-------|-------|------|----------|
|       | 1           | 2     | 3     | 4     | 5     | 6    |          |
| A     | -1.56       | -1.49 | -1.33 | -1.30 | -1.47 | -.39 | -1.26    |
| B     | -1.12       | -1.08 | -.84  | -1.12 | -1.27 | -.63 | -1.01    |
| C     | -.48        | -.53  | -.67  | -.52  | -.31  | -.78 | -.55     |
| D     | .61         | .55   | .45   | .48   | .48   | .53  | .51      |
| E     | 1.13        | 1.20  | 1.24  | 1.23  | 1.16  | .83  | 1.13     |

TABLE 4.10  
MULTIVARIATE ANALYSIS OF AGE GROUP MEAN PROFILES  
FOR SCALE # 2

| Lambda | df1 | df2 | F*   | P    |
|--------|-----|-----|------|------|
| .4569  | 20  | 137 | 1.82 | .024 |

\*Rao's approximate F-test using Wilks' Lambda.

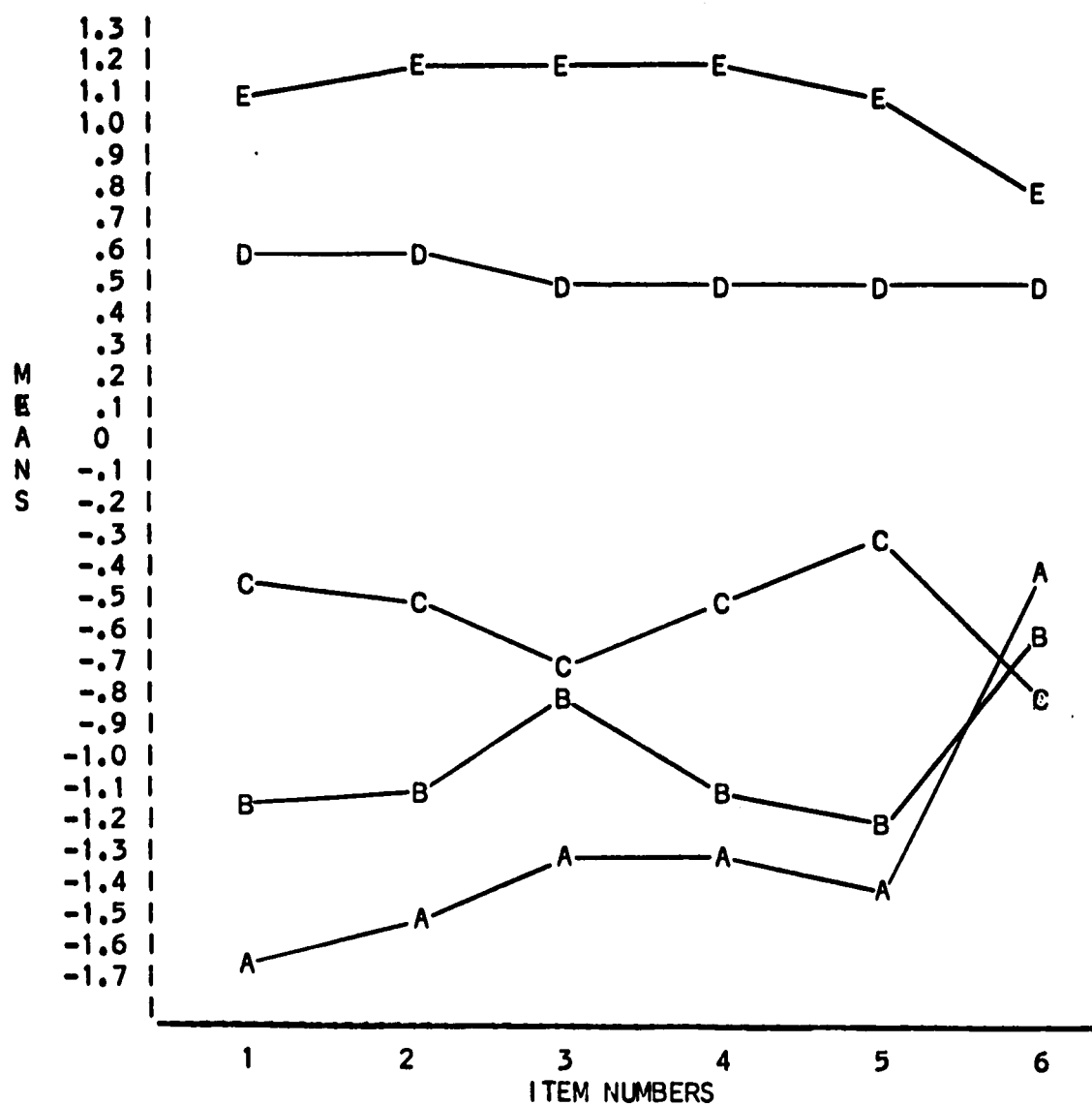


Figure 4.4: Graph of Age Group Mean Profiles for the 6 Items of Scale # 2: Empathy Toward Others.

#### D. Discussion of results for scale #2: Empathy toward Others

Inspection of the group means on this scale (see Figure 4.3) indicate that the behaviors associated with empathy toward others increases significantly throughout the age range from 15 to 64 years.

The profile analysis (Figure 4.4) indicates that the profiles for the age groups can be considered parallel ( $p=.023$ ), despite the U-shaped distribution of item #6. However, if item #6 were removed, the parallelism of the profiles would be considerably less marginal ( $p=.56$  for items 1 to 5). Note that item # 6 ( Ran errands for someone ... ) may be considered somewhat age related -- young people are probably asked more often to run errands than adults. Also, one would expect that the opportunities for displaying the behaviors assessed by the items # 1 to 5 are relatively more frequent for older people -- their friends are more likely to become ill or die than those of the younger ones. This, then, could constitute supplementary evidence of the validity of the profile analysis model.

**Scale # 3: Socially Unsanctioned and Questionnable Behavior****A. Items for scale # 3:**

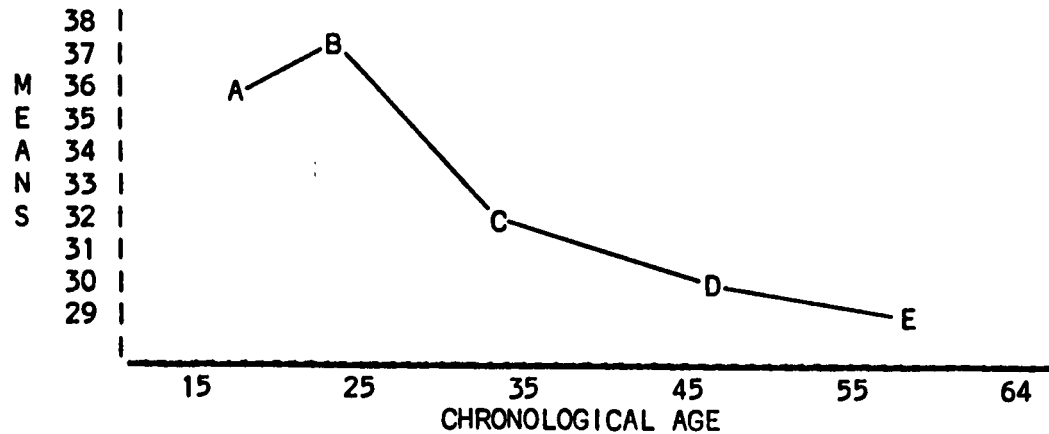
Choice of answers for all items: F - Frequently  
 O - Occasionally  
 N - Never

| Number     | Item                                                                       | % Responses and Weights |          |          |          |
|------------|----------------------------------------------------------------------------|-------------------------|----------|----------|----------|
|            |                                                                            | F                       | O        | N        | Blank    |
| 1. (638)*  | Told a lie.                                                                | 12%<br>6                | 76%<br>3 | 7%<br>1  | 6%<br>3  |
| 2. (670)*  | Fought (actual physical combat other than war, sports, or as part of job). | 1%<br>8                 | 20%<br>6 | 73%<br>2 | 7%<br>3  |
| 3. (660)*  | Swore or used profane or vulgar language.                                  | 13%<br>7                | 68%<br>3 | 13%<br>1 | 6%<br>3  |
| 4. (655)*  | Attended movies.                                                           | 23%<br>5                | 64%<br>3 | 7%<br>1  | 6%<br>3  |
| 5. (656)*  | Read pornographic literature.                                              | 2%<br>9                 | 47%<br>5 | 44%<br>1 | 7%<br>3  |
| 6. (634)*  | Participated in heavy petting (with someone to whom you were not married). | 7%<br>8                 | 26%<br>5 | 61%<br>2 | 6%<br>3  |
| 7. (669)*  | Gambled (cards, dice, racing, sports events, etc.).                        | 4%<br>8                 | 50%<br>4 | 40%<br>1 | 6%<br>3  |
| 8. (673)*  | Was drunk.                                                                 | 3%<br>9                 | 34%<br>5 | 57%<br>2 | 6%<br>3  |
| 9. (644)*  | Masturbated.                                                               | 5%<br>8                 | 32%<br>5 | 51%<br>2 | 12%<br>3 |
| 10. (648)* | Attended X-rated movies.                                                   | 4%<br>8                 | 39%<br>5 | 51%<br>2 | 6%<br>4  |
| 11. (635)* | Had sexual intercourse with someone to whom you were not married.          | 4%<br>9                 | 18%<br>6 | 73%<br>2 | 6%<br>3  |
| 12. (647)* | Drank alcoholic beverages (other than at Communion).                       | 23%<br>6                | 63%<br>3 | 9%<br>1  | 5%<br>4  |

\* Serial number of items in the questionnaire.

**Results of Analyses for Scale # 3: Socially Unsanctioned and Questionable Behavior.**

**B. Univariate analysis of the scale scores for scale # 3.**



**Figure 4.5: Graph of age group means for scale # 3.**

**TABLE 4.11**

**MEANS AND STANDARD DEVIATIONS OF SCALE SCORES FOR SCALE # 3**

| Age Groups | N    | Means | Standard Deviations |
|------------|------|-------|---------------------|
| A          | 559  | 36.21 | 9.44                |
| B          | 670  | 37.30 | 9.78                |
| C          | 1111 | 31.90 | 9.48                |
| D          | 1225 | 30.26 | 7.34                |
| E          | 769  | 29.37 | 6.90                |

Homogeneity of Variance Test: Chi-Square = 153.5;  $p < .001$

TABLE 4.12  
ANALYSIS OF VARIANCE TABLE FOR SCALE SCORES OF SCALE # 3

| Source | df   | MS     | F      | P       |
|--------|------|--------|--------|---------|
| Groups | 4    | 9283.8 | 144.38 | <.00001 |
| Error  | 4329 | 64.3   |        |         |

TABLE 4.13  
PROBABILITY MATRIX OF PAIRWISE COMPARISONS OF MEANS OF SCALE # 3  
USING SCHEFFE'S MULTIPLE COMPARISON METHOD

| Groups | A   | B   | C | D   | E   |
|--------|-----|-----|---|-----|-----|
| A      | -   | .23 | 0 | 0   | 0   |
| B      | .23 | -   | 0 | 0   | 0   |
| C      | 0   | 0   | - | 0   | 0   |
| D      | 0   | 0   | 0 | -   | .21 |
| E      | 0   | 0   | 0 | .21 | -   |

Note: an entry of zero designates  $p < .0001$

C. Multivariate profile analysis of the five age groups on the items of scale # 3.

TABLE 4.14  
AGE GROUP MEANS FOR THE 12 ITEMS OF SCALE # 3

| Group | Item Number |      |      |      |      |      |      |      |       |      |      |       | Row Mean |
|-------|-------------|------|------|------|------|------|------|------|-------|------|------|-------|----------|
|       | 1           | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9     | 10   | 11   | 12    |          |
| A     | 2.62        | 2.59 | 1.97 | 1.69 | 1.45 | 1.22 | .73  | .61  | .58   | .18  | -.17 | -1.28 | 1.02     |
| B     | .79         | .78  | 1.25 | 1.58 | 1.31 | 1.73 | .76  | 1.54 | 1.32  | 1.72 | 1.86 | 1.15  | 1.32     |
| C     | -.30        | -.50 | .02  | -.18 | .15  | -.20 | .22  | .17  | .16   | .25  | -.11 | .42   | .01      |
| D     | -.59        | -.42 | -.54 | -.58 | -.49 | -.61 | -.54 | -.46 | -.17  | -.52 | -.50 | -.21  | -.47     |
| E     | -.44        | -.39 | -.92 | -.79 | -.99 | -.69 | -.40 | -.92 | -1.06 | -.91 | -.52 | -.57  | -.72     |

TABLE 4.15  
MULTIVARIATE ANALYSIS OF AGE GROUP MEAN PROFILES  
USING WILKS' LAMBDA

| Lambda | df1 | df2 | F*   | P       |
|--------|-----|-----|------|---------|
| .03097 | 44  | 136 | 4.57 | <.00001 |

\*Rao's approximate F-test using Wilks' Lambda.



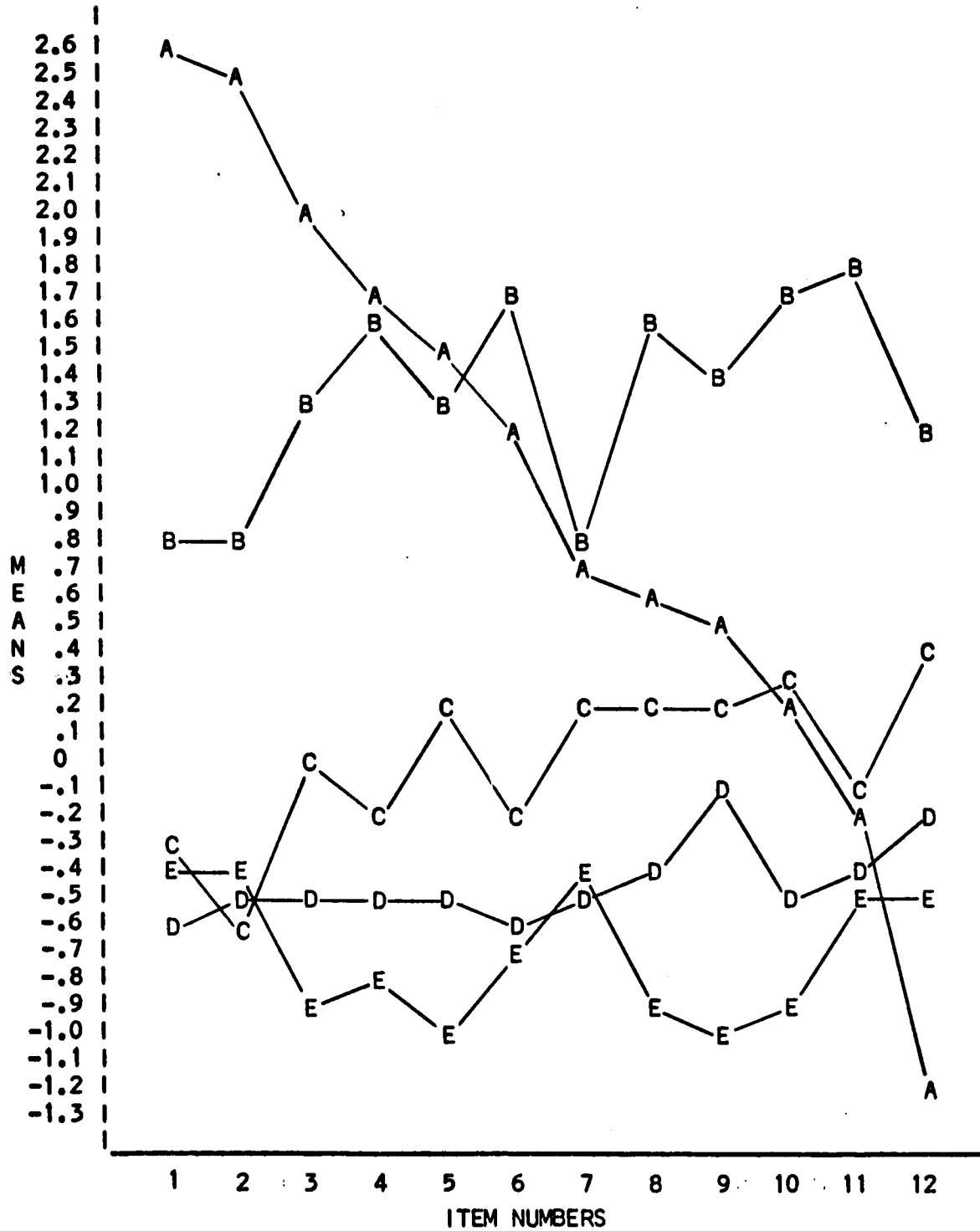


Figure 4.6: Age Group Mean Profiles for the Twelve Items of Scale # 3:  
Socially Unsanctioned and Questionable Behavior.

**D. Discussion of results for scale #3: Socially unsanctioned and questionable behavior.**

Inspection of the group means on this scale (Figure 4.3) indicates that the behavior associated with this function is at a peak during young adulthood, and decreases steadily from then on. The difference between groups A & B is not significant (see Table 4.13). Note, that the unequal variances of the age groups (Table 4.11) may be because groups D & E are responding closer to the floor of the scale - the smallest obtainable score on the scale is 15, whereas the largest is 76. Thus, the lack of homoscedasticity is probably attributable to instrument constraints on score variation for groups D & E.

The function is not parallel for the five age groups due to several age-related behavior items dealing with consumption of alcohol and intimate sexual relations. Since these behaviors are not as prevalent among the youths, the profile for group A is oscillating rather profoundly. Both the highest and the lowest item means were observed for group A. It would appear, however, that for groups B, C, D, & E, the function is reasonably stable. Hence, one may conclude that socially unsanctioned and questionable behavior is most prevalent during young adulthood and decreases steadily with age. A comparative statement about the Youth Group is inappropriate in view of the profound oscillation of that group's profile.

Scale # 4: Cultural and Racial Prejudice

## A. Items for scale # 4:

Choice of answers:    SA - Strongly Agree    A - Agree  
                              SD - Strongly Disagree    D - Disagree

| Number     | Item                                                                                                                   | % Responses & Weights |          |          |          |         |
|------------|------------------------------------------------------------------------------------------------------------------------|-----------------------|----------|----------|----------|---------|
|            |                                                                                                                        | SA                    | A        | D        | SD       | Blank   |
| 1. (284)*  | No punishment is too severe for those guilty of sex killings.                                                          | 26%<br>9              | 30%<br>8 | 33%<br>5 | 7%<br>3  | 4%<br>7 |
| 2. (295)*  | Although there is no essential difference between blacks and whites, it is preferable for them not to mingle socially. | 6%<br>9               | 27%<br>9 | 44%<br>7 | 20%<br>3 | 3%<br>7 |
| 3. (303)*  | Conscientious objectors should be treated as traitors to their country.                                                | 5%<br>9               | 18%<br>9 | 56%<br>7 | 16%<br>3 | 6%<br>6 |
| 4. (305)*  | Jews are just as honest as other businessmen.                                                                          | 16%<br>2              | 64%<br>5 | 14%<br>8 | 2%<br>8  | 5%<br>5 |
| 5. (307)*  | I have no objection to Negroes and Whites dating each other.                                                           | 7%<br>3               | 21%<br>5 | 38%<br>7 | 31%<br>9 | 3%<br>7 |
| 6. (313)*  | Jews have a lot of irritating faults.                                                                                  | 3%<br>8               | 25%<br>7 | 60%<br>5 | 8%<br>1  | 5%<br>5 |
| 7. (327)*  | Most people who live in poverty could do something about it if they really wanted to.                                  | 11%<br>9              | 53%<br>8 | 29%<br>5 | 3%<br>1  | 4%<br>7 |
| 8. (330)*  | Jews don't care what happens to anyone but their own kind.                                                             | 2%<br>8               | 13%<br>8 | 69%<br>5 | 12%<br>1 | 5%<br>5 |
| 9. (334)*  | Jews always like to be at the head of things.                                                                          | 3%<br>9               | 25%<br>7 | 59%<br>5 | 8%<br>1  | 5%<br>5 |
| 10. (338)* | Jews are more willing than others to use shady practices to get what they want.                                        | 2%<br>9               | 19%<br>8 | 61%<br>5 | 12%<br>1 | 6%<br>5 |

(continued)

| Number     | Item                                                                                                                                        | % Responses & Weights |          |          |          |         |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------|----------|----------|---------|
|            |                                                                                                                                             | SA                    | A        | D        | SD       | Blank   |
| 11. (339)* | Poor people would be better off if they took advantage of the opportunities available to them rather than spending so much time protesting. | 19%<br>9              | 58%<br>8 | 16%<br>4 | 2%<br>1  | 4%<br>7 |
| 12. (342)* | Negroes could solve many of their own problems if they would not be so irresponsible and carefree about life.                               | 13%<br>9              | 46%<br>8 | 31%<br>5 | 6%<br>1  | 4%<br>7 |
| 13. (347)* | People (white or black) have a right to keep others out of their neighborhood if they want to, and this right should be respected.          | 5%<br>9               | 25%<br>9 | 49%<br>7 | 16%<br>4 | 5%<br>7 |
| 14. (351)* | Jews are more loyal to Israel than to America.                                                                                              | 3%<br>7               | 23%<br>7 | 58%<br>5 | 9%<br>1  | 7%<br>5 |
| 15. (356)* | The trouble with Jewish businessmen is that they are so shrewd and tricky that other people don't have a fair chance in competition.        | 2%<br>9               | 17%<br>8 | 61%<br>5 | 15%<br>2 | 5%<br>5 |

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\* Serial number of the items in the questionnaire.

# Results of Analyses for Scale # 4: Cultural and Racial Prejudice

## B. Univariate analysis of variance of the scale scores for scale # 4.

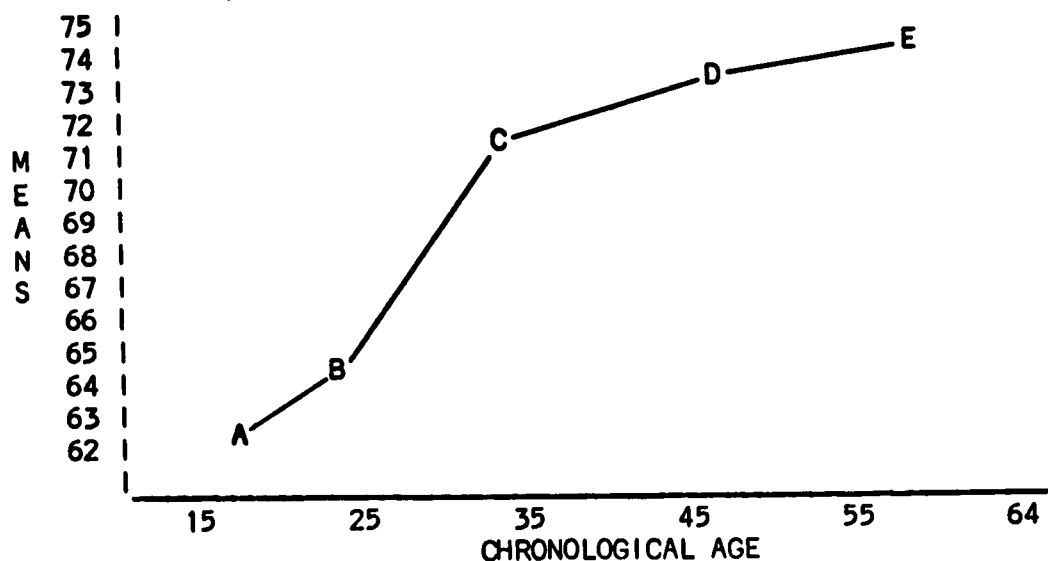


Figure 4.7: Graph of Age Group Means for Scale # 4.

TABLE 4.16

## MEANS AND STANDARD DEVIATIONS OF SCALE SCORES FOR SCALE # 4

| Age Groups | N    | Means | Standard Deviations |
|------------|------|-------|---------------------|
| A          | 559  | 62.81 | 12.04               |
| B          | 670  | 64.51 | 13.34               |
| C          | 1111 | 71.41 | 10.72               |
| D          | 1225 | 73.73 | 9.50                |
| E          | 769  | 74.84 | 8.19                |

Homogeneity of Variance Test: Chi-Square = 216.6;  $p < .001$

TABLE 4.17

ANALYSIS OF VARIANCE TABLE FOR SCALE SCORES OF SCALE # 4

| Source | df   | MS      | F      | P       |
|--------|------|---------|--------|---------|
| Groups | 4    | 20616.0 | 182.27 | <.00001 |
| Error  | 4329 | 113.1   |        |         |

TABLE 4.18

PROBABILITY MATRIX OF PAIRWISE COMPARISONS OF MEANS OF SCALE # 4  
 USING SCHEFFE'S MULTIPLE COMPARISON METHOD

| Groups | A   | B   | C | D   | E   |
|--------|-----|-----|---|-----|-----|
| A      | -   | .11 | 0 | 0   | 0   |
| B      | .11 | -   | 0 | 0   | 0   |
| C      | 0   | 0   | - | 0   | 0   |
| D      | 0   | 0   | 0 | -   | .06 |
| E      | 0   | 0   | 0 | .06 | -   |

Note: an entry of zero designates  $p < .001$

C. Multivariate profile analysis of the five age groups on the items  
of scale # 4.

TABLE 4.19  
AGE GROUP MEANS FOR THE 15 ITEMS OF SCALE # 4

| ===== |             |       |       |       |       |       |       |       |       |       |
|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Group | Item Number |       |       |       |       |       |       |       |       |       |
|       | 1           | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    |
| A     | -1.71       | -1.79 | -1.25 | -1.21 | -2.20 | -1.15 | -1.25 | -1.27 | -1.40 | -1.12 |
| B     | -1.29       | -1.39 | -1.61 | -.78  | -1.17 | -1.09 | -.97  | -1.27 | -1.19 | -1.02 |
| C     | .09         | .00   | .37   | .00   | .34   | -.47  | -.09  | -.07  | -.03  | -.37  |
| D     | .36         | .46   | .62   | .04   | .71   | .37   | .31   | .15   | .24   | .15   |
| E     | .95         | 1.03  | .42   | .89   | .37   | 1.22  | .83   | 1.04  | 1.03  | 1.29  |

| Group | Item Number |       |       |       |       | Row Mean |
|-------|-------------|-------|-------|-------|-------|----------|
|       | 11          | 12    | 13    | 14    | 15    |          |
| A     | -1.26       | -1.49 | -2.26 | -.05  | -.92  | -1.36    |
| B     | -1.36       | -1.24 | -1.02 | -1.15 | -1.05 | -1.17    |
| C     | -.05        | -.23  | .11   | -.24  | -.40  | -.06     |
| D     | .51         | .39   | .42   | .13   | .06   | .33      |
| E     | .83         | 1.16  | .86   | .91   | 1.37  | .93      |

TABLE 4.20  
MULTIVARIATE ANALYSIS OF AGE GROUP MEAN PROFILES  
USING WILKS' LAMBDA

| =====  |     |       |      |         |
|--------|-----|-------|------|---------|
| Lambda | df1 | df2   | F*   | P       |
| .0322  | 56  | 126.6 | 3.21 | <.00001 |

\* Rao's approximate F-test using Wilks' Lambda.

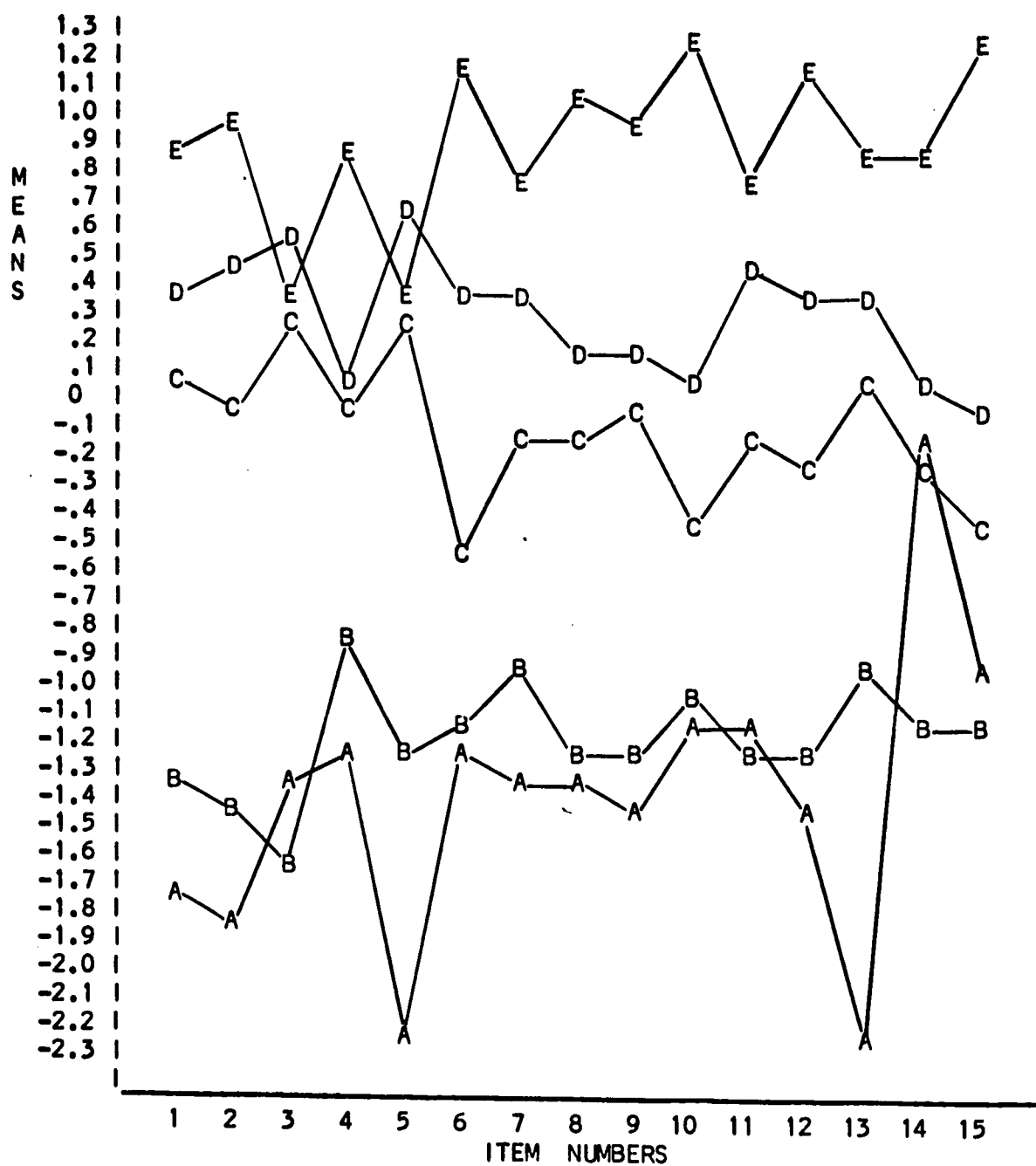


Figure 4.8: Graph of Age Group Mean Profiles for the 15 Items of Scale # 4: Cultural and Racial Prejudice.



#### D. Discussion of results for scale #4: Cultural and Racial Prejudice

The univariate analysis of age group means on this scale indicates that prejudicial attitudes are lowest in the youth and young adult groups, but increase sharply for the adult group, and continue to rise for the remainder of the age range. Table 4.16 indicates that the five groups lack homoscedasticity, that is, the variability of responses in the five groups differs. Since the group means are not in the centre of the scale (the range of possible scores is from 19 to 88), this may be attributable to instrument constraints on variation.

The test for parallelism of the age group profiles (Table 4.20) indicates that the profiles are not parallel. Reference to Figure 4.8 shows that group A appears to be the main problem. Yet, the oscillations in the profile of group A are not nearly as serious as they were, for example, in scale #3 (see Figure 4.6). Thus, by deleting item #14, it would appear that the function could be considered sufficiently stable to be of practical utility.

Scale # 5: Family Relation Stereotypes

## A. Items for scale # 5:

Choice of Answers: SA - Strongly Agree      A - Agree  
                                          SD - Strongly Disagree      D - Disagree

| Number    | Item                                                                                                                                                                    | % Responses and Weights |          |          |          |          |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------|----------|----------|----------|
|           |                                                                                                                                                                         | SA                      | A        | D        | SD       | Blank    |
| 1. (447)* | The most important qualities of a real man are determination and driving ambition.                                                                                      | 6%<br>9                 | 32%<br>7 | 49%<br>5 | 6%<br>3  | 7%<br>6  |
| 2. (441)* | Women who want to remove the word <u>obey</u> from the marriage service don't understand what it means to be a wife.                                                    | 8%<br>8                 | 47%<br>6 | 36%<br>4 | 4%<br>1  | 5%<br>5  |
| 3. (437)* | It is somehow unnatural to place women in positions of authority over men.                                                                                              | 7%<br>9                 | 47%<br>6 | 36%<br>4 | 5%<br>2  | 5%<br>5  |
| 4. (288)* | If a child is unusual in any way, his parents should get him to be more like the other children.                                                                        | 2%<br>9                 | 17%<br>8 | 58%<br>5 | 19%<br>3 | 3%<br>5  |
| 5. (427)* | A woman whose children are at all messy or rowdy has failed in her duties as a mother.                                                                                  | 5%<br>9                 | 22%<br>7 | 57%<br>5 | 11%<br>3 | 6%<br>5  |
| 6. (433)* | My first reaction when I think of the future is to be aware of its dangers.                                                                                             | 5%<br>9                 | 51%<br>7 | 37%<br>4 | 3%<br>1  | 5%<br>6  |
| 7. (435)* | A man should not be expected to have respect for a woman if they have sexual relations before they are married.                                                         | 4%<br>9                 | 15%<br>7 | 58%<br>5 | 18%<br>4 | 5%<br>5  |
| 8. (443)* | We Christians have to exercise caution when we act in the local community, because it is so easy for those outside the Church to misinterpret what we are trying to do. | 6%<br>9                 | 50%<br>7 | 31%<br>4 | 3%<br>1  | 11%<br>6 |
| 9. (314)* | If children are told much about sex, they are likely to go too far in experimenting with it.                                                                            | 4%<br>9                 | 18%<br>7 | 59%<br>5 | 16%<br>3 | 3%<br>5  |

(continued)

| Number     | Item                                                                                                                                                                            | % Responses and Weights |          |          |          |         |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------|----------|----------|---------|
|            |                                                                                                                                                                                 | SA                      | A        | D        | SD       | Blank   |
| 10. (423)* | There is hardly anything lower than a person who does not feel great love, gratitude, and respect for his parents.                                                              | 19%<br>8                | 37%<br>6 | 32%<br>4 | 3%<br>2  | 9%<br>6 |
| 11. (428)* | When you are young, you can afford to be an enthusiastic supporter of reform and change, but as you grow older, you learn that it is wiser to be cautious about making changes. | 5%<br>9                 | 51%<br>7 | 35%<br>4 | 4%<br>2  | 6%<br>6 |
| 12. (432)* | The world as it is is a pretty good place. We really don't need all this concern about change.                                                                                  | 2%<br>9                 | 24%<br>8 | 58%<br>6 | 11%<br>3 | 5%<br>6 |
| 13. (448)* | The future is in God's hands. I will await what He sends and accept what comes as His will for me.                                                                              | 21%<br>7                | 50%<br>6 | 22%<br>4 | 3%<br>1  | 6%<br>6 |
| 14. (341)* | If a child is allowed to talk back to his parents, he will lose respect for them.                                                                                               | 25%<br>7                | 50%<br>6 | 19%<br>3 | 2%<br>1  | 4%<br>6 |
| 15. (439)* | The facts on crime and sexual immorality show that we will have to crack down harder on young people if we are going to save our moral standards.                               | 12%<br>8                | 44%<br>6 | 34%<br>4 | 5%<br>2  | 5%<br>5 |
| 16. (449)* | If I were to follow my deepest concern, I would concentrate on trying to preserve the very best of a long tradition. This seems to me to be a primary need today.               | 6%<br>9                 | 42%<br>7 | 42%<br>4 | 4%<br>1  | 6%<br>6 |
| 17. (434)* | The best way to improve world conditions is for each man to take care of his own corner of the vineyard.                                                                        | 7%<br>9                 | 43%<br>7 | 39%<br>5 | 6%<br>2  | 5%<br>6 |
| 18. (429)* | Some equality in marriage is a good thing; but by and large the husband ought to have the main say-so in family matters.                                                        | 13%<br>8                | 51%<br>6 | 28%<br>4 | 4%<br>2  | 5%<br>6 |

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\* Serial number of the items in the questionnaire.

Results of Analyses for Scale # 5: Family Relation Stereotypes

B. Univariate analysis of variance of the scale scores for scale # 5.

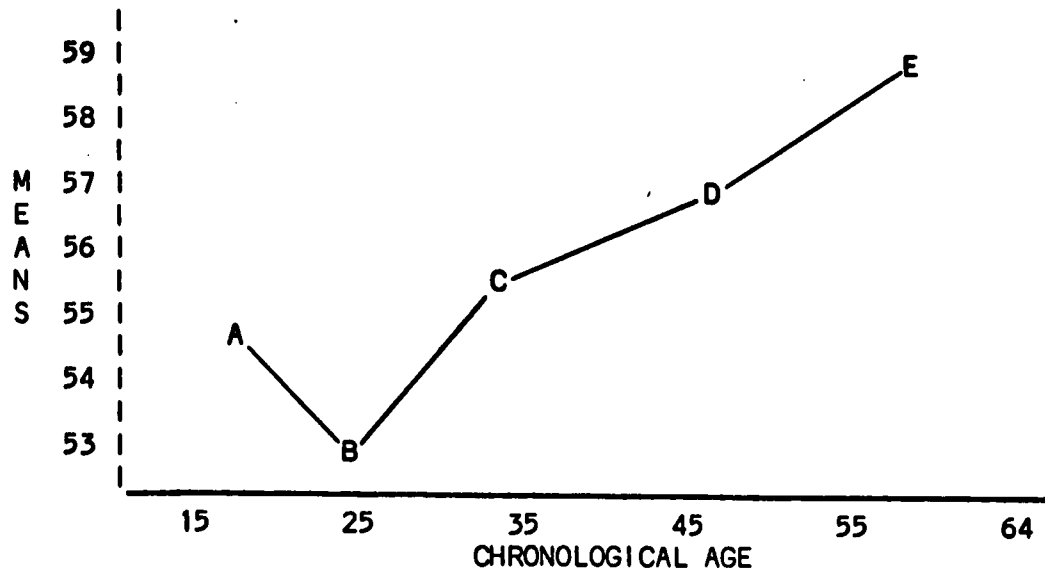


Figure 4.9: Graph of Age Group Means for Scale # 5.

TABLE 4.21

MEANS AND STANDARD DEVIATIONS OF SCALE SCORES FOR SCALE # 5

| Age Groups | N    | Means | Standard Deviations |
|------------|------|-------|---------------------|
| A          | 559  | 54.84 | 7.08                |
| B          | 670  | 53.04 | 7.32                |
| C          | 1111 | 55.18 | 6.37                |
| D          | 1225 | 56.83 | 6.15                |
| E          | 769  | 58.92 | 6.04                |

Homogeneity of Variance Test: Chi-Square = 45.15;  $p < .001$

TABLE 4.22

ANALYSIS OF VARIANCE TABLE FOR SCALE SCORES OF SCALE # 5

| Source | df   | MS     | F     | P       |
|--------|------|--------|-------|---------|
| Groups | 4    | 3685.0 | 87.09 | <.00001 |
| Error  | 4329 | 42.31  |       |         |

TABLE 4.23

PROBABILITY MATRIX OF PAIRWISE COMPARISONS OF MEANS OF SCALE # 5

USING SCHEFFE'S MULTIPLE COMPARISON METHOD

| Groups | A   | B | C   | D | E |
|--------|-----|---|-----|---|---|
| A      | -   | 0 | .90 | 0 | 0 |
| B      | 0   | - | 0   | 0 | 0 |
| C      | .90 | 0 | -   | 0 | 0 |
| D      | 0   | 0 | 0   | - | 0 |
| E      | 0   | 0 | 0   | 0 | - |

Note: an entry of zero designates  $p < .001$

C. Multivariate profile analysis of the five age groups on the items of scale # 5.

TABLE 4.24  
AGE GROUP MEANS FOR THE 18 ITEMS OF SCALE # 5

| ===== |             |      |       |       |      |      |       |      |       |      |
|-------|-------------|------|-------|-------|------|------|-------|------|-------|------|
| Group | Item Number |      |       |       |      |      |       |      |       |      |
|       | 1           | 2    | 3     | 4     | 5    | 6    | 7     | 8    | 9     | 10   |
| A     | 2.29        | .85  | .37   | .24   | .33  | -.11 | -.20  | .14  | -.81  | -.80 |
| B     | .10         | -.25 | -1.13 | -1.20 | -.77 | -.90 | -1.12 | -.72 | -1.19 | -.84 |
| C     | -.72        | .06  | .10   | -.62  | -.59 | -.53 | -.63  | -.70 | -.66  | -.73 |
| D     | -.42        | -.18 | .35   | .15   | -.03 | .10  | .32   | .23  | .40   | .33  |
| E     | .40         | .01  | .14   | 1.22  | 1.07 | 1.10 | 1.15  | .77  | 1.34  | 1.26 |

| Group | Item Number |       |       |      |       |       |       |      |      | Row Mean |
|-------|-------------|-------|-------|------|-------|-------|-------|------|------|----------|
|       | 11          | 12    | 13    | 14   | 15    | 16    | 17    | 18   |      |          |
| A     | -.64        | -1.34 | -.33  | -.83 | -1.68 | -1.31 | -1.27 | .97  | -.20 |          |
| B     | -1.19       | -1.48 | -1.56 | -.72 | -1.21 | -1.23 | -.68  | -.17 | -.90 |          |
| C     | -.53        | .18   | -.43  | .32  | -.07  | -.35  | .38   | .58  | -.27 |          |
| D     | .33         | .34   | .54   | .08  | .35   | .38   | -.06  | -.27 | .16  |          |
| E     | 1.22        | .88   | 1.00  | .33  | 1.07  | 1.23  | .53   | -.55 | .79  |          |

TABLE 4.25  
MULTIVARIATE ANALYSIS OF AGE GROUP MEAN PROFILES  
FOR SCALE # 5

| =====  |     |     |      |         |
|--------|-----|-----|------|---------|
| Lambda | df1 | df2 | F*   | P       |
| .00771 | 68  | 116 | 4.19 | <.00001 |

\*Rao's approximate F-test using Wilks' Lambda.

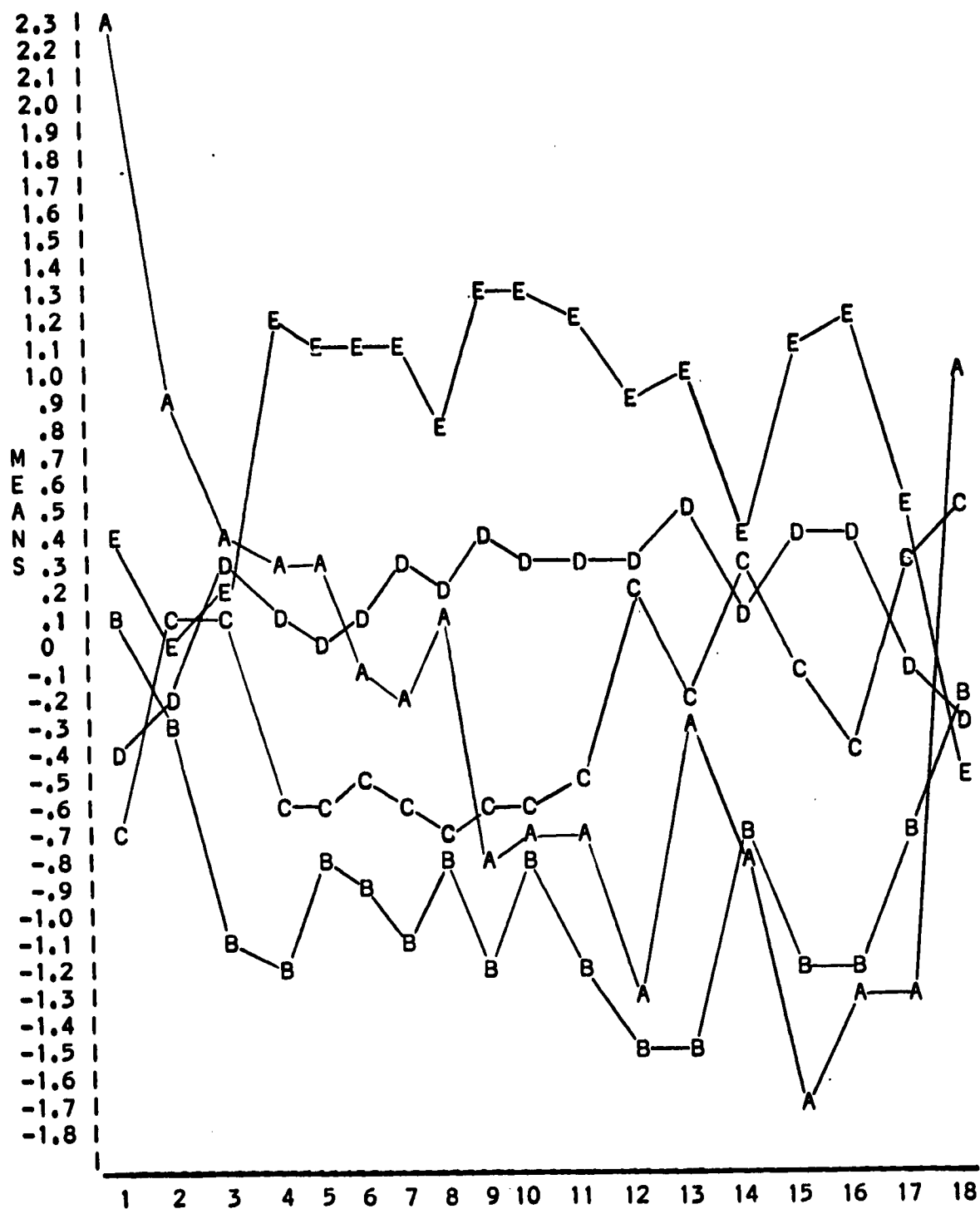


Figure 4.10: Graph of Age Group Mean Profiles for the 18 Items of  
Scale # 5: Family Relation Stereotypes

#### D. Discussion of results for scale #5: Family Relationship Stereotypes

Inspection of the group means (Figure 4.9) reveals that endorsement of common family relationship stereotypes is lowest during young adulthood (group B), and increases steadily with age.

Again, the group mean profiles are not parallel. As can be seen from Figure 4.10, the profile of group A oscillates widely and includes both the highest and the lowest mean responses. Hence, the function would not appear useful for making comparative statements about the youngest age group. Its stability for the remaining age groups could probably be improved by deleting items which appear to have a U-shaped relationship with age, e.g., items # 1, 2, 3, & 18.

Note that according to the Scheffe test (Table 4.23) the mean for group A is equal to that of group C. However, the profiles for these two groups suggest a divergence in their emphasis of stereotypes. There appears to be a shift from concern about obedience among the young toward concern about respecting the rights of others among the adults.



Scale # 6: Acceptance of the Authority of Religion

## A. Items for scale # 6:

Choice of answers for the items: A - I strongly agree  
 B - I agree  
 C - I agree in part  
 D - I disagree  
 E - I strongly disagree

| Number   | Item                                                                                                                                                                    | % Responses and Weights |     |     |     |    |       |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----|-----|-----|----|-------|
|          |                                                                                                                                                                         | A                       | B   | C   | D   | E  | Blank |
| 1. (76)* | The Bible is the word of God. God inspired men to report verbally what He said. The Bible in the original texts contained no errors.                                    | 24%                     | 35% | 34% | 4%  | 1% | 3%    |
|          |                                                                                                                                                                         | 9                       | 7   | 6   | 4   | 1  | 7     |
| 2. (78)* | God raised Jesus from the dead. Jesus arose in His crucified body, left the tomb empty, appeared to His disciples and friends, and ascended into heaven.                | 40%                     | 41% | 13% | 2%  | 1% | 3%    |
|          |                                                                                                                                                                         | 9                       | 7   | 5   | 4   | 1  | 7     |
| 3. (79)* | Today, just as at Pentecost, the gift of the Holy Spirit is evidenced by the person speaking in unknown tongues. This promise should be claimed in modern churches.     | 12%                     | 15% | 51% | 14% | 2% | 5%    |
|          |                                                                                                                                                                         | 9                       | 7   | 7   | 7   | 4  | 7     |
| 4. (81)* | Jesus Christ died for sinners. As a substitute, He suffered the just penalty due us for our sins in order to satisfy the wrath of God and to save guilty men from hell. | 37%                     | 11% | 43% | 6%  | 1% | 3%    |
|          |                                                                                                                                                                         | 9                       | 7   | 6   | 5   | 2  | 7     |
| 5. (82)* | Today, just as in ancient times, God frequently intervenes to work miracles, especially in response to prayer, as for the healing of the sick.                          | 15%                     | 14% | 63% | 5%  | 1% | 3%    |
|          |                                                                                                                                                                         | 9                       | 7   | 7   | 4   | 1  | 7     |
| 6. (83)* | The belief that human beings descended from some lower animal form is contrary to the Word of God and un-Christian.                                                     | 27%                     | 14% | 29% | 21% | 5% | 4%    |
|          |                                                                                                                                                                         | 9                       | 7   | 7   | 7   | 5  | 7     |

(continued)

| Number    | Item                                                                                                                  | % Responses and Weights |          |          |          |          |         |
|-----------|-----------------------------------------------------------------------------------------------------------------------|-------------------------|----------|----------|----------|----------|---------|
|           |                                                                                                                       | A                       | B        | C        | D        | E        | Blank   |
| 7. (84)*  | Baptism is a Holy Sacrament and is necessary for salvation.                                                           | 34%<br>8                | 15%<br>7 | 43%<br>7 | 4%<br>4  | 1%<br>1  | 3%<br>7 |
| 8. (85)*  | In Holy Communion we are given the true Body and Blood of Jesus for the forgiveness of our sins.                      | 28%<br>9                | 51%<br>7 | 12%<br>6 | 6%<br>4  | 1%<br>1  | 3%<br>7 |
| 9. (86)*  | The Ten Commandments are the Law of God and are God's rules for the way all men must live if they are to be good men. | 19%<br>8                | 51%<br>7 | 25%<br>6 | 2%<br>2  | 0%<br>1  | 3%<br>7 |
| 10. (87)* | Pastors have the right and the power to forgive sins and to ex-communicate the unrepentant sinner.                    | 5%<br>9                 | 33%<br>8 | 42%<br>7 | 7%<br>6  | 10%<br>6 | 3%<br>7 |
| 11. (88)* | The nature of man is that he is absolutely and completely evil, totally depraved, and there is nothing good in him.   | 5%<br>9                 | 32%<br>8 | 28%<br>7 | 17%<br>6 | 13%<br>7 | 5%<br>7 |

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\* Serial number of the items in the questionnaire.

# Results of Analyses for Scale 6: Acceptance of the Authority of Religion

## B. Univariate analysis of variance of the scale scores for scale # 6.

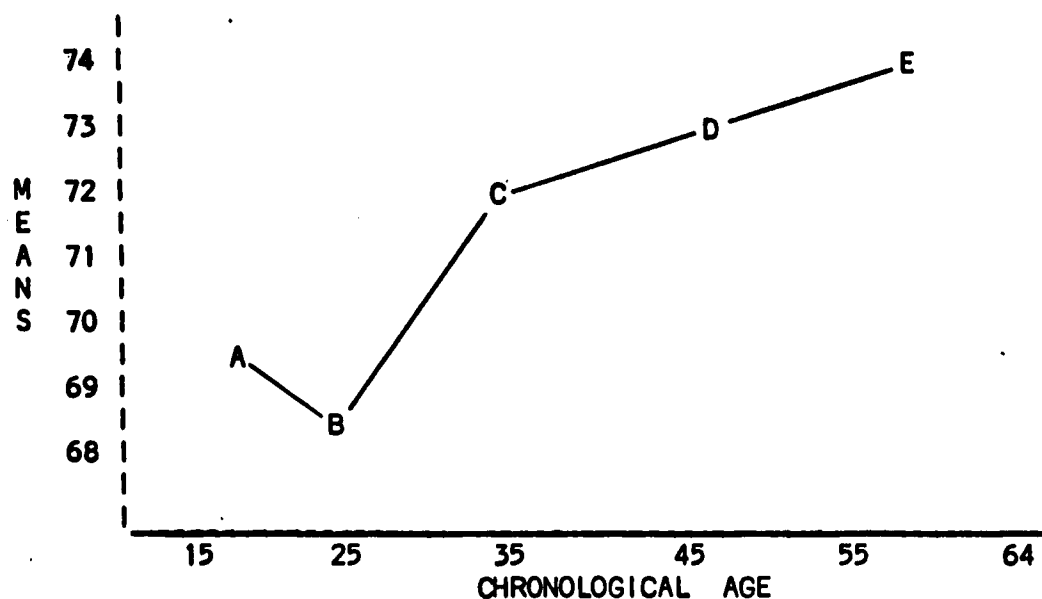


Figure 4.11: Graph of the Age Group Means for Scale # 6.

TABLE 4.26

### MEANS AND STANDARD DEVIATIONS OF SCALE SCORES FOR SCALE # 6

| Age Groups | N    | Means | Standard Deviations |
|------------|------|-------|---------------------|
| A          | 559  | 69.71 | 7.39                |
| B          | 670  | 68.76 | 7.60                |
| C          | 1111 | 71.86 | 7.00                |
| D          | 1225 | 72.86 | 6.86                |
| E          | 769  | 73.79 | 7.75                |

Homogeneity of Variance Test: Chi-Square = 20.41; p=.004

TABLE 4.27

## ANALYSIS OF VARIANCE TABLE FOR SCALE SCORES OF SCALE # 6

| Source | df   | MS     | F     | P       |
|--------|------|--------|-------|---------|
| Groups | 4    | 3252.0 | 61.95 | <.00001 |
| Error  | 4329 | 52.5   |       |         |

TABLE 4.28

 PROBABILITY MATRIX OF PAIRWISE COMPARISONS OF MEANS OF SCALE # 6  
 USING SCHEFFE'S MULTIPLE COMPARISON METHOD

| Groups | A   | B   | C   | D   | E   |
|--------|-----|-----|-----|-----|-----|
| A      | -   | .26 | 0   | 0   | 0   |
| B      | .26 | -   | 0   | 0   | 0   |
| C      | 0   | 0   | -   | .03 | 0   |
| D      | 0   | 0   | .03 | -   | .10 |
| E      | 0   | 0   | 0   | .10 | -   |

Note: an entry of zero designates  $p < .001$

C. Multivariate profile analysis of the five age groups on the items of scale # 6.

TABLE 4.29

## AGE GROUP MEANS FOR THE 11 ITEMS OF SCALE # 6

| ===== |             |       |       |       |       |       |       |
|-------|-------------|-------|-------|-------|-------|-------|-------|
| Group | Item Number |       |       |       |       |       |       |
|       | 1           | 2     | 3     | 4     | 5     | 6     | 7     |
| A     | -.92        | -1.28 | -.54  | -.27  | -.82  | -.94  | -.69  |
| B     | -1.56       | -1.44 | -1.09 | -1.45 | -1.44 | -1.49 | -1.44 |
| C     | -.13        | .03   | -.45  | .06   | -.03  | -.04  | .15   |
| D     | .38         | .25   | .24   | .11   | .51   | .47   | .49   |
| E     | 1.08        | 1.08  | 1.13  | .87   | .71   | .75   | .50   |

| Group | Item Number |       |       |       | Row Mean |
|-------|-------------|-------|-------|-------|----------|
|       | 8           | 9     | 10    | 11    |          |
| A     | -1.06       | -1.02 | -1.04 | -1.19 | -.89     |
| B     | -1.40       | -1.59 | -1.33 | -1.44 | -1.42    |
| C     | -.06        | .01   | -.19  | -.06  | -.06     |
| D     | .52         | .52   | .64   | .70   | .44      |
| E     | .78         | .82   | .75   | .65   | .83      |

TABLE 4.30

## MULTIVARIATE ANALYSIS OF AGE GROUP MEAN PROFILES FOR SCALE # 6

| =====  |     |     |      |     |
|--------|-----|-----|------|-----|
| Lambda | df1 | df2 | F*   | P   |
| .2414  | 40  | 138 | 1.52 | .04 |

\*Rao's approximate F-test using Wilks' Lambda.

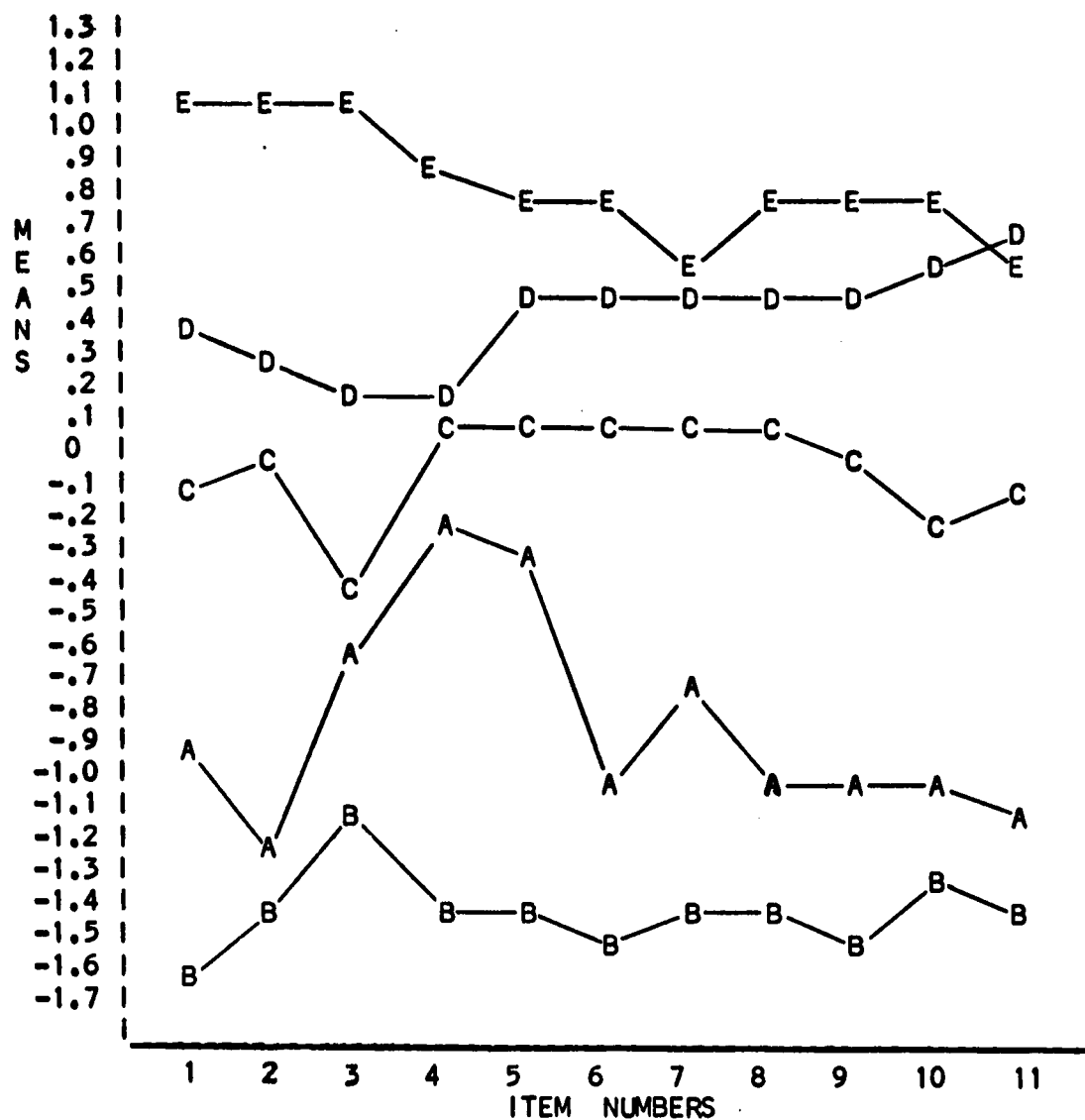


Figure 4.12: Graph of the Age Group Mean Profiles for the 11 Items of Scale # 6: Acceptance of the Authority of Religion.

**D. Discussion of results for scale # 6: Acceptance of the Authority of Religion.**

Inspection of the group means (Figure 4.11) reveals that acceptance of the authority of religion decreases slightly from youth to young adulthood, and increases thereafter for the remainder of the age range considered here. Since the group profiles are parallel for all five age groups, the scale is stable over the range from 15 to 64 years.

Scale # 7: Conformity to Cultural Conventions and Customs

## A. Items for scale # 7:

Choice of answers for these items:

1      2      3      4      5      6  
 Accept      Impossible  
 most easily      to accept

| Number    | Item                                                                 | % Responses and Weights |     |     |     |     |    |       |
|-----------|----------------------------------------------------------------------|-------------------------|-----|-----|-----|-----|----|-------|
|           |                                                                      | 1                       | 2   | 3   | 4   | 5   | 6  | Blank |
| 1. (376)* | Conforming in matters of clothing and personal grooming.             | 31%                     | 23% | 21% | 11% | 6%  | 4% | 5%    |
|           |                                                                      | 9                       | 7   | 5   | 4   | 2   | 1  | 6     |
| 2. (378)* | Having little decision making power in the first few years of a job. | 30%                     | 23% | 21% | 12% | 6%  | 3% | 6%    |
|           |                                                                      | 9                       | 7   | 5   | 4   | 2   | 2  | 6     |
| 3. (379)* | Abiding by laws you don't agree with.                                | 16%                     | 22% | 22% | 18% | 13% | 6% | 5%    |
|           |                                                                      | 9                       | 8   | 6   | 5   | 3   | 3  | 6     |
| 4. (380)* | Being expected to show respect for all authority.                    | 34%                     | 18% | 14% | 10% | 6%  | 4% | 5%    |
|           |                                                                      | 9                       | 6   | 5   | 3   | 2   | 1  | 6     |
| 5. (382)* | The assumption that leisure must be justified (earned).              | 24%                     | 18% | 17% | 15% | 12% | 9% | 5%    |
|           |                                                                      | 9                       | 7   | 6   | 5   | 4   | 3  | 6     |

\* Serial number of the items in the questionnaire.



Results of Analysis for Scale # 7: Conformity to Cultural Conventions

B. Univariate analysis of variance of the scale scores for scale # 7:

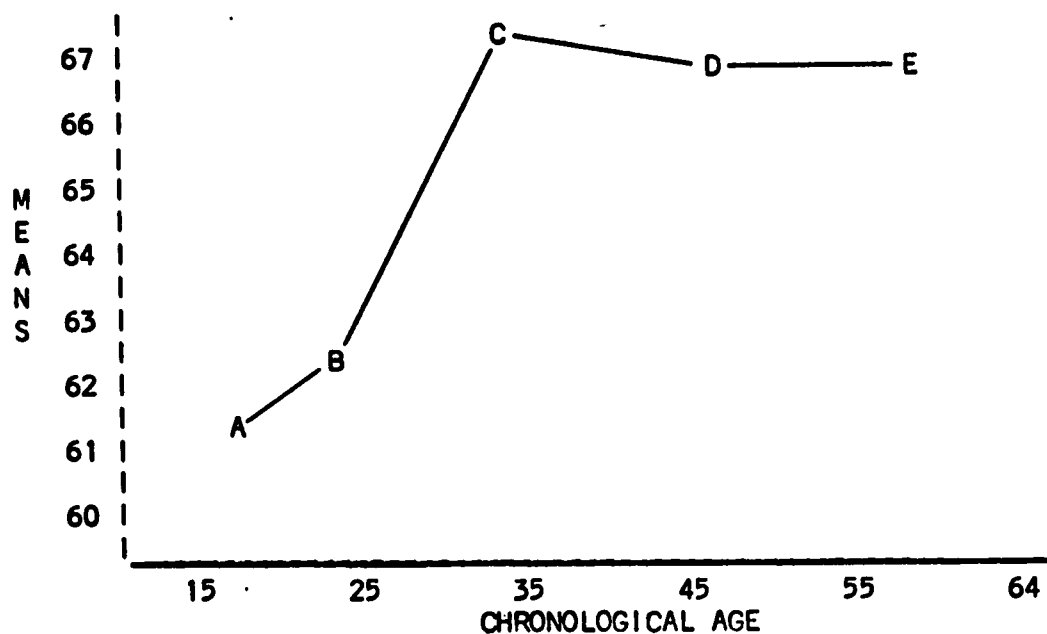


Figure 4.13: Graph of Age Group Means for Scale # 7.

TABLE 4.31

MEANS AND STANDARD DEVIATIONS OF SCALE SCORES FOR SCALE # 7

| Age Groups | N    | Means | Standard Deviations |
|------------|------|-------|---------------------|
| A          | 559  | 61.42 | 11.80               |
| B          | 670  | 62.29 | 11.96               |
| C          | 1111 | 67.39 | 10.70               |
| D          | 1225 | 66.93 | 11.70               |
| E          | 769  | 65.97 | 13.06               |

Homogeneity of Variance Test: Chi-Square = 37.25;  $p < .001$

TABLE 4.32  
ANALYSIS OF VARIANCE TABLE FOR SCALE SCORES OF SCALE # 7

| =====  |      |        |       |         |
|--------|------|--------|-------|---------|
| Source | df   | MS     | F     | P       |
| <hr/>  |      |        |       |         |
| Groups | 4    | 5704.0 | 41.23 | <.00001 |
| Error  | 4329 | 138.35 |       |         |
| <hr/>  |      |        |       |         |

TABLE 4.33  
PROBABILITY MATRIX OF PAIRWISE COMPARISONS OF MEANS OF SCALE # 7  
USING SCHEFFE'S MULTIPLE COMPARISON METHOD

| =====  |     |     |     |     |     |
|--------|-----|-----|-----|-----|-----|
| Groups | A   | B   | C   | D   | E   |
| <hr/>  |     |     |     |     |     |
| A      | -   | .80 | 0   | 0   | 0   |
| B      | .80 | -   | 0   | 0   | 0   |
| C      | 0   | 0   | -   | .92 | .16 |
| D      | 0   | 0   | .92 | -   | .54 |
| E      | 0   | 0   | .16 | .54 | -   |
| <hr/>  |     |     |     |     |     |

Note: an entry of zero designates  $p < .001$

C. Multivariate profile analysis of the five age groups on the items of scale # 7.

TABLE 4.34  
AGE GROUP MEANS FOR THE 5 ITEMS OF SCALE # 7

| Group | Item Number |       |       |       |       | Row Mean |
|-------|-------------|-------|-------|-------|-------|----------|
|       | 1           | 2     | 3     | 4     | 5     |          |
| A     | -1.44       | -1.68 | -1.63 | -1.95 | -1.18 | -1.58    |
| B     | -1.36       | -1.15 | -1.05 | -1.24 | -1.35 | -1.23    |
| C     | .26         | .15   | .25   | .21   | -.06  | .16      |
| D     | .71         | .46   | .42   | .44   | .59   | .52      |
| E     | .33         | .66   | .52   | .78   | .72   | .60      |

TABLE 4.35  
MULTIVARIATE ANALYSIS OF AGE GROUP MEAN PROFILES  
USING WILKS' LAMBDA

| Lambda | df1 | df2 | F*   | P   |
|--------|-----|-----|------|-----|
| .5902  | 16  | 129 | 1.51 | .10 |

\*Rao's approximate F-test using Wilks' Lambda.

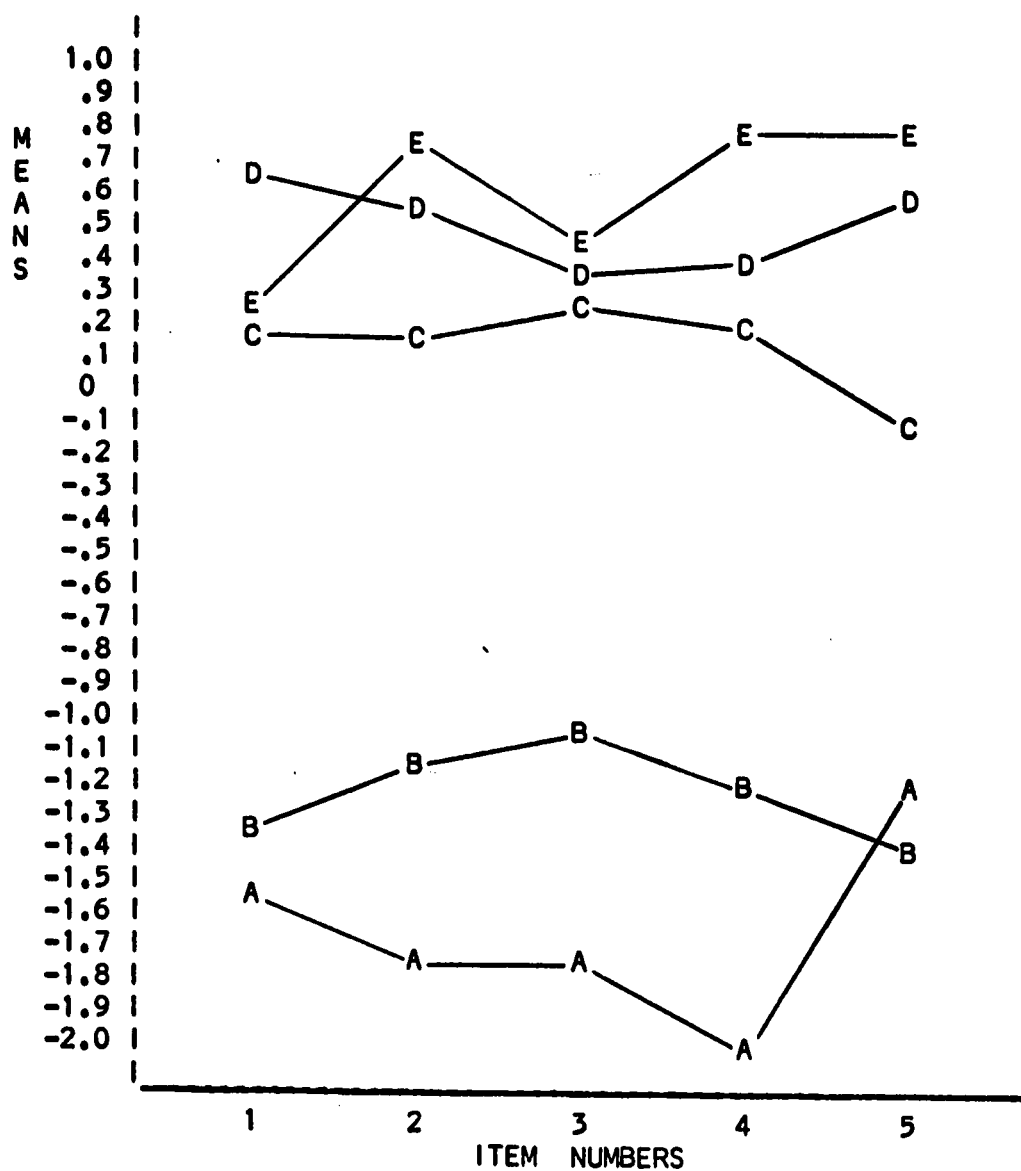


Figure 4.14: Graph of the Age Group Mean Profiles for the 5 Items of scale # 7: Conformity to Cultural Conventions and Customs.

**D. Discussion of results for scale # 7: Conformity to Cultural Conventions and Customs.**

Inspection of the group means (Figure 4.13) reveals that attitudes of conformity are lowest during youth and young adulthood. They appear to reach a peak during adulthood, and then decrease slightly. However, the differences between groups C, D, & E are non-significant. Since the group profiles are parallel for all five age groups, the scale is a stable indicator of conformity to cultural conventions and customs.

**Scale # 8: Social Distance Toward Others****A. Items for scale # 8:**

Choice of answers for all items:

- 1 - Would marry into group
- 2 - Would have as close friends
- 3 - Would have as next door neighbors
- 4 - Would work in same office
- 5 - Would have as speaking acquaintances only
- 6 - Would not want in my community
- 7 - Would debar from my nation

| Number     | Item                                             | % Responses and Weights |          |          |          |          |          |          |          |
|------------|--------------------------------------------------|-------------------------|----------|----------|----------|----------|----------|----------|----------|
|            |                                                  | 1                       | 2        | 3        | 4        | 5        | 6        | 7        | Blank    |
| 1. (260)*  | Members of Students for Democratic Society (SDS) | 5%<br>2                 | 11%<br>4 | 12%<br>5 | 10%<br>6 | 20%<br>7 | 21%<br>8 | 12%<br>8 | 9%<br>6  |
| 2. (261)*  | Negroes                                          | 8%<br>2                 | 38%<br>5 | 15%<br>8 | 18%<br>8 | 10%<br>9 | 6%<br>9  | 1%<br>9  | 5%<br>6  |
| 3. (269)*  | Communists                                       | 2%<br>1                 | 5%<br>2  | 6%<br>3  | 4%<br>4  | 10%<br>6 | 28%<br>7 | 39%<br>8 | 6%<br>6  |
| 4. (275)*  | Drug addicts                                     | 2%<br>1                 | 13%<br>2 | 8%<br>4  | 9%<br>6  | 20%<br>7 | 38%<br>8 | 5%<br>9  | 6%<br>6  |
| 5. (264)*  | Members of John Birch Society                    | 7%<br>3                 | 14%<br>5 | 17%<br>5 | 10%<br>7 | 20%<br>7 | 15%<br>8 | 6%<br>9  | 11%<br>6 |
| 6. (258)*  | Hippies                                          | 6%<br>2                 | 12%<br>3 | 7%<br>5  | 9%<br>5  | 21%<br>7 | 33%<br>8 | 8%<br>9  | 5%<br>6  |
| 7. (262)*  | Welfare mothers with illegitimate children       | 5%<br>2                 | 23%<br>4 | 18%<br>7 | 13%<br>7 | 20%<br>8 | 13%<br>9 | 1%<br>9  | 7%<br>7  |
| 8. (272)*  | Atheists                                         | 7%<br>2                 | 19%<br>4 | 16%<br>6 | 8%<br>7  | 16%<br>8 | 20%<br>9 | 7%<br>9  | 8%<br>7  |
| 9. (274)*  | Ex-convicts                                      | 10%<br>2                | 24%<br>5 | 17%<br>6 | 16%<br>8 | 16%<br>9 | 11%<br>9 | 1%<br>9  | 6%<br>7  |
| 10. (271)* | Homosexuals                                      | 1%<br>3                 | 8%<br>2  | 10%<br>4 | 10%<br>5 | 21%<br>7 | 37%<br>8 | 7%<br>9  | 6%<br>7  |
| 11. (259)* | Alcoholics                                       | 2%<br>2                 | 19%<br>3 | 13%<br>5 | 12%<br>6 | 29%<br>8 | 17%<br>9 | 2%<br>9  | 6%<br>6  |
| 12. (265)* | Mentally disturbed persons                       | 2%<br>3                 | 33%<br>5 | 17%<br>6 | 7%<br>7  | 22%<br>8 | 11%<br>9 | 0%<br>9  | 8%<br>6  |

\* Serial number of the items in the questionnaire.

# Results of Analyses for Scale # 8: Social Distance Toward Others

## B. Univariate analysis of variance of the scale scores for scale # 8.

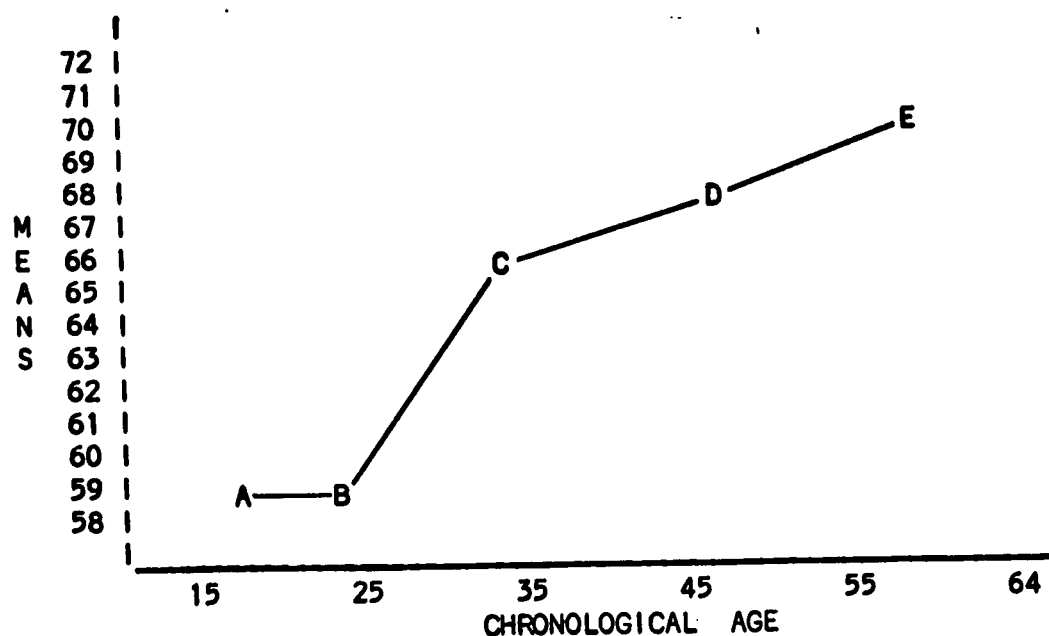


Figure 4.15: Graph of Age Group Means for Scale # 8.

TABLE 4.36

## MEANS AND STANDARD DEVIATIONS OF SCALE SCORES FOR SCALE # 8

| Age Groups | N    | Means | Standard Deviations |
|------------|------|-------|---------------------|
| A          | 559  | 58.85 | 14.04               |
| B          | 670  | 58.98 | 14.26               |
| C          | 1111 | 65.94 | 11.92               |
| D          | 1225 | 68.25 | 10.34               |
| E          | 769  | 70.16 | 9.90                |

Homogeneity of Variance Test: Chi-Square = 173.89;  $p < .001$

TABLE 4.37  
ANALYSIS OF VARIANCE TABLE FOR SCALE SCORES OF SCALE # 8

| =====  |      |         |        |         |
|--------|------|---------|--------|---------|
| Source | df   | MS      | F      | P       |
| <hr/>  |      |         |        |         |
| Groups | 4    | 19808.0 | 140.59 | <.00001 |
| Error  | 4329 | 140.9   |        |         |
| <hr/>  |      |         |        |         |

TABLE 4.38  
PROBABILITY MATRIX OF PAIRWISE COMPARISONS OF MEANS OF SCALE # 8  
USING SCHEFFE'S MULTIPLE COMPARISON METHOD

| =====  |     |     |   |     |     |
|--------|-----|-----|---|-----|-----|
| Groups | A   | B   | C | D   | E   |
| <hr/>  |     |     |   |     |     |
| A      | -   | .99 | 0 | 0   | 0   |
| B      | .99 | -   | 0 | 0   | 0   |
| C      | 0   | 0   | - | 0   | 0   |
| D      | 0   | 0   | 0 | -   | .02 |
| E      | 0   | 0   | 0 | .02 | -   |
| <hr/>  |     |     |   |     |     |

Note: an entry of zero designates  $p < .001$



C. Multivariate profile analysis of the five age groups on the twelve items of scale # 8.

TABLE 4.39

## AGE GROUP MEANS FOR THE 11 ITEMS OF SCALE # 8

| ===== |       |       |             |       |       |       |       |
|-------|-------|-------|-------------|-------|-------|-------|-------|
| Group | 1     | 2     | Item Number |       | 5     | 6     | 7     |
|       |       |       | 3           | 4     |       |       |       |
| A     | -2.07 | -1.76 | -1.70       | -1.70 | -1.68 | -1.67 | -1.53 |
| B     | -1.27 | -1.29 | -1.43       | -1.34 | -.72  | -1.47 | -1.48 |
| C     | .35   | -.12  | .25         | .16   | -.39  | .15   | .16   |
| D     | .63   | .53   | .58         | .47   | .56   | .65   | .47   |
| E     | .48   | 1.01  | .63         | .78   | .85   | .67   | .82   |

| Group | 8     | 9     | Item Number |       | 12    | Row Mean |
|-------|-------|-------|-------------|-------|-------|----------|
|       |       |       | 10          | 11    |       |          |
| A     | -1.44 | -.98  | -.75        | -.37  | -.05  | -1.31    |
| B     | -1.40 | -1.32 | -1.49       | -1.30 | -1.14 | -1.31    |
| C     | -.03  | -.38  | -.08        | -.39  | -.14  | -.04     |
| D     | .34   | .31   | .35         | .34   | .16   | .45      |
| E     | 1.08  | 1.28  | .95         | 1.04  | .76   | .86      |

TABLE 4.40

## MULTIVARIATE ANALYSIS OF AGE GROUP MEAN PROFILES FOR SCALE # 8

| =====  |     |     |      |         |
|--------|-----|-----|------|---------|
| Lambda | df1 | df2 | F*   | P       |
| .0804  | 44  | 136 | 2.88 | <.00001 |

\*Rao's approximate F-test using Wilks' Lambda.

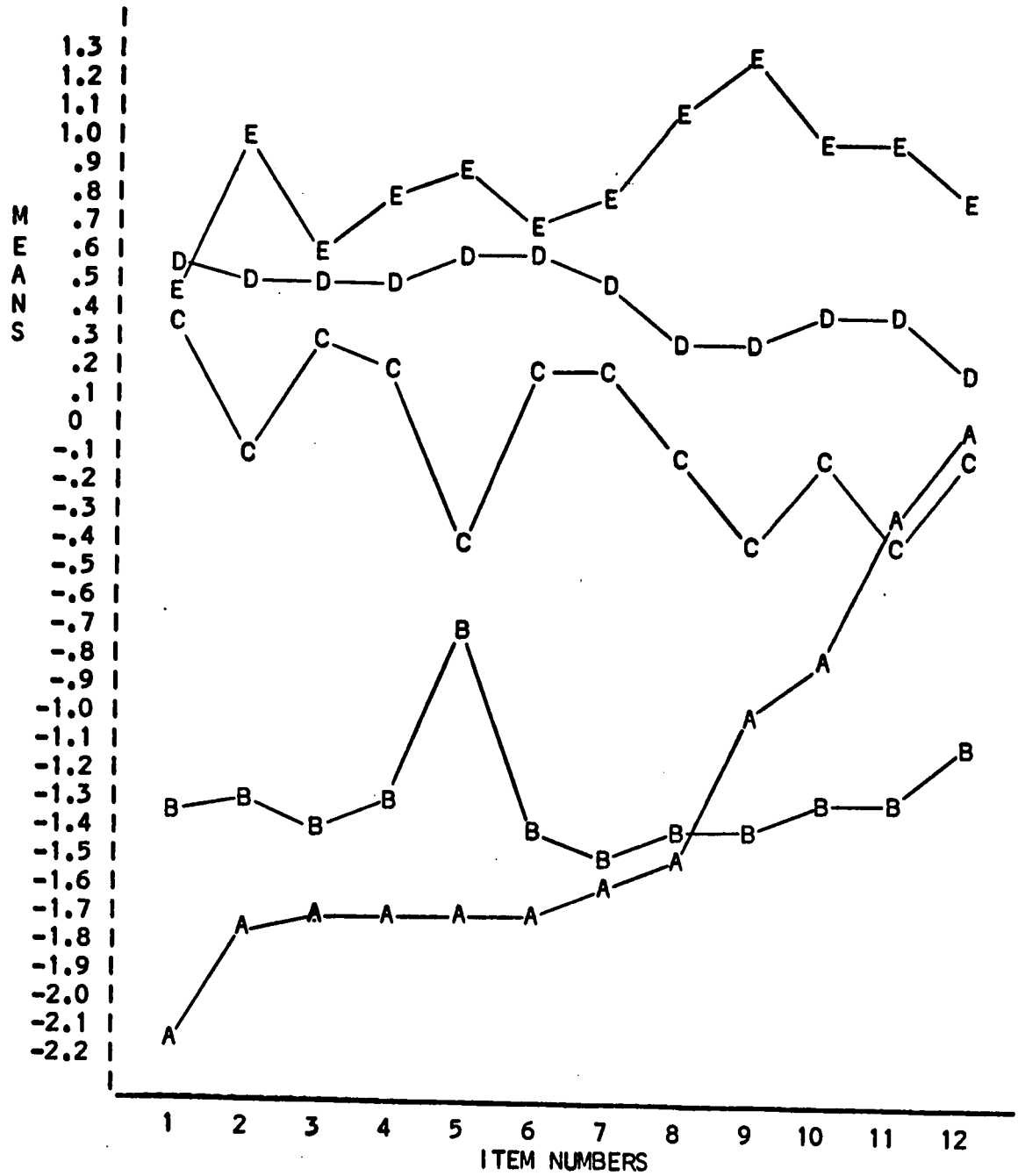


Figure 4.16: Age Group Mean Profiles for the 12 Items of Scale #8:  
Social Distance Toward Others.

**D. Discussion of results for scale # 8: Social Distance Toward Others.**

The graph of the age group means (Figure 4.15) indicates that social distance increases sharply after young adulthood and continues to increase for the remainder of the age range. Unfortunately, the profile analysis shows that the scale lacks stability for the five age groups. Inspection of the profile graph ( Figure 4.16 ) reveals that group A (Youth) appears to be the main origin for this. Hence, comparative statements based on the scale scores for group A may lack validity. However, the scale appears to be stable for all the other age groups.

Scale # 9: Attitude Toward Social Reform

## A. Items for scale # 9:

Choice of answers for item 1: Yes / ? / No

| Number    | Item                        | % Responses and Weights |    |     |       |
|-----------|-----------------------------|-------------------------|----|-----|-------|
|           |                             | Yes                     | ?  | No  | Blank |
| 1. ( 32)* | All war is basically wrong. | 52%                     | 7% | 39% | 2%    |
|           |                             | 7                       | 5  | 4   | 6     |

Choice of answers for item 2:

|                   |   |   |           |   |                 |   |
|-------------------|---|---|-----------|---|-----------------|---|
| 1                 | 2 | 3 | 4         | 5 | 6               | 7 |
| No involvement    |   |   | (neutral) |   | Work for social |   |
| in social issues. |   |   |           |   | reform first.   |   |
| Only preach the   |   |   |           |   |                 |   |
| gospel.           |   |   |           |   |                 |   |

| Number    | Item                                    | % Responses and Weights |     |     |     |     |    |    |       |
|-----------|-----------------------------------------|-------------------------|-----|-----|-----|-----|----|----|-------|
|           |                                         | 1                       | 2   | 3   | 4   | 5   | 6  | 7  | Blank |
| 2. (256)* | The primary role of the church is . . . | 11%                     | 10% | 21% | 17% | 21% | 9% | 8% | 3%    |
|           |                                         | 1                       | 2   | 4   | 5   | 7   | 9  | 9  | 5     |

Choice of answers for item 3:

|              |   |   |           |   |                |   |
|--------------|---|---|-----------|---|----------------|---|
| 1            | 2 | 3 | 4         | 5 | 6              | 7 |
| Far too much |   |   | (neutral) |   | Far too little |   |

| Number    | Item                                                                         | % Responses and Weights |    |     |     |     |     |     |       |
|-----------|------------------------------------------------------------------------------|-------------------------|----|-----|-----|-----|-----|-----|-------|
|           |                                                                              | 1                       | 2  | 3   | 4   | 5   | 6   | 7   | Blank |
| 3. (257)* | My present feeling is that the church is now involved in social issues . . . | 9%                      | 6% | 16% | 20% | 20% | 10% | 16% | 4%    |
|           |                                                                              | 1                       | 2  | 3   | 4   | 6   | 8   | 9   | 5     |

(continued)

## Choice of answers for items 4 to 10:

SA - Strongly Agree  
A - Agree

SD - Strongly Disagree  
D - Disagree

| Number     | Item                                                                                                                                                                                  | % Responses and Weights |          |          |          |         |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------|----------|----------|---------|
|            |                                                                                                                                                                                       | SA                      | A        | D        | SD       | Blank   |
| 4. (285)*  | People in a congregation should accept those who differ radically in what they believe is the work of the Church.                                                                     | 11%<br>9                | 49%<br>6 | 33%<br>4 | 3%<br>2  | 5%<br>6 |
| 5. (293)*  | Lutheran Church bodies should attempt to get their congregations to adopt an "open church" policy of accepting persons as members who are from minority racial or nationality groups. | 28%<br>8                | 50%<br>5 | 16%<br>3 | 3%<br>1  | 4%<br>5 |
| 6. (294)*  | The elimination of all racial discrimination is a goal of Christianity.                                                                                                               | 31%<br>8                | 49%<br>5 | 14%<br>3 | 3%<br>1  | 4%<br>6 |
| 7. (310)*  | The death penalty is barbaric and should be abolished.                                                                                                                                | 9%<br>9                 | 27%<br>7 | 46%<br>4 | 14%<br>3 | 4%<br>5 |
| 8. (346)*  | Every person has a right to free medical care if he needs it but cannot afford it.                                                                                                    | 20%<br>8                | 64%<br>5 | 11%<br>3 | 2%<br>2  | 4%<br>5 |
| 9. (348)*  | Every person has a right to adequate housing, even if he cannot afford it.                                                                                                            | 8%<br>9                 | 60%<br>6 | 26%<br>3 | 3%<br>1  | 4%<br>5 |
| 10. (528)* | To present Christianity as one religion, missionaries should plan evangelism together with other missionaries representing various denominations.                                     | 11%<br>8                | 63%<br>6 | 19%<br>3 | 2%<br>2  | 5%<br>6 |

\* Serial number of the items in the questionnaire.

Results of Analyses for Scale # 9: Attitude Toward Social Reform

B. Univariate analysis of variance of the scale scores for scale # 9.

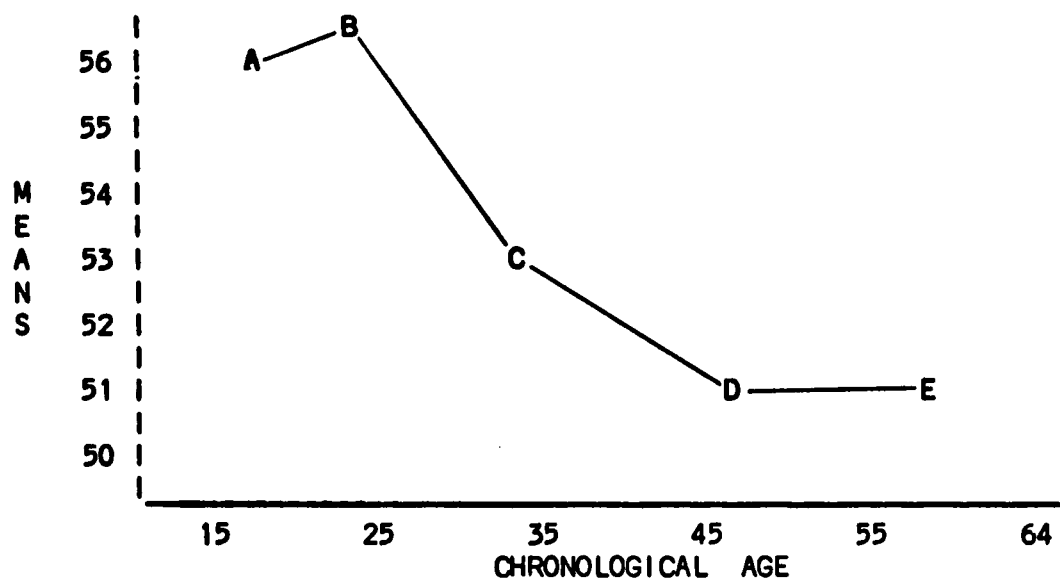


Figure 4.17: Graph of the Age Group Means for Scale # 9.

TABLE 4.41

MEANS AND STANDARD DEVIATIONS OF SCALE SCORES FOR SCALE # 9

| Age Group | N    | Means | Standard Deviations |
|-----------|------|-------|---------------------|
| A         | 559  | 55.91 | 8.26                |
| B         | 670  | 56.50 | 8.19                |
| C         | 1111 | 52.84 | 7.82                |
| D         | 1225 | 51.75 | 7.58                |
| E         | 769  | 51.92 | 6.68                |

Homogeneity of Variance Test: Chi-Square = 40.4;  $p < .001$

TABLE 4.42  
ANALYSIS OF VARIANCE TABLE FOR SCALE SCORES OF SCALE # 9

| =====  |      |        |       |         |
|--------|------|--------|-------|---------|
| Source | df   | MS     | F     | P       |
| <hr/>  |      |        |       |         |
| Groups | 4    | 3128.3 | 64.76 | <.00001 |
| Error  | 4329 | 59.0   |       |         |
| <hr/>  |      |        |       |         |

TABLE 4.43  
PROBABILITY MATRIX OF PAIRWISE COMPARISONS OF MEANS OF SCALE # 9  
USING SCHEFFE'S MULTIPLE COMPARISON METHOD

| =====  |     |     |     |     |     |
|--------|-----|-----|-----|-----|-----|
| Groups | A   | B   | C   | D   | E   |
| <hr/>  |     |     |     |     |     |
| A      |     | .78 | 0   | 0   | 0   |
| B      | .78 | -   | 0   | 0   | 0   |
| C      | 0   | 0   | -   | .02 | .16 |
| D      | 0   | 0   | .02 | -   | .99 |
| E      | 0   | 0   | .16 | .99 | -   |
| <hr/>  |     |     |     |     |     |

Note: an entry of zero designates  $p < .001$

C. Multivariate profile analysis of the five age groups on the ten items of scale # 9: Attitude Toward Social Reform.

TABLE 4.44

AGE GROUP MEANS FOR THE 10 ITEMS OF SCALE # 9

| Group | Item Number |      |      |      |      |      |
|-------|-------------|------|------|------|------|------|
|       | 1           | 2    | 3    | 4    | 5    | 6    |
| A     | .96         | 1.29 | 1.40 | 1.98 | 1.46 | .23  |
| B     | .88         | 1.47 | 1.49 | .96  | 1.40 | 1.41 |
| C     | -.77        | .20  | -.23 | -.26 | -.09 | .15  |
| D     | -.19        | -.72 | -.54 | -.66 | -.45 | -.29 |
| E     | .13         | -.85 | -.63 | -.30 | -.83 | -.86 |

| Group | Item Number |      |      |      | Row Mean |
|-------|-------------|------|------|------|----------|
|       | 7           | 8    | 9    | 10   |          |
| A     | 1.69        | 1.16 | .27  | .20  | 1.07     |
| B     | .53         | 1.07 | 1.14 | .93  | 1.13     |
| C     | -.61        | .12  | .01  | -.16 | -.16     |
| D     | -.52        | -.64 | -.31 | -.53 | -.49     |
| E     | .31         | -.52 | -.52 | .06  | -.40     |

TABLE 4.45

MULTIVARIATE ANALYSIS OF AGE GROUP MEAN PROFILES FOR SCALE # 9

| Lambda | df1 | df2 | F*   | P     |
|--------|-----|-----|------|-------|
| .1327  | 36  | 140 | 2.79 | <.001 |

\*Rao's approximate F-test using Wilks' Lambda.



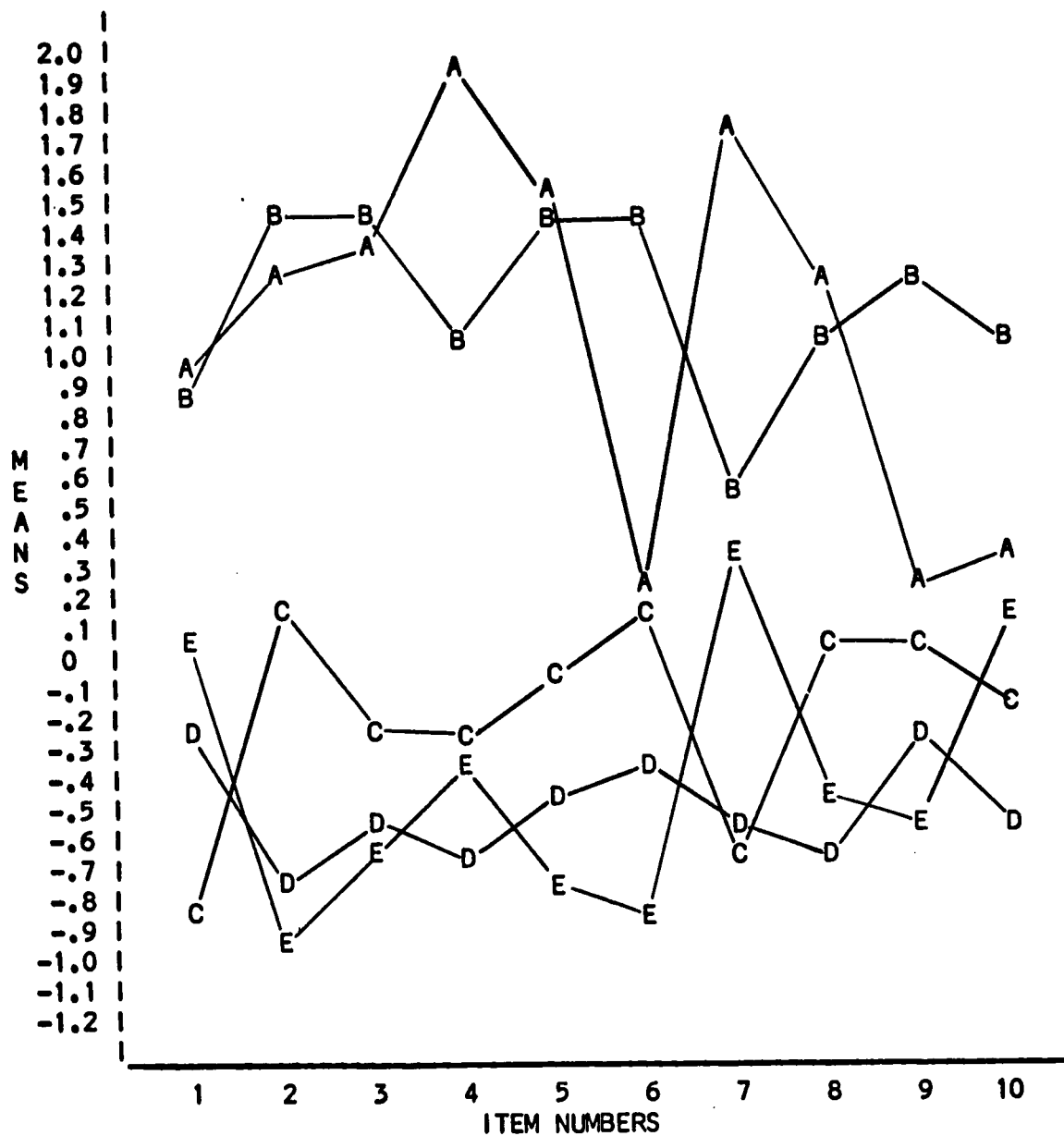


Figure 4.18: Graph of the Age Group Mean Profiles for the ten Items of Scale # 9: Attitude Toward Social Reform.

**D. Discussion of results for scale # 9: Attitudes Toward Social Reform.**

There appears to be a decrease in acceptance of social reform from youth to middle age (Figure 4.17). However, the scale is not stable. As can be seen from the profile graph (Figure 4.18), several of the items have U-shaped relationships to age (e.g., item #1, 6, 7, 9, 10). Note that the absolute differences in scale score means (Table 4.41) are relatively small. The pairwise comparison of these means (Table 4.43) indicates that groups A & B may be considered alike, as well as groups C, D, & E. However, in view of the frequent crossing of the profile lines, these groups are probably not comparable on this scale and the conclusion that they are alike may be erroneous.

Scale # 10: View of Christ as Human

A. Instructions for answering the items: Fill in the number of characteristics that you think accurately describe Jesus Christ.

Choice of answers: Yes - No

Items for scale # 10:

| Number   | Item                                    | % Responses and Weights |          |         |
|----------|-----------------------------------------|-------------------------|----------|---------|
|          |                                         | Yes                     | No       | Blank   |
| 1. (11)* | Was afraid of dying                     | 14%<br>8                | 84%<br>1 | 3%<br>2 |
| 2. ( 6)* | Not necessarily attractive physically   | 35%<br>5                | 62%<br>1 | 3%<br>2 |
| 3. (13)* | Felt sexual attraction                  | 16%<br>9                | 81%<br>1 | 3%<br>2 |
| 4. (15)* | Struggled to discover who he really was | 16%<br>8                | 82%<br>1 | 3%<br>2 |
| 5. ( 8)* | Told jokes                              | 23%<br>8                | 75%<br>1 | 3%<br>2 |

\* Serial number of the items in the questionnaire.

Results of Analysis for Scale # 10: View of Christ as Human

B. Univariate analysis of variance of the scale scores for scale # 10.

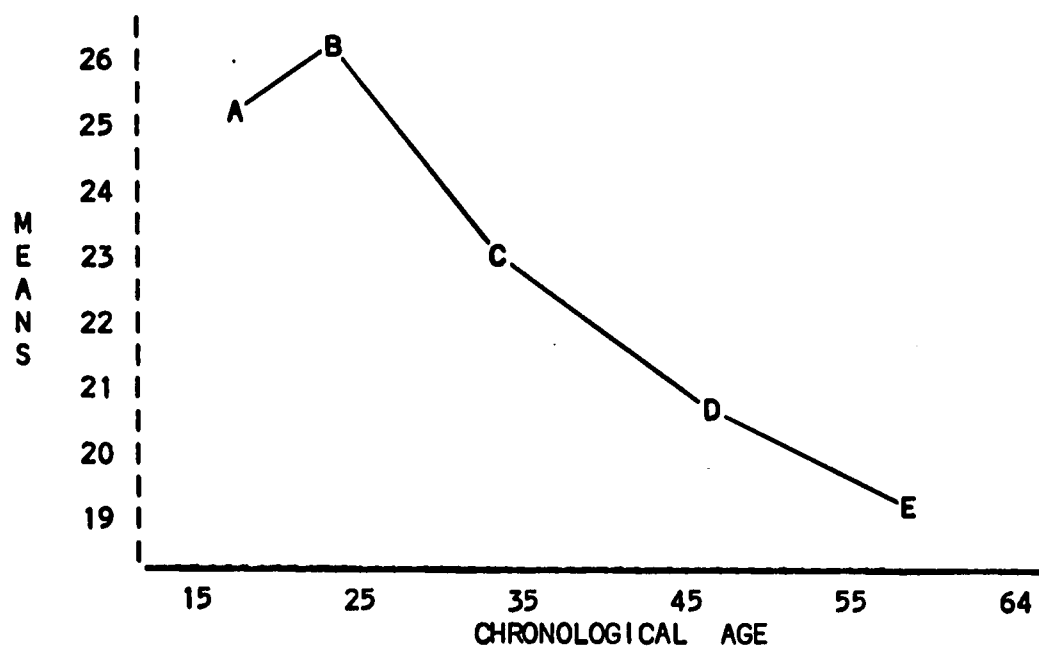


Figure 4.19: Graph of the Age Group Means for Scale # 10.

TABLE 4.46

MEANS AND STANDARD DEVIATIONS OF SCALE SCORES FOR SCALE # 10

| =====                                                      |      |       |                     |
|------------------------------------------------------------|------|-------|---------------------|
| Age Groups                                                 | N    | Means | Standard Deviations |
| A                                                          | 559  | 25.34 | 14.38               |
| B                                                          | 670  | 26.02 | 14.75               |
| C                                                          | 1111 | 23.04 | 12.86               |
| D                                                          | 1225 | 20.71 | 11.50               |
| E                                                          | 769  | 19.20 | 10.23               |
| =====                                                      |      |       |                     |
| Homogeneity of Variance Test: Chi-Square = 136.6; p < .001 |      |       |                     |
| =====                                                      |      |       |                     |

TABLE 4.47  
ANALYSIS OF VARIANCE TABLE FOR SCALE SCORES OF SCLAE # 10

| Source | df   | MS     | F     | P      |
|--------|------|--------|-------|--------|
| Groups | 4    | 6357.3 | 40.07 | .00002 |
| Error  | 4329 | 158.7  |       |        |

TABLE 4.48  
PROBABILITY MATRIX OF PAIRWISE COMPARISONS OF MEANS OF SCALE # 10  
USING SCHEFFE'S MULTIPLE COMPARISON METHOD

| Groups | A   | B   | C   | D   | E   |
|--------|-----|-----|-----|-----|-----|
| A      | -   | .92 | .01 | 0   | 0   |
| B      | .92 | -   | 0   | 0   | 0   |
| C      | .01 | 0   | -   | 0   | 0   |
| D      | 0   | 0   | 0   | -   | .15 |
| E      | 0   | 0   | 0   | .15 | -   |

Note: an entry of zero designates  $p < .001$ .

C. Multivariate profile analysis of the five age groups on the items  
of scale #10: View of Christ as Human.

TABLE 4.49

## AGE GROUP MEANS FOR THE FIVE ITEMS OF SCALE # 10

| Group | Item Number |      |      |      |      | Row Mean |
|-------|-------------|------|------|------|------|----------|
|       | 1           | 2    | 3    | 4    | 5    |          |
| A     | 1.46        | .95  | 1.16 | .72  | .15  | .89      |
| B     | 1.08        | .93  | 1.28 | 1.33 | 1.01 | 1.13     |
| C     | .05         | .38  | .13  | .06  | .56  | .24      |
| D     | -.55        | -.40 | -.47 | -.48 | -.34 | -.45     |
| E     | -.67        | -.92 | -.88 | -.68 | -.95 | -.82     |

TABLE 4.50

## MULTIVARIATE ANALYSIS OF AGE GROUP MEAN PROFILES

## FOR SCALE # 10

| Lambda | df1 | df2 | F*   | P   |
|--------|-----|-----|------|-----|
| .6417  | 16  | 129 | 1.26 | .23 |

\*Rao's approximate F-test using Wilk's Lambda.

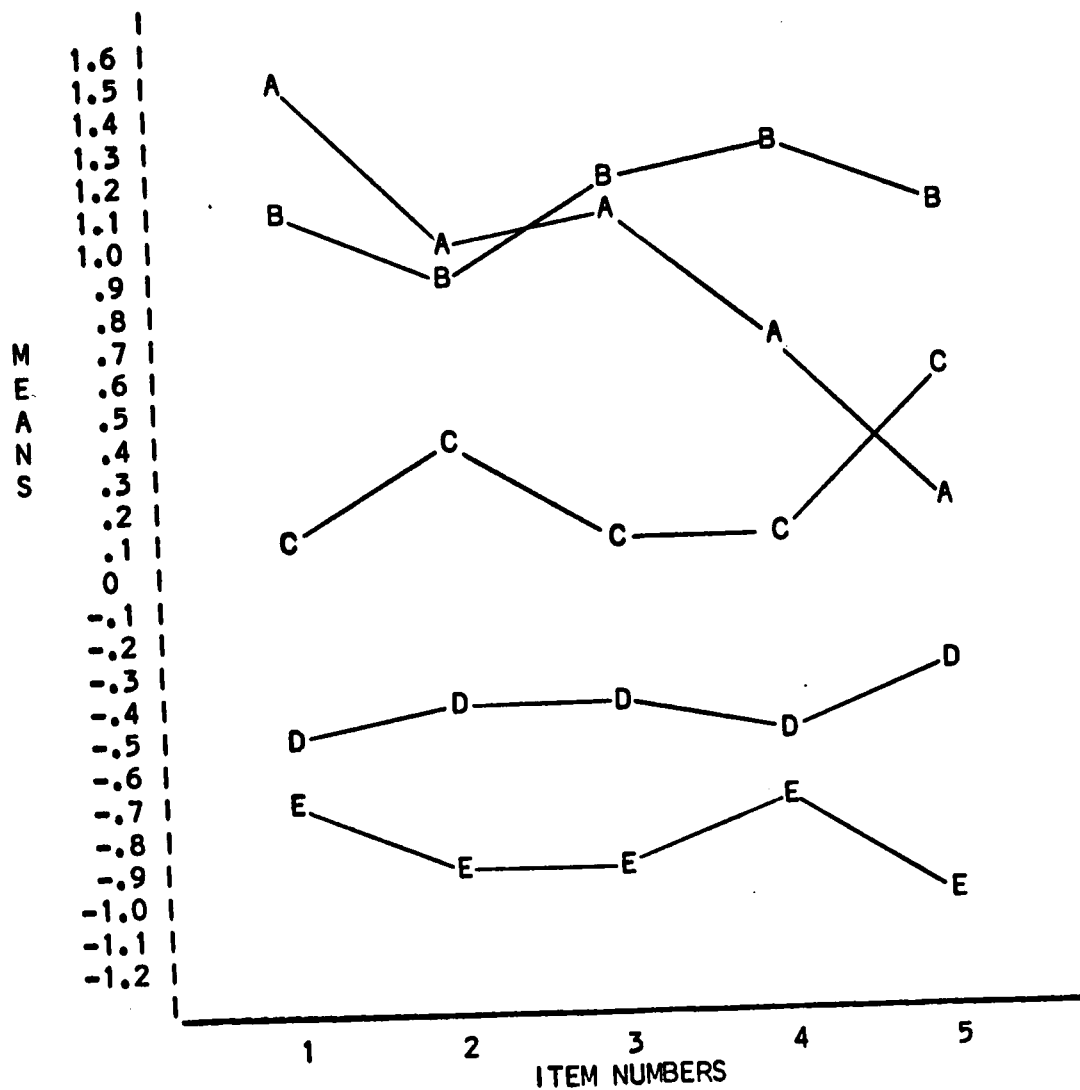


Figure 4.20: Age Group Mean Profiles for the five Items of Scale # 10: View of Christ as Human.

**D. Discussion of results for scale # 10: View of Christ as Human.**

The univariate analysis of age group means indicates that the Youths and Young Adults attribute more human characteristics to Christ than the remaining age groups. The graph of the age group means (Figure 4.19) shows that with progressing age, Christ is perceived less and less to be endowed with human characteristics. Since the group profiles on the five items are parallel, the scale is stable over the age range from 15 to 64 years.



## ADDITIONAL APPROACHES TO STUDYING FUNCTION FLUCTUATION

One approach for looking at the stability of a given function might be the comparison of the Alpha coefficients (Cronbach, 1951) of the five age groups for that function. Cronbach (1951) showed that Alpha is the average of all possible split-half correlations of a given test. Hence, because Alpha is an average, it is apparent that identical Alphas could be obtained from entirely different items and their variance-covariance matrices. For this reason, the use of Alpha for studying the stability of a function did not seem advisable and, therefore, was not mentioned in Chapter 1.

For the sake of curiosity, however, the Alphas for each age group were calculated for the ten selected scales. The results are presented in Table 4.51. Standard errors and confidence intervals for the median of the five Alphas of each scale (identified by \* ) are given in Table 4.52. The standard errors were calculated using Bay's (1971) formula:

$$\text{Var} ( R ) = ( 1 - R )^2 \left( \frac{2(N-1)(Nn-n-2)}{(n-1)(N-3)^2 (N-5)} \right)$$

where  $R$  = Coefficient Alpha

$N$  = sample size

$n$  = number of items

As can be seen, the confidence band around the median of the five Alphas includes the other four only in the case of scales # 1, 3, and 5. As shown earlier, each of these scales had non-parallel profiles. Note also that the Alphas for the remaining scales show no apparent trend which could in some way be related to age. Hence, the a priori notion

TABLE 4.51

## ALPHA COEFFICIENTS OF THE FIVE AGE GROUPS ON THE TEN SCALES

| Groups     | Scale Numbers |          |           |           |           |           |          |           |           |           |
|------------|---------------|----------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
|            | 1<br>n=8      | 2<br>n=6 | 3<br>n=12 | 4<br>n=15 | 5<br>n=18 | 6<br>n=11 | 7<br>n=5 | 8<br>n=12 | 9<br>n=10 | 10<br>n=5 |
| A (N= 559) | .605          | .703     | .760*     | .826*     | .748*     | .799      | .600*    | .873      | .633      | .554      |
| B (N= 670) | .613          | .744     | .798      | .864      | .776      | .836      | .645     | .887      | .675      | .579      |
| C (N=1111) | .635          | .785*    | .754      | .834      | .744      | .823*     | .522     | .862*     | .619*     | .539*     |
| D (N=1225) | .658          | .806     | .761      | .817      | .741      | .817      | .568     | .835      | .582      | .525      |
| E (N= 769) | .619*         | .801     | .750      | .798      | .750      | .843      | .606     | .854      | .458      | .455      |

\* Median of five Alpha coefficients for a given scale.

TABLE 4.52

 STANDARD ERROR OF MEDIAN ALPHA(\*)  
 AND UPPER & LOWER CONFIDENCE INTERVALS

| S, E.                  | .053 | .023 | .039 | .029 | .039 | .019 | .064 | .015 | .040 | .050 |
|------------------------|------|------|------|------|------|------|------|------|------|------|
| Upper C.I.             | .672 | .811 | .799 | .855 | .787 | .842 | .664 | .877 | .659 | .589 |
| Lower C.I.             | .566 | .762 | .721 | .797 | .709 | .804 | .536 | .847 | .579 | .489 |
| All Alphas<br>in C.I.? | yes  | no   | yes  | no   | yes  | no   | no   | no   | no   | no   |

that a comparison of the Alphas would not yield useful results for studying fluctuation appears to have been substantiated by the findings.

Another way of looking at fluctuation might be to compare the variance-covariance matrices of the five age groups directly rather than through a summary index such as Alpha. Box (1949) presented a statistical method for examining the equality of several variance-covariance matrices. Using this approach, the variance-covariance matrices of the five age groups were compared for each of the ten scales separately. It was found that none of the ten sets of five matrices could be considered equal at the .01 level of significance. A subsequent pairwise comparison of the matrices (see Table 4.53) indicated that, in general, the F-ratios tended to be the lowest among adjacent age groups. In fact, 16 of the 40 F-ratios among adjacent age groups were non-significant and they accounted for almost 70% of the non-significant F's.

Since all the ten scales tended toward the same pattern of lowest F-ratios among adjacent groups, any useful differentiation among the scales appeared difficult to make. One explanation for the inequality of the variance-covariance matrices arises from the earlier observation that the variances of the scale scores differ significantly for the five age groups on nine of the ten selected scales. Thus, if the scale score variances differ, it follows that at least some of the item variances also differ. These, then, would certainly contribute to the inequality of the variance-covariance matrices. Under these circumstances, a comparison of those matrices might be expected to yield results which are difficult to interpret.

TABLE 4.53

F-RATIOS FOR PAIRWISE COMPARISONS OF THE VARIANCE-COVARIANCE MATRICES  
OF FIVE AGE GROUPS FOR TEN SELECTED SCALES

| Group     | B     | C     | D     | E     | Group      | B     | C     | D     | E     |
|-----------|-------|-------|-------|-------|------------|-------|-------|-------|-------|
| Scale # 1 |       |       |       |       | Scale # 2  |       |       |       |       |
| A         | 1.99* | 7.84* | 4.87* | 4.56* | A          | 1.36  | 4.03* | 2.40* | 2.37* |
| B         |       | 3.32* | 1.93* | 1.26  | B          |       | 2.46* | 1.95* | 2.25* |
| C         |       |       | 3.29* | 2.19* | C          |       |       | 2.91* | 4.31* |
| D         |       |       |       | 1.35  | D          |       |       |       | 1.59  |
| Scale # 3 |       |       |       |       | Scale # 4  |       |       |       |       |
| A         | 1.46  | 4.72* | 6.00* | 5.58* | A          | 1.44* | 2.49* | 2.92* | 2.33* |
| B         |       | 2.69* | 3.73* | 3.82* | B          |       | 1.72* | 2.27* | 2.02* |
| C         |       |       | 1.55  | 1.88* | C          |       |       | 1.71* | 1.40* |
| D         |       |       |       | 1.88* | D          |       |       |       | 1.32  |
| Scale # 5 |       |       |       |       | Scale # 6  |       |       |       |       |
| A         | 1.51* | 1.84* | 1.99* | 1.80* | A          | 1.82* | 2.90* | 3.20* | 2.68* |
| B         |       | 1.75* | 2.05* | 1.92* | B          |       | 3.29* | 3.66* | 3.08* |
| C         |       |       | 1.46  | 1.50* | C          |       |       | 1.68* | 2.06* |
| D         |       |       |       | 1.32  | D          |       |       |       | 1.75* |
| Scale # 7 |       |       |       |       | Scale # 8  |       |       |       |       |
| A         | 2.34* | .63   | 1.13  | 1.33  | A          | 1.22  | 1.72* | 3.41* | 4.49* |
| B         |       | 2.75* | 2.22* | 2.01* | B          |       | 1.19  | 2.36* | 3.43* |
| C         |       |       | .59   | 1.13  | C          |       |       | 1.91* | 2.97* |
| D         |       |       |       | .59   | D          |       |       |       | 1.82* |
| Scale # 9 |       |       |       |       | Scale # 10 |       |       |       |       |
| A         | 1.17  | 1.41  | 1.50  | 2.03* | A          | 1.88  | 4.32* | 8.02* | 9.98* |
| B         |       | 1.18  | 1.31  | 1.94* | B          |       | 2.86* | 6.07* | 8.22* |
| C         |       |       | 1.17  | 2.21* | C          |       |       | 2.13* | 4.73* |
| D         |       |       |       | 1.63* | D          |       |       |       | 2.43* |

\*  $p < .01$

Lastly, a way of looking at fluctuation in the meaning of a given function might be to compare its relation to another function. To illustrate, suppose that the correlations between scales #4 (Prejudice) and #7 (Conformity) were calculated separately for each age group, and the results were as follows:

| GROUP | $r_{4,7}$ |
|-------|-----------|
| A     | .30       |
| B     | .33       |
| C     | .07       |
| D     | .03       |
| E     | -.03      |

This would constitute evidence that the two functions change their mutual relationship and might be interpreted as fluctuation. An examination with a third function would be required to assess which of the two is changing. For example, if prejudice remained stable in relation to a third (independent) function and conformity did not, one might conclude that the latter is fluctuating. Additional evidence could be found by including a fourth scale, etc. Hopefully, if a variety of functions were available for such an analysis, one might be able to identify several which remained unchanged in their relationship to one another. These could then be used as indicators for assessing fluctuation in the remaining functions.

Since ten scales had been selected for analysis in the present research, the correlations suggested above were calculated among these ten scales separately for each of the five age groups. The resulting five correlation matrices were combined as shown in Table 4.54. Each series of five rows in this table represents the correlations of a given scale with the remaining nine for each of the five age groups. Thus, five estimates (one from each age group) of the correlation of a

TABLE 4.54\*  
INTERCORRELATIONS AMONG THE TEN SCALES, SEPARATELY FOR EACH AGE GROUP

| Scales |   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |
|--------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Groups |   |     |     |     |     |     |     |     |     |     |     |
| # 1    | A | 100 | 4   | 11  | -7  | 0   | -1  | -16 | -7  | 7   | 4   |
|        | B | 100 | -2  | 18  | -1  | -1  | -12 | -21 | -8  | 4   | 5   |
|        | C | 100 | -1  | 11  | 7   | 13  | 0   | -9  | 6   | 2   | 2   |
|        | D | 100 | -3  | 13  | 10  | 18  | -4  | -12 | 10  | 5   | -2  |
|        | E | 100 | 3   | 10  | 7   | 18  | 0   | -14 | 5   | -8  | 1   |
| # 2    | A | 4   | 100 | 13  | 7   | 4   | 7   | 10  | -3  | 4   | 2   |
|        | B | -2  | 100 | 1   | 9   | 8   | 18  | 12  | 6   | 0   | -9  |
|        | C | -1  | 100 | 8   | 9   | 7   | 2   | 0   | 12  | -5  | -5  |
|        | D | -3  | 100 | 6   | 2   | 7   | 2   | 2   | 4   | -1  | -3  |
|        | E | 3   | 100 | 2   | 4   | 8   | 5   | 0   | 0   | 3   | 6   |
| # 3    | A | 11  | 13  | 100 | -2  | -4  | -18 | -21 | -18 | -3  | 7   |
|        | B | 18  | 1   | 100 | -9  | -8  | -16 | -27 | -20 | 6   | 3   |
|        | C | 11  | 8   | 100 | 3   | -10 | -14 | -13 | -9  | -3  | 11  |
|        | D | 13  | 6   | 100 | 0   | -2  | -14 | -5  | -7  | 5   | 9   |
|        | E | 10  | 2   | 100 | -3  | -5  | -16 | -2  | -9  | 8   | 5   |
| # 4    | A | -7  | 7   | -2  | 100 | 57  | 12  | 30  | 57  | -51 | -20 |
|        | B | -1  | 9   | -9  | 100 | 61  | 17  | 33  | 62  | -60 | -26 |
|        | C | 7   | 9   | 3   | 100 | 53  | 12  | 7   | 58  | -52 | -23 |
|        | D | 10  | 2   | 0   | 100 | 52  | 10  | 3   | 50  | -42 | -22 |
|        | E | 7   | 4   | -3  | 100 | 49  | 10  | -3  | 49  | -35 | -17 |
| # 5    | A | 0   | 4   | -4  | 57  | 100 | 20  | 25  | 48  | -34 | -20 |
|        | B | -1  | 8   | -8  | 61  | 100 | 33  | 33  | 51  | -45 | -26 |
|        | C | 13  | 7   | -10 | 53  | 100 | 26  | 1   | 46  | -31 | -23 |
|        | D | 18  | 7   | -2  | 52  | 100 | 20  | -2  | 40  | -25 | -23 |
|        | E | 18  | 8   | -5  | 49  | 100 | 25  | -11 | 36  | -16 | -17 |
| # 6    | A | -1  | 7   | -18 | 12  | 20  | 100 | 27  | 14  | -13 | -16 |
|        | B | -12 | 18  | -16 | 17  | 33  | 100 | 34  | 23  | -11 | -25 |
|        | C | 0   | 2   | -14 | 12  | 26  | 100 | 12  | 19  | -17 | -18 |
|        | D | -4  | 2   | -14 | 10  | 20  | 100 | 0   | 15  | -15 | -18 |
|        | E | 0   | 5   | -16 | 10  | 25  | 100 | 2   | 11  | -10 | -17 |
| # 7    | A | -16 | 10  | -21 | 30  | 25  | 27  | 100 | 25  | -13 | -15 |
|        | B | -21 | 12  | -27 | 33  | 33  | 34  | 100 | 32  | -20 | -14 |
|        | C | -9  | 0   | -13 | 7   | 1   | 12  | 100 | 4   | -2  | -7  |
|        | D | -12 | 2   | -5  | 3   | -2  | 0   | 100 | -4  | 3   | 6   |
|        | E | -14 | 0   | -2  | -3  | -11 | 2   | 100 | -11 | 15  | 5   |
| # 8    | A | -7  | -3  | -18 | 57  | 48  | 14  | 25  | 100 | -37 | -22 |
|        | B | -8  | 6   | -20 | 62  | 51  | 23  | 32  | 100 | -50 | -32 |
|        | C | 6   | 12  | -9  | 58  | 46  | 19  | 4   | 100 | -40 | -34 |
|        | D | 10  | 4   | -7  | 50  | 40  | 15  | -4  | 100 | -30 | -32 |
|        | E | 5   | 0   | -9  | 49  | 36  | 11  | -11 | 100 | -28 | -22 |
| # 9    | A | 7   | 4   | -3  | -51 | -34 | -13 | -13 | -37 | 100 | 21  |
|        | B | 4   | 0   | 6   | -60 | -45 | -11 | -20 | -50 | 100 | 26  |
|        | C | 2   | -5  | -3  | -52 | -31 | -17 | -2  | -40 | 100 | 19  |
|        | D | 5   | -1  | 5   | -42 | -25 | -15 | 3   | -30 | 100 | 16  |
|        | E | -8  | 3   | 8   | -35 | -16 | -10 | 15  | -28 | 100 | 16  |
| # 10   | A | 4   | 2   | 7   | -20 | -20 | -16 | -15 | -22 | 21  | 100 |
|        | B | 5   | -9  | 3   | -26 | -26 | -25 | -14 | -32 | 26  | 100 |
|        | C | 2   | -5  | 11  | -23 | -23 | -18 | -7  | -34 | 19  | 100 |
|        | D | -2  | -3  | 9   | -22 | -23 | -18 | 6   | -32 | 16  | 100 |
|        | E | 1   | 6   | 5   | -17 | -17 | -17 | 5   | -22 | 16  | 100 |

\* All entries in the table are multiplied by 100. Vertical bars:  $p < .01$

given scale with each of the others were obtained. Confidence intervals at the .01 level were calculated for the median correlation of each series of five, and those series in which the five correlations did not fall within the confidence interval were identified by vertical bars.

The results present a somewhat confusing picture. It had been hoped that those scales which were identified as having parallel profile (viz., # 2, 6, 7, & 10) might have equal correlations for the five age groups. However, this was not the case. Inspection of Table 4.54 reveals that the scales # 3, 4, 5, 6, & 10 remained constant in their correlations to one another, as well as the scales # 1, 2, & 7. On the basis of these results, one might be tempted to conclude that the scales in the larger of these two clusters are stable, and the remaining ones are unstable. However, in view of the second cluster this would not appear a wholly satisfactory solution.

In summary, then, the comparison of scale score intercorrelations for the five age groups identified two clusters of scales displaying correlational stability within the clusters, but not accross. These results appear to be independent of the profile analysis and probably measure a different dimension of fluctuation. Note that where the correlations between two scales varied significantly, this fluctuation generally took the form of a decreasing association with age. Since it had been observed that on 7 of the 10 selected scales the response variance also decreased with age, the significant differences among many of the scales may be attributable to this effect. For example, consider the three scales #4 (prejudice), #8 (social distance), and #9 (social reform). Their standard deviations and intercorrelations for the five age groups are shown in Table 4.55. It is apparent that

the magnitude of these correlations is related to the size of the standard deviations of the scale scores. Obviously, the older age groups responded more homogeneously to these scales than the younger ones. Since it is a well-known fact that increased homogeneity reduces correlations, inferences based on the results of examining correlations may be quite misleading in spite of the intuitive appeal of the method.

TABLE 4.55  
STANDARD DEVIATIONS AND INTERCORRELATIONS  
OF THE FIVE AGE GROUPS ON THREE SCALES

| Age<br>Groups | Standard Deviations |              |              |
|---------------|---------------------|--------------|--------------|
|               | Scale # 4           | Scale # 8    | Scale # 9    |
| A             | 12.04               | 14.04        | 8.26         |
| B             | 13.34               | 14.26        | 8.19         |
| C             | 10.72               | 11.92        | 7.82         |
| D             | 9.50                | 10.34        | 7.58         |
| E             | 8.19                | 9.90         | 6.68         |
|               | Intercorrelations   |              |              |
|               | Scales 4 & 8        | Scales 4 & 9 | Scales 8 & 9 |
| A             | .57                 | -.51         | -.37         |
| B             | .62                 | -.60         | -.50         |
| C             | .58                 | -.52         | -.40         |
| D             | .50                 | -.42         | -.30         |
| E             | .49                 | -.35         | -.28         |



## SUMMARY OF THE RESULTS RELATED TO FUNCTION FLUCTUATION

To facilitate the drawing of generalizations, the main results of the analyses for the ten scales are summarized in Table 4.56 -- containing the following information:

1. The F-ratio from testing the equality of means for the five age groups on each of the scales (one-way ANOVA) in column 4.
2. The Chi-square from testing the homogeneity of the score variances for the five age groups for each of the ten scales in column 5.
3. The F-ratio from testing the profiles of the five age groups for parallelism on each of the scales -- column 6.
4. The median scale reliabilities for the five age groups -- column 7.
5. The F-ratio from testing the five age groups for equality of their variance-covariance matrices -- column 8.

As can be seen from Table 4.56, all of the F-ratios for testing the equality of the five age group means easily exceeded the critical value of the F-ratio at  $\alpha=.01$  ( $F_{.01;4,4329}=3.32$ ). This indicates that the subjects at different ages scored differentially on each of the ten selected scales. When plotting the scales as functions of age, the resulting graphs uniformly showed the characteristics of developmental 'growth curves.'

Four of the ten selected scales (viz., # 2, 6, 7, & 10) met the statistical criterion for the parallelism of profiles, showing that the scales in question represented constructs which remained stable over the age range from 15 to 64 years except for lateral displacement

TABLE 4.56

## SUMMARY OF PRINCIPAL ANALYSES FOR THE TEN SELECTED SCALES

| Scale Number | Title                  | Number of Items | F-ratio for Group Means | $\chi^2$ of Variances | F-ratio for Profiles | Median Alpha | F-ratio for Covariances |
|--------------|------------------------|-----------------|-------------------------|-----------------------|----------------------|--------------|-------------------------|
| 1.           | Loneliness             | 8               | 81.19*                  | 7.09                  | 3.37*                | .619         | 3.21*                   |
| 2.           | Empathy                | 6               | 149.21*                 | 77.95*                | 1.82                 | .785+        | 2.57*                   |
| 3.           | Unsanctioned Behavior  | 12              | 144.38*                 | 153.5*                | 4.57*                | .760         | 3.33*                   |
| 4.           | Prejudice              | 15              | 182.27*                 | 216.6*                | 3.21*                | .826+        | 1.98*                   |
| 5.           | Family Stereotypes     | 18              | 87.09*                  | 45.15*                | 4.19*                | .748         | 1.73*                   |
| 6.           | Acceptance of Religion | 11              | 61.95*                  | 20.41*                | 1.52                 | .823+        | 2.62*                   |
| 7.           | Conformity             | 5               | 41.23*                  | 37.25*                | 1.51                 | .600+        | 1.39*                   |
| 8.           | Social Distance        | 12              | 140.59*                 | 173.9*                | 2.88*                | .862+        | 2.40*                   |
| 9.           | Social Reform          | 10              | 64.76*                  | 40.40*                | 2.79*                | .619+        | 1.52*                   |
| 10.          | Christ as Human        | 5               | 40.07*                  | 136.6*                | 1.26                 | .539+        | 4.91*                   |

+ indicates scales with different Alpha reliabilities for the five groups.

\*  $p < .01$ .

evident from the comparison of score means. Hence, comparative statements concerning the responses of the five age groups on these scales would be appropriate. In other words, it would seem that the functions measured by these four scales are already established by the time a person reaches the age of 15, and that they only fluctuate in terms of magnitude thereafter.

However, the attitudes measured by the scales # 3, 4, 5, & 8 do not seem to be established so early. This is evident from the profiles of these scales. The extreme movements in the profile of the youth group (group A) appear to be mainly responsible for the significance of the F-tests regarding profile parallelism on these scales. This might indicate that the attitudes measured by them are probably established during youth, and remain reasonably stable thereafter. Hence, for these scales, the one-way ANOVA of the youth may not be comparable to those of the other age groups. Similarly, comparative statements about the age groups on the remaining two scales may require some qualifications.

Regarding the number of items per scale, Table 4.56 indicates that the parallel scales have an average of 6.75 items, while the non-parallel ones have an average of 12.5 items -- almost twice as many. It may be that it is easier to find a smaller set of parallel items than a larger one.

With regard to the Alpha coefficients, note that the three scales ( # 1, 3, & 5) which had statistically equal Alphas for the five age groups happened to be the ones which had the highest F-ratios on the test for parallelism. Whereas this is probably a coincidence, it certainly supports the earlier argument that equal Alphas do not necessarily

indicate equal test performance. Additional evidence may be found in the fact that in spite of the equal Alphas, the five corresponding variance-covariance matrices lacked statistical equality.

Finally, a word may be in order about the lack of homoscedasticity of the scale scores and the item variance-covariance matrices.

Morrison (1967, p. 152) commented in this connection that "in practice, this is a rather dubious requirement because many experimental conditions which lead to higher mean values may also produce responses with larger variances." He cited research by Ito & Schull (1964) who demonstrated that with large samples, the unequal variances had a negligible effect on the probability of the Type 1 error. Since none of the F-ratios for comparing group means was marginal, the presence of unequal variances was considered inconsequential and was, therefore, not treated explicitly in the discussion of results. It may be noteworthy, however, that in 7 of the 10 scales, a monotonic decrease of response variation occurred with age, irrespective of the direction of the means. In other words, the response variation of the older age groups was significantly smaller than that of the younger ones in 7 of the 10 scales. This may indicate that the older groups possess more uniform attitudes than the younger ones.

The unequal item variance-covariance matrices were probably to a large extent a consequence of this age-related response variation. However, further research is required to confirm this conjecture. Nevertheless, as a generalization, the test of equality of the variance-covariance matrices would appear redundant when the variances of the scale scores are not homogeneous.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND SUGGESTIONS

Two methodological problems which seem to make it difficult to conduct research in the area of age-related changes in attitude were investigated. The first of these concerned the examination of the stability of attitudes in relation to age, whereas the second concerned the classification of subjects into age groups such that those belonging to a given age group are maximally similar to each other and, simultaneously, maximally different from those in the remaining age groups. Since an analysis of function fluctuation requires the availability of suitable age groups, the classification problem was attended to first.

The data consisted of the responses of 4334 subjects aged 15 to 64 to a 740 item questionnaire. Of the 740 items, 477 dealt with 50 attitude scales concerning the social environment. These latter ones were used to obtain a 4334 by 477 response matrix. The sample had been drawn from the Lutheran population of the United States by means of a two stage random sampling method: (1) 376 Lutheran congregations were chosen at random from the list of registered congregations. (2) From the membership lists of these congregations, subjects were chosen at random such that each member had a chance of  $1/667$  to be selected.

For the purpose of finding optimal age groups, the 4334 by 477 response matrix was reduced to one of size 477 by 50, such that each column of the latter contained the mean responses of all the sub-

jects at the same age level to each of the 477 items. In other words, the original raw data matrix was reduced to one of 'age-representative' responses. This 477 by 50 matrix was standardized by rows in order to remove column variation attributable to the differences in the scale origins of the 477 items. The resulting ipsative matrix was factor analyzed, using the image analysis method as outlined by Kaiser (1963). The first three factors were rotated to oblique simple structure, leading to five age groups:

(A) Youths - aged 15 to 18 (N=559), (B) Young Adults - 19 to 26 (N=670), (C) Adults - 27 to 39 (N=1111), (D) Middle Aged - 40 to 52 (N=1225), and (E) Seniors - 53 to 64 (N=769). These age groups were then used in the analysis of function fluctuation.

Since the 50 attitude scales derived earlier were deemed to be too many for analysis of function fluctuation, an attempt was made to select a few scales which were maximally independent of one another. For this purpose, the 50 scales were factor analyzed. Ten eigenvalues were found to be greater than one. The associated ten factors were rotated to orthogonal simple structure, using the varimax criterion of Kaiser (1958), and one scale was chosen from each factor to represent the scales loading on that factor.

The ten scales so selected were analyzed for function fluctuation in six different ways: (1) the score means of the five age groups on each scale were obtained and tested for equality, using a one-way ANOVA in order to infer age-related trends in the constructs represented by these scales. (2) The score variances of the five age groups were tested for equality on each of the scales. (3) The profiles of the five age groups on the individual items of each scale

were tested for parallelism to obtain information about its internal stability. (4) The Alpha reliabilities of the five age groups were compared for each scale. (5) The variance-covariance matrices of the five age groups were tested for equality on each scale, and (6) the stability of the scale intercorrelations of the five age groups was examined.

The results showed that the responses to each of the ten scales had an age-related trend comparable to the well-known developmental 'growth curves.'

The test for parallelism of the age group profiles showed that the responses to four scales yielded parallel profiles. These were # 2 (empathy), #6 (acceptance of religion), #7 (conformity), and #10 (view of Christ as human).

The score variances for the five age groups were found to differ significantly on 9 of the ten scales and on 7 of these, they seemed to decrease as a function of age. It was conjectured that this latter effect may have contributed to the inequalities found among the variance-covariance matrices and, consequently, the only generalization obtained from the analysis of these matrices is the rather trivial one that adjacent age groups tend to have more equal variance-covariance matrices than non-adjacent ones.

The usefulness of the coefficient Alpha for studying function fluctuation seemed doubtful on a priori grounds right from the beginning and their lack of utility for this purpose was confirmed.

Finally, the correlational approach for examining fluctuation by means of comparing a given function to a variety of other functions

showed that among the ten selected scales, two clusters of scales could be identified (viz., #3, 4, 5, 6, and 10 as well as #1, 2, and 7). The scales in these clusters displayed stable correlations with respect to one another, but not across the clusters. It was observed that the trend in the fluctuation of the correlations appeared to be generally from high correlations among the younger age groups toward lower correlations among the older age groups. It was pointed out that this phenomenon could most parsimoniously be explained as being related to the significantly lower score variances which were observed among the older age groups.

### Inferences

The methods used here for studying attitudinal function fluctuation can be classified into two categories: those which estimate fluctuation through a comparison of (1) means (ANOVA and profile analysis), and (2) variances-covariances and similar statistics (Alpha coefficients, variance-covariance matrices, scale intercorrelations). The conclusions obtained from them will be discussed below in terms of their implications for theory, research, and practice.

#### a. Implications for Theory.

It would appear that in conjunction with data of the type used in this research, the F-test for profile parallelism is very sensitive to relatively minor deviations from parallelism which may not impair the practical utility of the function. Consider, for example, the profiles of scale #1 (Figure 4.2). These profiles are statistically non-parallel ( $p < .00001$ ). Yet, it would seem that the crossings of the profiles of



groups C, D, & E are of relatively minor practical magnitude if the size of the lateral difference among the profiles of groups A & B, versus that among C, D, & E are compared. Hence, it may be useful to take the "between group" differences into account as a parameter in the profile analysis model when determining the parallelism of the profiles of several groups.

Another troublesome parameter appears to be the number of variables ( $p$ ) used in the profile. As  $p$  increases, it becomes more difficult to obtain parallel profiles. This is probably a consequence of the practical difficulty of finding large numbers of variables or items measuring a given construct. Perhaps some allowance should be made for this in order that the model more closely approximates the state of nature. It would seem, however, that the problem with  $p$  is not solely one of the above mentioned practical difficulty. Consider, for example, the profiles depicted in Figure 4.16, and 4.20. In both sets of profiles, the profile of group A appears to fluctuate slightly around that of group B and, to a minor degree, crosses the profile of group C. It would appear that through appropriate combination of the 12 items of scale #8 (Figure 4.16), and reversal of the scale, the set of profiles of Figure 4.16 could easily be reduced to match that of Figure 4.20 almost perfectly. Yet, Figure 4.16 represents a set of significantly non-parallel profiles ( $p < .00001$ ) while Figure 4.20 represents a set of parallel ones ( $p = .23$ ). This, then, would emphasize the need for some adjustment in calculating the F-ratio for profiles with larger numbers of variables. In view of the complexity of the mathematical derivations, an empirical approach might be appropriate

to obtain estimates of the distribution of Lambda in the case of large numbers of variables.

**b. Implications for Research.**

According to Morrison (1967, p. 188), profile analysis is a prerequisite for making inferential statements about the equality of several populations on a given characteristic which is measured by means of several variables or tests. This statement is supported by the present findings. Consider, for example, the Scheffé test on the group means for scale #3 (Table 4.13). It indicates that the scale means for groups A & B are identical. Yet, a glance at the profiles of these two groups (Figure 4.6) certainly raises doubts about the comparability of these means. Similarly, the Scheffé test on the group means of scale #5 (Table 4.23) indicates that groups A & C are identical. Again, the profiles (Figure 4.10) of these two groups contradict this inference. On the other hand, the Scheffé test indicating equality of groups A & B on scale #2 (Table 4.8) is supported by parallel profiles (Figure 4.4). Profile analysis, therefore, greatly enhances one's confidence in the validity of comparative statements.

In considering the results of the correlational analysis, it is apparent that correlation coefficients may be quite misleading if selected subgroups of the sampled population lack homogeneity of variance. Whereas on 7 of the 10 scales the variances tended to become smaller with age, a close inspection of the results revealed that this trend may be aggravated by the floor or ceiling effects of the various scales. For example, Table 5.1 shows that on seven scales (viz., #1, 2, 3, 4, 6, 8, & 10), the smallest variance among the five groups was

associated with the age group responding closest to the limits of the scale. While in most cases this happened to be group E, it was a different group for scale #2 & 7. Yet, on the two scale where all five group means occurred around the centre of the scale (#5 & 9), the lowest response variation was also associated with group E. The table suggests that the unequal variances may well be due to a combination of both scale effects and age effects. Further investigation is required to clarify this point. Perhaps normalization of the responses of each age group might reduce the possible influence of floor and ceiling effects.

TABLE 5.1

COMPARISON OF THE AGE GROUP RESPONDING CLOSEST TO THE FLOOR OR CEILING  
OF A SCALE WITH THE ONE HAVING THE SMALLEST RESPONSE VARIANCE

| Scale Numbers                             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------------------------------------|---|---|---|---|---|---|---|---|---|----|
| Group with Mean<br>Nearest to Scale Limit | E | A | E | E | - | E | C | E | - | E  |
| Group with Lowest<br>Response Variance    | E | A | E | E | E | D | C | E | E | E  |

### c. Implications for Practice.

In terms of practical utility, it would appear that the comparison of means of scores or of items (ANOVA and profile analysis) yields results which are respectively relatively easy to interpret. In contrast, the results obtained from the variance-covariance approaches seem to be either inconclusive or very difficult to interpret.

Unfortunately, the two categories of approaches did not yield mutually supportive results. Since the means and variances-covariances are independent of one another, this is perhaps not too surprising.

The difficulties encountered in the variance-covariance approach deserve some additional comments. It was discussed earlier that the score variances of the five age groups differed significantly ( $p < .01$ ) for 9 of the 10 selected scales, and on 7 of these, a monotonic decrease with age was observed. This indicates that the older age groups generally tended to be more homogeneous. Increased homogeneity, however, tends to reduce correlations because of the usual concomitant increase in the ratio of the error to obtained score variance. This effect is clearly observable in the scale intercorrelations of the five age groups (Table 4.54). It would seem, therefore, that unless the ratio of error to observed score variance can be held constant among the groups, the variance-covariance approach to study function fluctuation yields contaminated results. A simple rescaling of the variances is, of course, not the desired answer because it does not affect the above ratio. The practical difficulties which such a requirement imposes on the data collection probably precludes the use of variance-covariance methods for studying fluctuation.

In contrast to the difficulties encountered with the variance-covariance approach, the comparison of means approach yielded clearly interpretable results. For example, the one-way ANOVA's showed that significant lateral changes in attitudes occurred concomitant with age on each of the ten selected scales. However, only four of the ten scales could be classified in terms of retaining their stability as a function of age in the age range examined here. These results may be

taken to indicate that attitudes change and/or develop with age. This change may not only be a quantitative one, but could also be a qualitative one.

The developmental aspect of attitudes seems to be evident from some of the profiles. For example, on three of the six sets of non-parallel profiles (viz., #3 - unsanctioned behavior; #4 - prejudice; #8 - social distance) the profile of the youth group (group A) contributed the major portions of profile variation. These findings lend support to Neumann's (1939) and Feuer's (1969) contention that certain crucial attitudes form around the age of seventeen.

The four scales which were found to have parallel profiles were #2 (empathy), #6 (acceptance of religion), #7 (conformity), and #10 (view of Christ as human). In comparing these parallel scales to the non-parallel ones, it appears that the former measure attitudes on which there is a greater degree of consensus in the North-American society than on the latter scales. However, a full discussion of the psychological and sociological implications of the present findings is beyond the topic of this thesis.

In summary, then, profile analysis is a useful technique to confirm the validity of a univariate analysis of variance where the variable to be analyzed is a composite score. However, the fit of the profile analysis model to empirical data appears weak in two areas: (1) it does not take into account the differences among levels of the profiles, and (2) it appears to be sensitive to the number of variables in the profile. These two weaknesses in the model are clearly a matter for further research to improve the fit of the model to empirical data.

### Limitations and Generalizability of the Findings

The majority of subjects in the present study were of Lutheran faith. However, 1206 of the 4334 subjects (28%) stated that, at some previous time, they had belonged to a different denomination. In other words, more than a quarter of the subjects did likely grow up with a different faith, and joined the Lutheran faith perhaps due to marriage or other circumstances. Thus, the sample contains a good proportion of subjects who had experienced exposure to a variety of other denominational backgrounds. It is felt, therefore, that in combination with the large N and careful sampling which included all geographic regions in the United States, the present sample provides an adequate basis to support the generalizations presented below.

With regard to the generalizability of profile analysis to other researches, note that Morrison (1967) does not treat profile analysis in the context of function fluctuation. Instead, in his treatment of the topic, he considered any number of groups which are to be compared on several commensurable variables. Thus, profile analysis was developed to assess the equality of several experimental groups. The analysis of function fluctuation is a special case of this more general case in that the experimental variable used to classify subjects into groups is continuous. Hence, the groups are differentiated on the basis of forming a segment of the range of that variable. For example, age or level of education may be considered continuous variables within a given range, and an attitude could, therefore, be investigated as a function of age or education. However, profile analysis is equally applicable to groups being differentiated on criteria which do not form the basis for a function, e.g., sex, ethnic or cultural member-

ship, experimental versus control group, etc.

In as much as other researches replicate the relatively consistent differences in response variation which were observed among the groups used in this research, it is evident that the shortcomings of the variance-covariance approaches which were found here would also apply to such researches. The findings in connection with the profile analysis and the correlation analysis suggest that in the area of attitude studies comparative statistics based on very heterogeneous groups must be interpreted with caution.

#### Suggestions for Further Research

None of the methods explored here for examining function fluctuation seemed to be entirely satisfactory. While profile analysis seemed to give much more interpretable results, it has some weaknesses as a procedure for assessing the internal stability of a function. The most troublesome appears to be its sensitivity to the number of variables ( $p$ ) in the scale. In view of the complexities of deriving theoretical distributions of  $\Lambda$  for large  $p$ , an empirical distribution might be easier obtainable.

The problems encountered in the variance-covariance approaches raised several questions. The most notable was the apparently age-related trend in response variation. This effect certainly deserves further attention.

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**APPENDIX A**

**THE QUESTIONNAIRE**



# A STUDY OF GENERATIONS

We are grateful to you. You have consented to "sit" for what amounts to a family portrait of Lutherans throughout the entire United States. As you work through this questionnaire, you are joining with approximately 6,000 other Lutherans — steelworkers and farmers, businessmen and housewives, high school students and grandmothers — whose responses, together with yours, will make up that portrait.

Church leaders know that they act irresponsibly if they try to help the Church function only on what it was like in the past, or from their personal experience. Forward-looking direction must be based on a current and accurate picture of the views of life, personal circumstances, attitudes and beliefs of present-day Lutherans.

We know of no way to shrink an elephant — the size of the booklets tells you in advance that this is going to take awhile. For it to achieve maximum usefulness, the survey *must* cover a lot of ground. It seems to take most people about three hours to complete the survey, but we hope that with the variety of information sought, and your interest in the subjects covered, it will not seem nearly that long.

There are no tricks or hidden meanings in any of the questions; they mean what they seem to mean. Everything you say is of value, but don't worry that you might answer one way today and in a slightly different way tomorrow. What we ask is an honest picture of you as you are at this moment.

If you feel uncomfortable about the subject-matter of some of the questions, please remember that men of conscience ask the questions for good reason. Please also remember that the answer sheets are processed and scored by a computer, which has neither feelings nor opinions about anyone's answers. The research team studies answers only from anonymous *groups* of people, not from individuals.

Since you are now a part of this Study of Generations, you will probably be interested in knowing what will be learned from it. All churches with members completing this questionnaire will receive, within about a year, a report summarizing the major findings of the total study.

We hope it makes you feel as good as it makes us feel to be helping with the biggest and most comprehensive study of the attitudes and life styles of Lutherans ever made — a study of great significance, whose value will continue for many years to come.

Rev. Merton Strommen, Ph.D.  
Rev. Milo Brekke, Ph.D. Cd.  
Rev. Ralph Underwager, Ph.D.  
Research Team, Study of Generations

In order to take the survey, you should have before you:

- 1 — A Study of Generations Survey Book
- 2 — An answer sheet
- 3 — A soft lead pencil with an eraser

Do not mark the Survey Book itself. All of your information should be recorded on the answer sheet. Fill in with pencil the small space between dotted lines that corresponds to the answer you want to give to each question. If you should change your mind on a question, be sure you erase the original answer thoroughly so as not to confuse the computer.

Remember that except for questions of fact, such as your occupation, or your age, there are usually no right or wrong responses to these questions and statements. We want your own opinions, feelings, or reactions.

Do your best to answer all of the questions. Do not ignore any of them, but do not spend too much time on any one item. Give your first impression and move quickly to the next.

## **BOOK I — YOUR BELIEFS, VALUES, AND YOU**

**(Begin with Answer Sheet 1 in the upper left hand corner)**

**SEX:** In the space marked "Sex" on the answer sheet, please mark the "M" space if you are male; mark the "F" space if you are female.

**MEMBERSHIP:** In the "Lutheran Membership" section, fill in the space for the Lutheran body of which you are a member at the present time.

**AGE:** Since this is a *Study of Generations*, it is extremely important that you record your age. If we are to learn, for instance, whether or not there is a generation gap, we must know whether your answers were given by a 16-year-old or a 57-year-old.

In the left-hand column, mark the space for the first digit in your age; in the right-hand column, mark the space for the second digit. For example, if you are 48, mark the "4" space in the left-hand column, and the "8" space in the right-hand column.

### **VIEW OF CHRIST**

Our individual notions about Jesus have a great deal to do with our understanding of Christianity. Below are listed fifteen characteristics. Please fill in on your answer sheet the numbers of those characteristics that you think accurately describe Jesus. Leave all other spaces blank.

- |                                          |                                                 |
|------------------------------------------|-------------------------------------------------|
| 1. Feminine                              | 9. Able to be anywhere in an instant            |
| 2. Strong physically                     | 10. Created everything there is                 |
| 3. Alive today                           | 11. Was afraid of dying                         |
| 4. Knew everything all of the time       | 12. All-powerful over illness and death         |
| 5. Perfect in every way                  | 13. Felt sexual attraction                      |
| 6. Not necessarily attractive physically | 14. In constant, perfect communication with God |
| 7. In command of all powers of nature    | 15. Struggled to discover who he really was     |
| 8. Told jokes                            |                                                 |

## BELIEFS

The statements that follow present a variety of beliefs. If you believe what a statement says, mark the "Yes" space. If you do not believe what the statement says, mark "No." If you are unsure, mark "?," but try to give as few "?" answers as possible. "Yes" and "No" are much more useful.

16. Christ is a living reality.
17. The main emphasis of the Gospel is on God's rules for right living.
18. Although there are many religions in the world, most of them lead to the same God.
19. God is a Heavenly Father who cares for me and to whom I am accountable.
20. I know that I need God's continual love and care.
21. The Lutheran Church is the only true visible Church.
22. The Word of God is revealed through the Scriptures.
23. The Church is the agency through which God accomplishes His saving work in the world.
24. God answers my prayers.
25. The Bible provides basic moral principles to guide every decision of my daily life.
26. Hard work will always pay off if you have faith in yourself and stick to it.
27. There is some kind of a hell where men are punished after death for rejecting God.
28. Being tolerant means that one accepts all religions — including Christianity — as equally important before God.
29. I am forgiven by God even when I sin.
30. Sin is whatever people (society) think is wrong behavior.
31. The Bible teaches that God is like a friendly neighbor living upstairs.
32. All war is basically wrong.
33. Jesus is my personal Saviour.
34. The doctrines of the Church need to grow and develop to keep up with the needs of the time.
35. Faith is a poor substitute for factual knowledge.
36. The reason the Jews have so much trouble is because God is punishing them for rejecting Jesus.
37. You can tell if a person is a real Christian or not.
38. The only person who can do good works in the sight of God is the Christian because only the Christian has Christ living in him.
39. The evil that we do, we do ourselves. The good that we do, Christ does in us.
40. Unity among Christians can come only after complete doctrinal agreement.
41. The Jews can never be forgiven for what they did to Jesus until they accept Him as the true Saviour.
42. Hard work keeps people from getting into trouble.
43. God is satisfied if a person lives the best life he can.
44. A person at birth is neither good nor bad.
45. Salvation depends upon being sincere in whatever you believe.
46. The Pope is *the* Anti-Christ.
47. The Bible does not contain all of God's revelation of Himself.
48. There are changeless truths (Absolutes) that can be known by men.
49. There is a divine plan and purpose for every living person and thing.
50. Property (house, automobile, money, investments, etc.) belongs to God; we only hold it in trust for Him.
51. There is nothing which science cannot eventually understand.
52. No matter how unimportant the job may be, doing it well is important.
53. A man should stand on his own two feet and not depend on others for help or favors.
54. If I say I believe in God and do right, I will get to heaven.
55. It does not make too much difference if a Christian sins since he is forgiven for everything.
56. God loves us only if we love Him and believe in Christ.
57. I believe in salvation as release from sin and freedom for new life.
58. God revealed Himself to man in Jesus Christ.

## IEWS OF LIFE

Everyone has his own way of looking at life. When you listen to people talking about everyday situations, it is sometimes possible to hear how they view life. The items that follow show various ideas or attitudes that people have about particular life situations. Try to find the one for each situation that comes closest to your own. Sometimes none of the three will come very close, but try to find the closest one and mark the proper space on your answer sheet.

59. **JOB CHOICE:** If you needed a job and had a chance to work for two different men, which would you prefer of the two described here?
- One boss, a very fair man, gives somewhat higher pay than most men. But he also insists that men work hard and stick to the job. If there is absenteeism without good reason, he may not take the absentee back on the job.
  - The other boss pays just average wages but is not so strict. If someone takes off an extra day, he welcomes them back without saying too much.
60. **WHY MEN WORK:** There are different ideas about why men work. Which most closely resembles yours?
- Some believe that most people are basically lazy and if given a choice would prefer to do no work at all. It is only the fear and discomfort of being without the necessities of life which keeps them working.
  - Some believe that most people work because being busy with something useful gives them pleasure. If they prefer not to work, it is due to the kind of work and not work itself.
  - Some believe that people obviously have to be under some kind of pressure if they are to do worthwhile work. Yet people report getting deep satisfaction from doing work well, even at times they thought they didn't want to do it. People seem both to like and to dislike working.
61. **IDEAS ABOUT THE FUTURE:** Here is what three people thought about their children's future. Which comes closest to your thoughts?
- If my children work hard and plan right, they will have more than I have had. There are always good chances for people who try.
  - I don't know whether my children will be better off, worse off, or just the same. Things always go up and down, even if one works hard.
  - I expect my children to have about the same as I have had, assuming they work hard. They will find ways to keep things going as they have in the past.
62. **HUMAN TROUBLES:** Some people get into trouble and cause others trouble. Which explanation is most agreeable to you?
- People are naturally selfish and spend their lives looking out for themselves. For most it is only the fear of being found out and punished which keeps them from taking advantage of others.
  - People have great possibilities for both good and bad and therefore must learn how to get along with others. If life teaches them to be selfish, they will be selfish. If it teaches them to be unselfish, they will be unselfish.
  - People are basically much more good than bad. If they fail to develop their greatest possibilities for unselfish service, and they get into trouble, it is because they are surrounded by bad examples and are mistreated.
63. **TIME FOR DAYDREAMING:** When you are free to daydream, where do your thoughts generally tend to go?
- Toward what I hope to have, what I might do, places to which I might go, people I will meet.
  - Toward what others are doing, what I can do now, what requires little planning just to enjoy life.
  - Toward past events, people I have met, things I have done.
64. **CHANGE IN WORSHIP:** People react in many different ways when worship services change from what they used to be. Which best describes your feeling?
- You are pleased with the changes in worship practices. You favor new ways over old ones because you feel that change means progress.
  - You are unhappy with the changes. You feel that worship services should be kept as they were in the past.
  - You like the old ways of worshiping but don't think you should hang onto them if they don't fit how people feel and think now.

65. **THE TEACHER'S JOB:** There is disagreement about just what the main job of the teacher is. Which do you feel is the teacher's main job?
- It is to help the student think for himself, make his own decisions, and solve problems on his own.
  - It is to decide, as a trained teacher, what the children need to learn and to see that it gets learned.
  - It is firmly to guide the student to face the right questions, be sure to learn what others have discovered, and to draw his own conclusions.
66. **CARE OF THE STORE:** There were two men with small stores who lived very differently. Which of the two ways comes closest to how you might do it?
- One took good care of his store but spent no more on it than he had to. He gave only the time needed to keep his business going, preferring to visit with friends and go on trips.
  - One liked to work in his store, and he put in many hours fixing and improving things. This left little time for friends or going places, but to see the results of his work made him feel happy.
67. **RAISING CHILDREN:** Which of these three ideas about raising children do you find most agreeable?
- Some say a child must be trained to think of others, to help himself and not expect others to serve him. Unless trained, he is likely to grow up thinking mostly about his own desires and to expect others to do the same.
  - Others say that children are a puzzle. On the one hand they are selfish and incapable, and, unless taught otherwise, will remain thoughtless of others and helpless. Yet, when allowed to go on their own, they will sometimes display remarkable skill, love and concern. They seem both dependent and independent.
  - Others say, allow children to grow up in their own way. If they enjoy life while growing up, they will come naturally to be as concerned about others as themselves. Also, they will want to do things on their own rather than have things done for them.
68. **NON-WORKING TIME:** Two men spend their time in different ways when they are not working. Which of the two comes closer to the way you would use your leisure?
- One man spends most of his time learning, doing, or trying out new things which interest him or will help him in his work.
  - One man spends most of his non-working time talking, visiting or just being with his friends.
69. **DEATH:** At a funeral parlor, some friends were talking. They said different things about death. Which point of view comes closest to yours?
- One said that he just didn't know what death was and didn't know what, if anything, happened after death. He said that he tried not to think about it too much and felt that there was nothing anyone could do to find out more about death.
  - Another said that death frightened him, yet it was the beginning of a new life, that it meant that the person was finally freed from a less than perfect world for a much better life, and that he would welcome the life that comes after death.
  - A third friend said that death to him was it. It was the end. There was nothing, absolutely nothing, after death. This life, from birth to death, is all that there is.
  - The last friend said that he was afraid of death, that dying was not the way things were meant to be. He said that he felt death was an enemy that should be resisted in any way possible.
70. **DISCIPLINE:** Assume you are a teacher of an unruly class and that one day you have vented your anger toward the class on one child. Knowing that you have acted unfairly by severely punishing the one child, which of the following are you most likely to do?
- You choose not to admit your mistake lest you lose control of the class. Therefore you say nothing about this to the pupil or to the class but continue to let them know they should behave.
  - You begin your next class period with a discussion of what can be learned from this event. You do not share your feeling about having been unfair, but stand ready to do so, if the discussion requires.
  - Recognizing that this event creates a credibility-gap in leadership, you express your feelings to the class and try to guide them toward a class decision on appropriate student-teacher behavior.
  - You go to the child privately and acknowledge that you wronged the child and ask his forgiveness for having been too harsh with him.
71. **TERMINAL CANCER:** A woman is told by her doctor that she has cancer and that she has only a few months to live. He tells her that she will not have a great deal of pain nor be severely handicapped until very close to the end. Of the several different ways she may choose to live those last months, which would you prefer?
- She can try to live what time she has left to the fullest, and try to do all the things she has wanted to do but never got done before, not telling her family and friends anything about it, but making the best use of the time she has left before the end comes.
  - She can decide to tell her family and friends, try to get her affairs in order, prepare for dying by reading all she can find about death and the life beyond, talk to people about the meaning of death, and try to die calmly and happily.
  - She can say that she will try to find other medical treatments and search for ways to be cured, determined to fight death like an enemy.
  - She can decide to save her sleeping pills and when she has enough, take them, because she would rather take a chance on the unknown after death than continue what she knows here.

**72. STEALING IN BUSINESS:** Assume you are operating a small business with four employees. You become aware that one of the four is stealing from you. Which of the following is the best course of action to take?

- a. Get all of your employees together and let them know that you are aware of the theft. Tell them you will trust them to police themselves and prevent further theft.
- b. Fire the thief before he can involve the others and ruin your business. Let him know that if he makes any fuss, you will turn him in to the police.
- c. Call the group together and reason with them about the need that all of you have for the business to keep going. For example, tell them the livelihood of all of you depends upon it. Or appeal to their sense of right and wrong, justice, and fair play.
- d. Go to the thief privately and let him understand that you know he has been stealing but that you willingly forgive him for this wrong to you and the others. Stress that you know and believe he is no worse than the rest, including yourself, so you're not going to hold this over his head but will continue to trust him.

**73. DISOBEDIENCE:** Assume you are a parent and for some time you have been concerned that your 13-year-old has been disobeying you and has now begun to talk back when you have tried to give direction. Which of the following comes closest to what you think would be the best course of action to take?

- a. Call the family together and talk through the feelings of each member about the best way for parents and children to get along together. Try to reach a family decision about what each member can do to improve the situation.
- b. Talk privately with the child and try to reason with him so that he can understand what is really involved in being a good member of the family, a fine citizen and a good example to those younger, so that he can responsibly choose more helpful and cooperative ways to get along.
- c. Make it clear to the child that you will not tolerate such disrespect because it is important for a child to learn to do what he ought, even though he doesn't like it, because there will always be someone to whom he is responsible. Besides that, God's Law says he ought to honor his parents. To help the child learn this important lesson, you let him know what punishments are likely to come.
- d. Go to the child and let him know that you understand that this is very human behavior but that nevertheless you are bothered and offended by it. Tell the child that you are sorry if you have hurt him or provoked him in any way and that you forgive him for hurting you. Let him know that you will try not to hold this against him.

**74. ADULTERY:** Assume that you are married and you become certain that your spouse has committed adultery recently with another married person. Which of the following is the closest to what you now think that you would do?

- a. Try to be the best possible husband or wife you can be in the fullest sense, not denying your spouse any marital privileges or attempting any punishment. At the same time, let your spouse know that you have been hurt very much and that you forgive him/her. Also make it clear that you want to do all you can to bring the two of you closer together and that you want to continue to build your marriage together.
- b. Tell your spouse that you know what has happened, and immediately try to arrange a meeting of yourself, your spouse, the partner in adultery, and his/her spouse. At the meeting, try to decide together what the four of you should do.
- c. Deciding not to get a divorce immediately, confront your spouse with your knowledge of the wrongdoing, establish the guilt, let it be known that you are willing to forgive this time. But also make it clear that it must stop and, if it ever happens again, you will get a divorce.
- d. Talk it through like two reasonable people, trying to understand how it happened, how you may have contributed to it, what it means, and where you go from here. Your goal is to try to keep the marriage together in view of the children who are hurt most by divorce, and because you know the social and financial problems that divorce creates.

**75. PREACHING FALSE DOCTRINE:** Assume that you and several others in your congregation feel that your pastor is not preaching the truth. Which of the following is the closest to what you think ought to be done in such a situation?

- a. Though you recognize that your pastor is teaching something different than what you have been taught in the past, you also understand that human knowledge has grown and developed and that the teaching of the Church must evolve to keep pace. Therefore you try to calm down your fellow members and visit your pastor to explain what's happening in the congregation and to try to work out ways by which all can understand each other better, and together serve the congregation.
- b. Together with your fellow members you decide to request that the matter be discussed at a congregational meeting. You hope that such a meeting will allow a majority of the congregation to make their views known so that the pastor can act accordingly.
- c. See the pastor privately and try to show him from the Bible where he is wrong and be ready to forgive him when he admits his errors.
- d. Representatives of the group should go to higher church officials and present their complaints to get advice and help in straightening out their pastor.

## BELIEFS

Here is a variety of statements about things people believe. Don't be disturbed if you strongly oppose some of them; they are not necessarily to be taken as Church teaching. Read each statement, and from the choices numbered a, b, c, d, and e, choose the one which comes closest to your own position. Even if none of the possible choices fits exactly, choose and mark the one that fits most closely your own belief. Work without hurry, but as fast as you can conveniently read and understand the statements.

76. The Bible is the Word of God. God inspired men to report verbally what He said. The Bible in the original texts contained no errors.
- I strongly agree. Persons who disbelieve this are not true to the Christian faith.
  - I agree. But exact agreement on this point is not necessary. There may have been mistranslations and slips in copying the original text of Scripture.
  - I agree in part. The Bible communicates the Word of God. But God spoke through fallible men. Therefore the Bible contains errors because of the human element, which we may judge by reason.
  - I disagree. The Bible is the record of the early moral and religious progress of Hebrews and Christians. It contains much wisdom from great men. But we cannot be sure of any "divine" element in it.
  - I strongly disagree. The Bible is only one of many collections of ancient religious writings. It is no more important for modern life than similar writings of other religions.
77. Jesus was conceived by the Holy Spirit and born of the Virgin Mary without a human father.
- I strongly agree. Persons who disbelieve this are not true to the Christian faith.
  - I agree. But exact agreement is not essential. (As a case in point, St. Paul and the Gospel of John do not mention the virgin birth.)
  - I agree in part. Jesus was divine, but His divinity is better explained by the Gospel of John (the Word of God became flesh) than by the virgin birth.
  - I disagree. Jesus is the supreme revelation of God to men, but He was conceived like anyone else. In a sense any child is divinely conceived.
  - I strongly disagree. If Jesus ever lived at all, he was conceived like everyone else. The "virgin birth" is just a folk tale that grew up to explain a great man.
78. God raised Jesus from the dead. Jesus arose in His crucified body, left the tomb empty, appeared to His disciples and friends, and ascended into heaven.
- I strongly agree. Persons who disbelieve this are not true to the Christian faith.
  - I agree. But exact agreement is not essential. The risen body of our Lord was a glorified body. It was different from His body before the crucifixion.
  - I agree in part. Some great spiritual experience convinced Jesus' followers that He was alive and with them. But this did not necessarily involve Jesus' original body.
  - I disagree. I believe in immortality and hope for it, but my belief does not depend solely upon the Bible stories of the resurrection.
  - I strongly disagree. The New Testament reports of Jesus appearing to His disciples are stories growing out of the untrained imaginations of His followers. There is no after-life, and a bodily resurrection is impossible.
79. Today, just as at Pentecost, the gift of the Holy Spirit is evidenced by the person speaking in unknown tongues. This promise should be claimed in modern churches.
- I strongly agree. People who disbelieve this are not true to the Christian faith.
  - I agree. But exact agreement is not essential. All the details of the original Pentecost need not be repeated today.
  - I agree in part. Pentecost was the great spiritual experience by which the Holy Spirit empowered the Church. But we can have the Holy Spirit without "speaking in tongues."
  - I disagree. If we ask Him, God will give us spiritual power for Christ-like living. But religious emotion is not always a guarantee of Christ-like character.
  - I strongly disagree. Pentecost was just a case of religious crowd psychology. "Speaking in unknown tongues" is just emotional nonsense. Sensible people drop such superstition.



80. Jesus will some day return from heaven in personal and visible form to rule the earth.
- I strongly agree. Persons who disbelieve this are not true to the Christian faith.
  - I agree. But I do not believe that exact agreement on this point is essential.
  - I agree in part. Jesus will return, but the method and character of His coming at some future date is unknown to us. This is not a proper way to talk about His return.
  - I disagree. The return of Jesus to earth will be spiritual rather than in visible bodily form. He will come eventually to dwell and rule in every human heart.
  - I strongly disagree. There is no heaven from which Jesus can return. To wait for His coming causes men to neglect their task of making life in this world better now.
81. Jesus Christ died for sinners. As a substitute, He suffered the just penalty due us for our sins in order to satisfy the wrath of God and to save guilty men from hell.
- I strongly agree. Persons who disbelieve this are not true to the Christian faith.
  - I agree. But exact agreement is not required of Christians. One might say Jesus died to satisfy the justice of God.
  - I agree in part. One can use this language if it is understood that this is one of several ways to understand the meaning of Christ's death. Jesus died to soften the hearts of sinful men and reveal God's love for them. God saves men who repent, and He brings them to triumph over the powers of death and evil.
  - I disagree. Jesus was a great and good man who died a martyr in the struggle against evil. His martyrdom has been a powerful moral influence and is an example for us.
  - I strongly disagree. There is no such thing as "atonement" (a sacrificial death of one person for the sins of many). There is only a law of cause and effect in moral matters — so the death of Jesus also was a matter of cause and effect in a specific situation.
82. Today, just as in ancient times, God frequently intervenes to work miracles, especially in response to prayer, as for the healing of the sick.
- I strongly agree. Persons who disbelieve this are not true to the Christian faith.
  - I agree. But exact agreement is not required of Christians.
  - I agree in part. Christians should pray for what they need. Prayer for the sick is good and may help in ways we do not understand. God wants us to use all means of help, including medical care.
  - I disagree. Natural laws have always been God's ways of working and healing. Some laws are physical, some spiritual, and they operate even if we do not pray.
  - I strongly disagree. We have no proof of any "higher power" which "intervenes" to help men. There is only natural law to which man must adjust.
83. The belief that human beings descended from some lower animal form is contrary to the Word of God and un-Christian.
- I strongly agree. Persons who disbelieve this are not true to the Christian faith.
  - I agree. But exact agreement on this point is not essential.
  - I agree in part. But evolution can be harmonized with the Bible. Evolution is God's method of creation.
  - I disagree. The Biblical account is not a scientific account. The truth they saw was that God is the Creator.
  - I strongly disagree. Science has proved that man has evolved from sub-human forms of life. The Bible should not be used to decide what is an historical and biological question.
84. Baptism is a Holy Sacrament and is necessary for salvation.
- I strongly agree. Persons who disbelieve this are not true to the Christian faith.
  - I agree. But exact agreement is not required of Christians. Others may believe that baptism is a sacrament and is commanded by God but may not believe that it is necessary for salvation.
  - I agree in part. Baptism is a sacrament and it is commanded by God, but it is not required in order to be saved. A person may believe and not be able to be baptized but still is saved.
  - I disagree. Baptism is a ceremony which men do to confess their faith and does not affect salvation in any way.
  - I strongly disagree. Baptism is nothing more than a practice which makes families feel they are doing right by their children and which keeps the church membership growing.
85. In Holy Communion we are given the true Body and Blood of Jesus for the forgiveness of our sins.
- I strongly agree. Persons who disbelieve this are not true to the Christian faith.
  - I agree, but I know that people can understand this statement in different ways. People may not be completely clear in their understanding of the relationship between bread and wine and body and blood but know that Jesus is really present.
  - I agree in part. The meaning of Holy Communion is that we are forgiven by God. However, we cannot make any definite assertions regarding the presence or absence of something like Christ's Body and Blood or the person of Christ.
  - I disagree. The real meaning of Communion is that we, as human beings, led by love and brotherhood, mystically join together in unity, remembering the need for men to be one and to sacrifice self-interest for others as Jesus did.
  - I strongly disagree. There can be no such thing as the body and blood of a person (who may or may not have even lived) being given for men today to eat. The very idea of a cannibalistic feast on supposed human flesh and blood is repugnant to me.

86. The Ten Commandments are the Law of God and are God's rules for the way all men must live if they are to be good men.
- I strongly agree. Persons who don't live by the Ten Commandments are not true to the Christian faith.
  - I agree. However, we must recognize that we can't keep all of the Commandments, even though they are the standard by which Christians must try to live. The Gospel tells us that God forgives us when we can't keep them. Hence they help us to understand and appreciate the Gospel.
  - I agree in part. The Ten Commandments are a part of God's Law but not by any means the whole of it. The Law of God is felt by men in the very nature of human existence with its demands and realities, including death. However, the Law of God cannot give us the power to live. Only the Gospel can give us life.
  - I disagree. The Ten Commandments are moral rules of an ancient people, and they have no more binding force upon us than any set of ethical rules that makes sense to us and helps us to live together peacefully.
  - I strongly disagree. There is no set of rules that can be applied universally to human life. We need to be free from all rules or standards. Only then will the full potential of humanity be recognized and will each man be free to develop himself as he chooses.
87. Pastors have the right and the power to forgive sins and to excommunicate the unrepentant sinner.
- I strongly agree. Persons who disbelieve this are not true to the Christian faith.
  - I agree. But exact agreement is not essential. Congregations need to be able to exercise a spiritual discipline and to have the power to exclude people whose behavior is grossly sinful and who do not repent. However, it is more important to emphasize the forgiveness of God through the absolution which the pastor pronounces.
  - I agree in part. Pastors can only announce that God has forgiven sins. They don't really forgive sins themselves, and to claim to do so is presumptuous. As far as excommunication is concerned, it doesn't seem to do any good and should not be practiced even if it is in the Bible and has been a part of the Church's history.
  - I disagree. I don't need anybody to tell me that I'm personally forgiven, and I don't think that pastors have any right or duty to interfere in people's lives. If somebody is doing something wrong, that's his business and not the pastor's. The pastor's job is to preach and teach, not to judge me or anybody else.
  - I strongly disagree. The entire idea of anybody having priestly powers to magically erase sin or pronounce a curse upon a person is a superstitious relic of a primitive age that has no place in our modern world.
88. The nature of man is that he is absolutely and completely evil, totally depraved, and there is nothing good in him.
- I strongly agree. Persons who disbelieve this are not true to the Christian faith.
  - I agree that it is correct to say that man is totally depraved, but this must be understood to be true in the sight of God. As far as men thinking about other men, we must recognize that men can be moral and decent and can accomplish things that are good at a human level.
  - I agree in part. The essence of man, namely his nature, is not evil. He has fallen from his nature and is now by custom and habit sinful. Therefore, it is his condition that is evil.
  - I disagree. Man is neither good nor evil but neutral. Whether he does good or bad things all depends on the way you look at it. What is good for one man may be evil for another, so ultimately it is foolish to wonder whether man is good or evil. It cannot be firmly decided either way.
  - I strongly disagree. Man is inherently good, and unless he is brutalized by savagery he will strive toward what is good. The whole history of mankind's development proves that he keeps progressing toward the good and the perfect. We can be quite confident that man's future will be one of steady progress toward perfection.
89. The Bible tells of many miracles, some credited to Christ and some to other prophets and apostles. Generally speaking, which of the following statements comes closest to what you believe about Biblical miracles?
- I am not sure whether these miracles really happened or not.
  - I believe miracles are stories and never really happened.
  - I believe the miracles happened, but can be explained by natural causes.
  - I believe the miracles actually happened just as the Bible says they did.
90. There is a life beyond death.
- Completely true
  - Probably true
  - Probably not true
  - Definitely not true
91. The Devil actually exists.
- Completely true
  - Probably true
  - Probably not true
  - Definitely not true

Please read statements 92 through 96, and mark on your answer sheet only those you think are from the Bible. If you think the statement is quoted from some source other than the Bible, leave it blank.

- |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>92. For it is easier for a camel to go through a needle's eye, than for a rich man to enter into the Kingdom of God.</p> <p>93. Blessed are the strong; for they shall be the sword of God.</p> <p>94. Thou shalt not suffer a witch to live.</p> | <p>95. Let your women keep silence in the churches; for it is not permitted unto them to speak.</p> <p>96. For I the Lord thy God am a jealous God, visiting the iniquity of the fathers upon the children unto the third and fourth generation of them that hate me.</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Mark the space for each of the following which you think were Old Testament prophets. Leave all other spaces blank. If you think none of them were Old Testament prophets, then you will mark only space 103.

- |                                                                               |                                                                     |
|-------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <p>97. Elijah</p> <p>98. Deuteronomy</p> <p>99. Jeremiah</p> <p>100. Paul</p> | <p>101. Leviticus</p> <p>102. Ezekiel</p> <p>103. None of these</p> |
|-------------------------------------------------------------------------------|---------------------------------------------------------------------|

104. Before joining the Lutheran Church of which you are now a member, were you a member of any other denomination? (Mark "Yes" if you were; otherwise leave blank.)

If you left the space for question 104 blank, you may skip to item 128. If you marked "Yes" for question 104, mark "Yes" to as many of the following denominations to which you once belonged before joining the Lutheran Church of which you now are a member.

- |                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>105. Assembly of God</p> <p>106. Baptist</p> <p>107. Christian Science</p> <p>108. Disciples of Christ</p> <p>109. Episcopal</p> <p>110. Jehovah's Witness</p> <p>111. Jewish</p> <p>112. Lutheran (ALC)</p> <p>113. Lutheran (LCA)</p> <p>114. Lutheran (LC-MS)</p> <p>115. Lutheran (Wisconsin Synod)</p> <p>116. Lutheran (Other)</p> | <p>117. Methodist</p> <p>118. Mormon</p> <p>119. Orthodox</p> <p>120. Pentecostal</p> <p>121. Presbyterian</p> <p>122. Roman Catholic</p> <p>123. Seventh Day Adventist</p> <p>124. Unitarian-Universalist</p> <p>125. United Church of Canada</p> <p>126. United Church of Christ</p> <p>127. Other</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## MEMBERSHIPS

We would like to know something about the organizations and clubs to which you now belong. On the answer sheet mark the number of organizations of each kind to which you belong, or for which you are an advisor, counselor, sponsor, etc. *Do not include* those with which you were formerly associated, but are not now. If you belong to more than 4, mark the 4 space anyway. We will interpret it to mean "4 or more." Be sure to mark "0" if you do not belong to any.

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>128. FRATERNAL GROUPS, such as Elks, Eagles, Masons, Eastern Star and women's auxiliaries to groups like this, Demolay, Job's Daughters, etc.</p> <p>129. SERVICE CLUBS, such as Lions, Rotary, Kiwanis, Jr. Chamber of Commerce, etc.</p> <p>130. VETERANS GROUPS, such as the American Legion, VFW, Amvets, etc.</p> <p>131. MAJOR POLITICAL GROUPS, such as Democratic or Republican clubs, American Independent Party, and political action groups such as voter's leagues, NAACP, etc.</p> | <p>132. LABOR UNIONS, such as International Typographical Union, Teamsters, etc.</p> <p>133. SPORTS GROUPS, such as bowling teams, little league, bridge clubs, or sports sponsoring groups such as Downtown Quarterbacks, etc.</p> <p>134. YOUTH GROUPS, such as Boy Scouts, Girl Scouts, 4-H, etc.</p> <p>135. SCHOOL SERVICE GROUPS, such as PTA, or alumni associations, Y-Teens, Hi-Y, etc.</p> <p>136. HOBBY OR GARDEN CLUBS, such as stamp or coin clubs, flower clubs, pet clubs, etc.</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

137. SCHOOL FRATERNITIES OR SORORITIES, such as Sigma Chi, Delta Gamma, etc.
138. FARM ORGANIZATIONS, such as Farmer's Union, Farm Bureau, Grange, etc.
139. LITERARY, ART, DISCUSSION, OR STUDY CLUBS, such as book review clubs, etc.
140. PROFESSIONAL OR ACADEMIC SOCIETIES, such as the American Dental Association, Phi Beta Kappa, etc.
141. SELF-IMPROVEMENT ORGANIZATIONS, such as Alcoholics Anonymous, TOPS, Neurotics Anonymous, Recovery Inc., etc.
142. INDEPENDENT VOLUNTARY RELIGIOUS ORGANIZATIONS, such as Lutheran Evangelistic Movement, YMCA, YWCA, Lutheran Medical Mission Association, World Brotherhood Exchange, Lutheran Orient Missions, etc.
143. CHARITABLE OR SPECIAL NEED ORGANIZATIONS, such as Mentally Retarded Associations, board membership in American Cancer or Heart Associations, Red Cross, Goodwill Industries, etc.
144. REVOLUTIONARY POLITICAL ACTION GROUPS, such as SDS, Weatherman I or II, Black Panthers, etc.
145. CONSERVATIVE POLITICAL ACTION GROUPS, such as John Birch Society, Minutemen, POSE (Parents Opposed to Sex Education), etc.
146. Aside from church organizations and activities, about how many times *a month* do you attend a meeting or other activity connected with organizations to which you now belong? Mark one number. We will interpret the 9 space to mean "9 or more."

An occasional yawn throughout the course of this questionnaire is not only permissible and understandable, but probably beneficial, as well.

## WAYS TO LIVE

Below are described thirteen ways to live which various persons at various times have advocated and followed. We would like to know how much you like or dislike each of them.

Remember that it is not a question of what kind of life you now lead, or the kind of life you think it wise to live in our society, or the kind of life you think good for others, but *simply the kind of life you personally would like to live*.

Read each of the Ways and mark your preference for it on the answer sheet before reading on to the next Way. Do not compare them with each other, or be concerned about marking several with the same number. Judge each separately, using the following scale to indicate how you feel about it:

- |                                   |                                     |
|-----------------------------------|-------------------------------------|
| 1 — I like it <i>very much</i>    | 5 — I dislike it <i>slightly</i>    |
| 2 — I like it <i>quite a lot</i>  | 6 — I dislike it <i>quite a lot</i> |
| 3 — I like it <i>slightly</i>     | 7 — I dislike it <i>very much</i>   |
| 4 — I am <i>indifferent</i> to it |                                     |

147. WAY 1: In this "design for living" the individual actively participates in the social life of his community, not to change it primarily, but to understand, appreciate, and preserve the best that man has attained. Excessive desires should be avoided and moderation sought. One wants the good things of life but in an orderly way. Life is to have clarity, balance, refinement, control. Vulgarly, great enthusiasm, irrational behavior, impatience, indulgence are to be avoided. Friendship is to be esteemed but not easy intimacy with many people. Life is to have discipline, intelligibility, good manners, predictability. Social changes are to be made slowly and carefully, so that what has been achieved in human culture is not lost. The individual should be active physically and socially, but not in a hectic or radical way. Restraint and intelligence should give order to an active life.

(Remember to mark your feeling about this before going on. This is an important ground-rule: Once marked, do not change your response.)

148. WAY 2: The individual should for the most part "go it alone," assuring himself of privacy in living quarters, having much time to himself, attempting to control his own life. One should stress self-sufficiency, reflection and meditation, knowledge of himself. The direction of interest should be away from intimate associations with social groups, and away from the physical manipulation of objects or attempts at control of the physical environment. One should aim to simplify one's external life, to moderate those desires whose satisfaction is dependent upon physical and social forces outside of oneself, and to concentrate attention upon the refinement, clarification, and self-direction of oneself. Not much can be done or is to be gained by "living outwardly." One must avoid dependence upon persons or things; the center of life should be found within oneself.

(Remember the ground-rule for these Ways.)

149. WAY 3: This way of life makes central the sympathetic concern for other persons. Affection should be the main thing in life, affection that is free from all traces of the imposition of oneself upon others or of using others for one's own purposes. Greed in possessions, emphasis on sexual passion, the search for power over persons and things, excessive emphasis upon intellect, and undue concern for oneself are to be avoided. For these things hinder the sympathetic love among persons which alone gives significance to life. If we are aggressive we block our receptivity to the personal forces upon which we are dependent for genuine personal growth. One should accordingly purify oneself, restrain one's self-assertiveness, and become receptive, appreciative, and helpful with respect to other persons.

150. WAY 4: Life is something to be enjoyed — sensuously enjoyed, enjoyed with relish and abandonment. The aim in life should not be to control the course of the world or society or the lives of others, but to be open and receptive to things and persons and to delight in them. Life is more a festival than a workshop or a school for moral discipline. To let oneself go, to let things and persons affect oneself, is more important than to do — or to do good. Such enjoyment, however, requires that one be self-centered enough to be keenly aware of what is happening and free for new happenings. So one should avoid entanglements, should not be too dependent on particular people or things, should not be self-sacrificing. One should be alone a lot, should have time for meditation and awareness of oneself. Solitude and sociality together are both necessary in the good life.

(Again, the question is: How much would you *like* to live this way?)

151. WAY 5: A person should not hold on to himself, withdraw from people, keep aloof and self-centered. Rather merge oneself with a social group, enjoy cooperation and companionship, join with others in resolute activity for the realization of common goals. Persons are social and persons are active. Life should merge energetic group activity and cooperative group enjoyment. Meditation, restraint, concern for one's self-sufficiency, abstract intellectuality, solitude, stress on one's possessions all cut the roots which bind persons together. One should live outwardly with gusto, enjoying the good things of life, working with others to secure the things which make possible a pleasant and energetic social life. Those who oppose this ideal are not to be dealt with too tenderly . . .

152. WAY 6: Life continuously tends to stagnate, to become "comfortable," to become sicklied o'er with the pale cast of thought. Against these tendencies, a person must stress the need of constant activity — physical action, adventure, the realistic solution of specific problems as they appear, the improvement of techniques for controlling the world and society. Man's future depends primarily on what he does, not on what he feels or on his speculations. New problems constantly arise and always will arise. Improvements must always be made if man is to progress. We can't just follow the past or dream of what the future might be. We have to work resolutely and continually if control is to be gained over the forces which threaten us. Man should rely on technical advances made possible by scientific knowledge. He should find his goal in the solution of his problems. The good is the enemy of the better.

(Again, please remember, do not compare one Way with another. Judge each Way separately.)

153. WAY 7: We should at various times and in various ways accept something from all other paths of life, but give no one our exclusive allegiance. At one moment one of them is the more appropriate; at another moment another is the most appropriate. Life should contain enjoyment and action and contemplation in about equal amounts. When either is carried to extremes we lose something important for our life. So we must cultivate flexibility, admit diversity in ourselves, accept the tension which this diversity produces, find a place for detachment in the midst of enjoyment and activity. The goal of life is found in the dynamic integration of enjoyment, action, and contemplation, and so in the dynamic interaction of the various paths of life. One should use all of them in building a life, and no one alone.

154. WAY 8: Enjoyment should be the keynote of life. Not the hectic search for intense and exciting pleasures, but the enjoyment of the simple and easily obtainable pleasures: the pleasures of just existing, of savory food, of comfortable surroundings, of talking with friends, of rest and relaxation. A home that is warm and comfortable, chairs and a bed that are soft, a kitchen well stocked with food, a door open to the entrance of friends — this is the place to live. Body at ease, relaxed, calm in its movements, not hurried, breath slow, willing to nod and to rest, grateful to the world that is its food — so should the body be. Driving ambition and the fanaticism of ascetic ideals are the signs of discontented people who have lost the capacity to float in the stream of simple, care-free, wholesome enjoyment.

155. WAY 9: Receptivity should be the keynote of life. The good things of life come of their own accord, and come unsought. They cannot be found by resolute action. They cannot be found in the indulgence of the sensuous desires of the body. They cannot be gathered by participation in the turmoil of social life. They cannot be given to others by attempts to be helpful. They cannot be garnered by hard thinking. Rather do they come unsought when the bars of the self are down. When the self has ceased to make demands and waits in quiet receptivity, it becomes open to the powers which nourish it and work through it, and sustained by these powers it knows joy and peace. To sit alone under the trees and the sky, open to nature's voices, calm and receptive, then can the wisdom from without come within.
156. WAY 10: Self-control should be the keynote of life. Not the easy self-control which retreats from the world, but the vigilant, stern, manly control of a self which lives in the world, and knows the strength of the world and the limits of human power. The good life is rationally directed and holds firm to high ideals. It is not bent by the seductive voices of comfort and desire. It does not expect social utopias. It is distrustful of final victories. Too much cannot be expected. Yet one can with vigilance hold firm the reins to his self, control his unruly impulses, understand his place in the world, guide his actions by reason, maintain his self-reliant independence. And in this way, though he finally perish, man can keep his human dignity and respect, and die with cosmic good manners.
157. WAY 11: The contemplative life is the good life. The external world is no fit habitat for man. It is too big, too cold, too pressing. Rather, it is the life turned inward that is rewarding. The rich internal world of ideals, of sensitive feelings, of reverie, of self-knowledge is man's true home. By the cultivation of the self within, man alone becomes human. Only then does there arise deep sympathy with all that lives, an understanding of the suffering inherent in life, a realization of the futility of aggressive action, the attainment of contemplative joy. Conceit then falls away and austerity is dissolved. In giving up the world one finds the larger and finer sea of the inner self.
158. WAY 12: The use of the body's energy is the secret of a rewarding life. The hands need material to make into something: lumber and stone for building, food to harvest, clay to mold. The muscles are alive to joy only in action, in climbing, running, skiing, and the like. Life finds its zest in overcoming, dominating, conquering some obstacle. It is the active deed which is satisfying, the deed adequate to the present, the daring and adventuresome deed. Not in cautious foresight, not in relaxed ease does life attain completion. Outward energetic action, the excitement of power in the tangible present — this is the way to live.
159. WAY 13: A person should let himself be used. Used by other persons in their growth, used by the great objective purposes in the universe which silently and irresistibly achieve their goal. For persons and the world's purposes are dependable at heart, and can be trusted. One should be humble, constant, faithful, uninsistent. Grateful for the affection and protection which one needs, but undemanding. Close to persons and to nature, and secure because close. Nourishing the good by devotion and sustained by the good because of devotion. One should be a serene, confident, quiet vessel and instrument of the great dependable powers which move to their fulfillment.

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For items 160 through 166, choose the one most appropriate answer for each and mark it on your answer sheet.

160. If you were to move away from your present location, which *one* of the following would you consider *most* important when selecting a church?
1. A Lutheran church of the synod of which I am now a member
  2. A Lutheran church near my home
  3. A Lutheran church where I like the pastor and his preaching
  4. A Lutheran congregation where I feel there is a sense of mission
  5. Any Lutheran church that combines 2, 3 and 4
  6. Any Protestant church that combines 2, 3 and 4
  7. Considerations other than these
161. Which of the following statements comes closest to expressing what you believe about God?
1. I know God really exists, and I have no doubts about it.
  2. While I have doubts, I feel that I do believe in God.
  3. I find myself believing in God some of the time, but not at other times.
  4. I don't believe in a personal God, but I do believe in a higher power of some kind.
  5. I don't know whether there is a God, and I don't believe there is any way to find out.
  6. I don't believe in God.
  7. None of the above represents what I believe.
162. How long have you lived in your present neighborhood?
- a. Less than 1 year
  - b. Between 1 and 3 years
  - c. Between 3 and 7 years
  - d. Between 7 and 10 years
  - e. Between 10 and 15 years
  - f. Between 15 and 20 years
  - g. More than 20 years

Possible answers for questions 163, 164, 165 and 166 are:

- a. 8th grade or less
- b. Some high school or trade school, but not enough to graduate
- c. High school or trade school graduate
- d. Some college, but not enough to graduate
- e. College graduate
- f. Some graduate or professional school, but not enough for an advanced degree
- g. Graduate or professional degree

163. How much formal education have *you* had?

164. How much formal education has *your spouse* had? (Leave blank if not married.)

165. How much formal education did *your father* have?

166. How much formal education did *your mother* have?

## VALUES

Here is a list of qualities or characteristics that exist to a varying degree in most people's lives. What you should decide is how important it is to you to have each of these qualities present in your life — not whether the qualities are now present, but how much you want them. But wait — don't mark anything yet!

First, read through the complete list before making any marks on your answer sheet.

Then decide which six are of Extreme Importance to you. For those six, mark the "E" space. Next, decide which six are of the Least Importance to you. For those, mark the "L" space. From the remaining items, decide which six are Quite Important to you and which six are only of Some Importance. Mark the Quite Important items in the "Q" space and the six which have Some Importance for you in the "S" space.

When you have finished, you should have marked six each of E, Q, S and L. If you have to erase while you work through this list, please be sure to erase thoroughly so as not to confuse the computer.

- 167. ADVENTURE (exploration, risks, danger)
- 168. SERVICE (devotion to the interests of others)
- 169. RECOGNITION (being important, being well-liked)
- 170. ETHICAL LIFE (responsible living toward others)
- 171. MEANINGFUL WORK (sense of purpose, a job that is relevant)
- 172. WISDOM (mature understanding, insight)
- 173. PLEASURE (excitement, satisfaction, fun)
- 174. HONESTY (being frank and genuinely yourself with everyone)
- 175. PERSONAL FREEDOM (independence, making own choices)
- 176. MONEY (plenty of money for things I want)
- 177. PERSONAL POWER (having influence and authority over others)
- 178. RELIGION (religious belief, relationship with God, meaning in life)

- 179. LOVE (warmth, caring, giving and receiving of love)
- 180. PHYSICAL APPEARANCE (attractiveness)
- 181. BEAUTY (in the arts and in nature)
- 182. EMOTIONAL STABILITY (ability to handle inner conflicts)
- 183. LAW AND ORDER (respect for authority, firm government)
- 184. SKILL (being good at doing something important to me)
- 185. FORGIVENESS (being willing to pardon others)
- 186. FAMILY HAPPINESS (mutual caring among family members)
- 187. SALVATION (being saved, having eternal life)
- 188. ACHIEVEMENT (achieving one's desired goal)
- 189. HEALTH (strength, freedom from illness)
- 190. SOCIAL JUSTICE (fair treatment of all)

- 
191. How many people in your immediate family are not Lutherans?
- a. 0
  - b. 1
  - c. 2
  - d. 3 or more

Indicate how important the following are in your life by marking one answer for each.

**YOUR CHOICES ARE:**

- V — Very Important
- Q — Quite Important
- S — Somewhat Important
- L — Of Little Importance
- N — Of No Importance

192. How important is prayer in your life?

193. How important is Communion (the Lord's Supper) in your life?

194. How important is your Baptism in your life?

195. How important is your faith to you?

**PERSONAL DATA**

This next section may slow you down a little, not because the questions are difficult, but because the subject matter and kind of response changes every item or two. We have no doubt that you can manage it, but we wanted to warn you in advance.

196. Generally speaking, of which of these groups do you consider your family to be a member?

- 1. Lower class
- 2. Lower middle class
- 3. Middle class
- 4. Upper middle class
- 5. Upper class

197. Mark the number of close friends (not family or relatives) you have, people whom you feel really care about you (8 means "8 or more")

198. Mark the number of *older* brothers and sisters you have had, whether they are living or not. (8 means "8 or more")

199. Mark the number of *younger* brothers and sisters you have had, whether they are living or not. (8 means "8 or more")

200. Have you made your views on controversial religious issues in the Church (fellowship, doctrine, ministry and mission of the Church, etc.) known in any of the following ways? (Mark as many as you have done; if none, leave blank.)

- a. Spoken to a pastor personally
- b. Taken a public stand in your congregation
- c. Initiated or presented a discussion or study program among church members on such an issue
- d. Written a conference, district, or synodical official
- e. Personally contacted a conference, district, or synodical official
- f. Taken a public stand in a conference, district, or synodical meeting
- g. Written a letter to an editor of a church publication
- h. Participated in efforts to remove offending officials
- i. Participated in an active protest against church policies.

201. On the average, how many hours *per week* do you work for pay?

- a. None
- b. 1-10
- c. 11-20
- d. 21-30
- e. 31-40
- f. 41-50
- g. 51-60
- h. 61-70
- i. Over 70

202. Check the figures that come closest to the total annual household income of all members of your household living at home (before taxes).

- a. Under 3,000
- b. 3,000-5,999
- c. 6,000-8,999
- d. 9,000-11,999
- e. 12,000-14,999
- f. 15,000-17,999
- g. 18,000-20,999
- h. 21,000-23,999
- i. 24,000 or more

203. How many children have you had (whether they are living or not)?

- a. None
- b. One
- c. Two
- d. Three
- e. Four
- f. Five
- g. Six
- h. Seven
- i. Eight or more

204. Which of the following do you think is the *one* most important problem facing this country today?

- a. General unrest in the nation
- b. Breakdown in morals, respect
- c. Pollution of the environment
- d. War in Southeast Asia (Vietnam)
- e. Racial problems and civil rights
- f. Crime and lawlessness
- g. Lack of understanding between people generally
- h. Inflation
- i. Communist influences



205. Which of the following have had the *greatest* influence in making you what you are today in terms of your personality and approach to life? Choose only *two*:
- a. Church
  - b. Father
  - c. Mother
  - d. Brother(s) or sister(s)
  - e. Larger family, including grandparents, uncles, aunts, etc.
  - f. Friends, other than family
  - g. Teachers or school
  - h. My country
  - i. God

206. Have you made your views on public affairs known in any of the following ways? (Mark as many as you have done; if none, leave blank.)
- a. Signed a petition
  - b. Written a public official
  - c. Personally contacted a public official
  - d. Written a letter to the editor of a newspaper
  - e. Publicly took a stand on some public issue
  - f. Publicly supported a political candidate
  - g. Circulated a petition
  - h. Taken a stand from the pulpit on some political issue
  - i. Run for public office

Possible answers for questions 207, 208, and 209 are:

- a. Northern Europe
- b. Central Europe
- c. Eastern Europe
- d. Southern Europe
- e. British Isles
- f. Near East
- g. Orient
- h. Mexico
- i. Caribbean
- j. Latin America
- k. Canada
- l. Other

207. I was born in (If U.S.A., leave blank)

208. My *father* was born in (If U.S.A., leave blank)

209. My *mother* was born in (If U.S.A., leave blank)

210. I think of myself as
- a. A liberal Democrat
  - b. A moderate Democrat
  - c. A conservative Democrat
  - d. A liberal Republican
  - e. A moderate Republican
  - f. A conservative Republican
  - g. American Independent Party Member
  - h. An Independent
  - i. A Socialist
  - j. A Communist
  - k. Other
  - l. Not interested in politics

211. What is the approximate size of the community in which you were mostly raised? (Consider suburbs as part of the total metropolitan area.)
- a. Open country
  - b. Under 500
  - c. 500 to 2,499
  - d. 2,500 to 4,999
  - e. 5,000 to 9,999
  - f. 10,000 to 24,999
  - g. 25,000 to 49,999
  - h. 50,000 to 99,999
  - i. 100,000 to 249,999
  - j. 250,000 to 499,999
  - k. 500,000 to 999,999
  - l. 1,000,000 or over

212. Are you employed?

- a. I am employed, full-time (and not a student or housewife).
- b. I am employed, part-time (and not a student or housewife).
- c. I am a student, not employed.
- d. I am a student, employed part or full-time.
- e. I am temporarily unemployed.
- f. I am a housewife, not employed.
- g. I am a housewife, employed part-time outside the home.
- h. I am a housewife, employed full-time outside the home.
- i. I am retired and employed part-time
- j. I am retired, not employed (and not permanently disabled).
- k. I am permanently disabled.

Nine general categories of employment or occupation are described below and are your choice of answers for questions 213, 214, and 215.

- a. CLERICAL AND RELATED WORKERS such as bookkeepers, stenographers, cashiers, mail carriers, shipping clerks, secretaries, ticket agents, telephone operators, etc.
  - b. CRAFTSMEN, FOREMEN, AND RELATED WORKERS such as tinsmiths, bakers, carpenters, masons, shoemakers, electricians, inspectors, cement workers, jewelers, machinists, painters, garage mechanics, etc.
  - c. LABORERS such as garage laborers, car washers, stevedores, lumbermen, teamsters, gardeners, unskilled helpers in construction, manufacturing, farmhands, etc.
  - d. OPERATIVES AND RELATED WORKERS such as chauffeurs, delivery men, laundry workers, apprentices, meat cutters, semi-skilled and unskilled employees in manufacturing establishments (bakers, tobacco, textiles, etc.), wholesale and retail workers, mine laborers, bus drivers, motormen, farm renters, etc.
  - e. PRIVATE HOUSEHOLD WORKERS such as servants, laundresses, housekeepers, etc.
  - f. PROFESSIONAL, TECHNICAL AND SIMILAR WORKERS such as teachers, editors, dentists, clergymen, professors, instructors, doctors, lawyers, nurses, architects, librarians, social workers, funeral directors, photographers, dancers, optometrists, aviators, surveyors, chiropractors, athletes, etc.
  - g. PROPRIETORS, MANAGERS AND OFFICIALS such as public officials, credit men, buyers, officers, floor managers, proprietors, railroad conductors, etc.
  - h. SALES WORKERS such as salesmen, insurance and real estate agents and brokers, stock and bond salesmen, newsboys, demonstrators, etc.
  - i. SERVICE WORKERS, EXCEPT DOMESTIC, such as fire, police, barbers, beauticians, janitors, porters, waiters, ushers, practical nurses, etc.
  - j. FARM OWNERS, FARM MANAGERS
  - k. OTHER
213. (If you are employed, answer this:) Mark the letter of the category that is closest to your occupation.  
(If you are retired and not employed at all, answer this:) Mark the letter of the category closest to what was your occupation.
214. (If you are a young person, still in school or not employed, answer this:) Mark the letter for the kind of work you are considering as a career.
215. (If you are *not* the main supporter of the household of which you are a member, answer this:) Mark the letter of the category that is closest to the occupation of the one who provides the main support of the household.
216. For how long have you been hospitalized in the last five years?
- a. None
  - b. One week or less
  - c. About two weeks
  - d. About one month
  - e. About three months
  - f. About six months
  - g. More than a year
217. Are you frequently ill?
218. Have you had serious difficulties in your home (prolonged illness, unemployment, death or injuries, personal problems) during the past year?
219. Have you ever gone to a psychologist, psychiatrist or some other therapist for help with your emotional problems?
220. Are you or someone in your immediate family now receiving welfare aid? (Do not include unemployment compensation.)

## VIEW OF GOD

Please fill in on your answer sheet the numbers of all those characteristics that you think accurately describe God. Leave all other spaces blank.

- 221. Comes to me through other people.
  - 222. An impersonal force.
  - 223. At work in my life.
  - 224. Dead.
  - 225. A creation of men's needs.
  - 226. Three persons, yet one God.
  - 227. Met only in His Word and Sacraments.
  - 228. Makes things work out all right in the long run.
  - 229. An angry judge.
  - 230. Tests people through their suffering.
  - 231. Friendly and loving.
  - 232. Remote (distant).
  - 233. Works in the world only through Christians.
  - 234. Revealed only by the Holy Spirit.
  - 235. A lot like a spying policeman.
- Mark "Yes" on your answer sheet for each of the kinds of overseas experience you have had. If you have had none, mark only item 242.
- 236. Armed Forces
  - 237. Work
  - 238. Tourist
  - 239. Peace Corps
  - 240. Study
  - 241. Resident
  - 242. None

**IF THIS IS THE LAST OF THE THREE SURVEY BOOKS FOR YOU . . .**

**Before you turn in your answer sheets, please look at them again. If you changed your mind on any answers while taking the survey, be sure you erased thoroughly, so as not to confuse the computer. For the same reason, erase any stray marks that are on your paper.**

Items 76-83 are an adaptation of "A Scale of Religious Belief," used by permission of the author, Cloyd V. Gustafson, Ph.D. See *International Journal of Religious Education*, January, 1968.

"Ways of Life" instructions and items 147-159 from Morris, Charles. *Varieties of Human Value*. Chicago: University of Chicago Press, 1956. Used by permission. ©1956 by The University of Chicago. All rights reserved. Published 1956. Third Impression 1968. Printed in the United States of America.

# **A STUDY OF GENERATIONS**

**(Begin with Answer Sheet 2 in the upper left hand corner)**

Mark on the answer sheet the number that best expresses how you feel about each of the following statements. Note that the numbers run from one extreme feeling to its extreme opposite, and your answer may be at either end, or somewhere between. Since you probably have some kind of feeling, one way or the other, about most of these, try to avoid marking "neutral." Since some statements run from 7 to 1 and others from 1 to 7, be sure to mark the number you actually intend in each case.

- |                                                                         |   |   |   |           |   |   |                                                             |
|-------------------------------------------------------------------------|---|---|---|-----------|---|---|-------------------------------------------------------------|
| 243. Life to me seems                                                   | 7 | 6 | 5 | 4         | 3 | 2 | 1                                                           |
| always exciting                                                         |   |   |   | (neutral) |   |   | completely routine                                          |
| 244. If I could choose, I would                                         | 1 | 2 | 3 | 4         | 5 | 6 | 7                                                           |
| prefer never to have been born                                          |   |   |   | (neutral) |   |   | like nine more lives just like this one                     |
| 245. In achieving life goals I have                                     | 1 | 2 | 3 | 4         | 5 | 6 | 7                                                           |
| made no progress whatever                                               |   |   |   | (neutral) |   |   | progressed to complete fulfillment                          |
| 246. My life is                                                         | 1 | 2 | 3 | 4         | 5 | 6 | 7                                                           |
| empty, filled only with despair                                         |   |   |   | (neutral) |   |   | running over with exciting good things                      |
| 247. If I should die today, I would feel that my life has been          | 7 | 6 | 5 | 4         | 3 | 2 | 1                                                           |
| very worthwhile                                                         |   |   |   | (neutral) |   |   | completely worthless                                        |
| 248. In thinking of my life, I                                          | 1 | 2 | 3 | 4         | 5 | 6 | 7                                                           |
| often wonder why I exist                                                |   |   |   | (neutral) |   |   | always see a reason for my being here                       |
| 249. As I view the world in relation to my life, the world              | 1 | 2 | 3 | 4         | 5 | 6 | 7                                                           |
| completely confuses me                                                  |   |   |   | (neutral) |   |   | fits meaningfully with my life                              |
| 250. I am a                                                             | 1 | 2 | 3 | 4         | 5 | 6 | 7                                                           |
| very irresponsible person                                               |   |   |   | (neutral) |   |   | very responsible person                                     |
| 251. Concerning man's freedom to make his own choices, I believe man is | 7 | 6 | 5 | 4         | 3 | 2 | 1                                                           |
| absolutely free to make all life choices                                |   |   |   | (neutral) |   |   | completely bound by limitations of heredity and environment |
| 252. With regard to death, I am                                         | 7 | 6 | 5 | 4         | 3 | 2 | 1                                                           |
| prepared and unafraid                                                   |   |   |   | (neutral) |   |   | unprepared and frightened                                   |
| 253. My life is                                                         | 7 | 6 | 5 | 4         | 3 | 2 | 1                                                           |
| in my hands and I am in full control of it                              |   |   |   | (neutral) |   |   | out of my hands and controlled by forces outside me         |

## PERSPECTIVE

The relationships described below may or may not be part of your present experience. If they are not, mark the "G" space. Answer each of the rest by marking the response that comes closest to the way you feel.

*YOUR CHOICE OF ANSWERS IS:*

- A — I am happy about it.
- B — I am quite happy about it, but I have a few complaints.
- C — There are many things which I do not like about it, but in some ways I am happy with it.
- D — I am not happy about it.
- E — I do not have much feeling one way or the other.
- F — I would rather not say.
- G — This isn't part of my experience at present.

- 278. How do you feel about your church?
- 279. How do you feel about your relationship with your husband or wife?

- 280. How do you feel about your family life?
- 281. How do you feel about your school life?
- 282. How do you feel about your work?

## OPINIONS

In this section, each statement presents an opinion. It is sometimes difficult to know what your opinion is on a subject you have not thought about lately. Also, any person's opinions change from time to time. In going through this section, show how much you agree or disagree with each statement by marking the response that *occurs to you first*. Do not linger too long over any one item. A quick, honest expression of your immediate feeling is your best answer.

*YOUR CHOICE OF ANSWERS IS:*

- SA — Strongly Agree
- A — Agree

- D — Disagree
- SD — Strongly Disagree

- 283. The true Christian is sure that his beliefs are correct.
- 284. No punishment is too severe for those guilty of sex killings.
- 285. People in a congregation should accept those who differ radically in what they believe is the work of the Church.
- 286. These days a person must look out for himself since there is no one else to depend on for help.
- 287. With so many different religions around, one doesn't really know which to believe.
- 288. If a child is unusual in any way, his parents should get him to be more like other children.
- 289. The use of marijuana should not be legalized.
- 290. Science makes a greater contribution than the arts to human well being.
- 291. Excluding blacks (or other racial groups) from church activities would be justified in some communities.
- 292. The true Christian believes honestly and wholeheartedly in the doctrines of his Church.
- 293. Lutheran Church bodies should attempt to get their congregations to adopt an "open church" policy of accepting persons as members who are from minority racial and nationality groups.
- 294. The elimination of all racial discrimination is a goal of Christianity.
- 295. Although there is no essential difference between blacks and whites, it is preferable for them not to mingle socially.
- 296. To be a Lutheran is to believe strongly in the Bible as God's Word.

- 297. There is little one person can do to make the world a better place in which to live.
- 298. There should be a frank sharing of differences among people in a congregation.
- 299. A congregation should encourage the minister during the sermon by saying, "Amen."
- 300. Colored people are by nature inferior to white people.
- 301. It is wise to sacrifice now in order to have a better life in later years.
- 302. Men should not be permitted greater sexual freedom than women by society.
- 303. Conscientious objectors should be treated as traitors to their country.
- 304. Religious education in schools should be compulsory.
- 305. Jews are just as honest as other businessmen.
- 306. There is little chance to get ahead on a job unless a man gets a break.
- 307. I have no objection to Negroes and whites dating each other.
- 308. Lutherans are more strict in what they believe than members of most other church bodies.
- 309. If I were to become convinced that the resurrection never happened, I could no longer be a Christian.
- 310. The death penalty is barbaric and should be abolished.
- 311. Justice demands the punishment of criminals.
- 312. Alcoholics and drug addicts should be regarded as victims of a disease.

## BOOK II — HOW YOU SEE YOURSELF AND OTHERS

(Begin with Answer Sheet 2 in the upper left hand corner)

### LIFE PURPOSE

Mark on the answer sheet the number that best expresses how you feel about each of the following statements. Note that the numbers run from one extreme feeling to its extreme opposite, and your answer may be at either end, or somewhere between. Since you probably have some kind of feeling, one way or the other, about most of these, try to avoid marking "neutral." Since some statements run from 7 to 1 and others from 1 to 7, be sure to mark the number you actually intend in each case.

243. Life to me seems  
7                      6                      5                      4                      3                      2                      1  
always                      (neutral)                      completely  
exciting                      routine
244. If I could choose, I would  
1                      2                      3                      4                      5                      6                      7  
prefer never                      (neutral)                      like nine more  
to have been                      lives just like  
born                      this one
245. In achieving life goals I have  
1                      2                      3                      4                      5                      6                      7  
made no                      (neutral)                      progressed  
progress                      to complete  
whatever                      fulfillment
246. My life is  
1                      2                      3                      4                      5                      6                      7  
empty, filled                      (neutral)                      running over  
only with                      with exciting  
despair                      good things
247. If I should die today, I would feel that my life has been  
7                      6                      5                      4                      3                      2                      1  
very                      (neutral)                      completely  
worthwhile                      worthless
248. In thinking of my life, I  
1                      2                      3                      4                      5                      6                      7  
often wonder                      (neutral)                      always see a  
why I exist                      reason for my  
being here
249. As I view the world in relation to my life, the world  
1                      2                      3                      4                      5                      6                      7  
completely                      (neutral)                      fits meaningfully  
confuses me                      with my life
250. I am a  
1                      2                      3                      4                      5                      6                      7  
very                      (neutral)                      very  
irresponsible                      responsible  
person                      person
251. Concerning man's freedom to make his own choices, I believe man is  
7                      6                      5                      4                      3                      2                      1  
absolutely free                      (neutral)                      completely bound  
to make all                      by limitations of  
life choices                      heredity and environment
252. With regard to death, I am  
7                      6                      5                      4                      3                      2                      1  
prepared and                      (neutral)                      unprepared and  
unafraid                      frightened
253. My life is  
7                      6                      5                      4                      3                      2                      1  
in my hands                      (neutral)                      out of my hands  
and I am in full                      and controlled by  
control of it                      forces outside me

254. Facing my daily tasks is  
 7 6 5 4 3 2 1  
 a source of (neutral) a painful and  
 pleasure and boring  
 satisfaction experience
255. I have discovered  
 1 2 3 4 5 6 7  
 no mission or (neutral) clear-cut goals  
 purpose in life and a satisfying  
 life purpose
256. The primary role of the Church is  
 1 2 3 4 5 6 7  
 no involvement in (neutral) work for social  
 social issues but reform first  
 only preach  
 the Gospel
257. My present feeling is that the Church is now involved in social issues  
 1 2 3 4 5 6 7  
 far too much (neutral) far too little

## SOCIAL DISTANCE

Various groups of people are listed below. For each, read the name of the group, mark *as many* of the answer spaces *as fit your feelings*, and then move on to the next group. Do not spend a lot of time re-thinking your first responses. Assume that all of the seven choices mentioned *are possible* for you. Note that it is all right to mark *several* spaces for each group.

### YOUR CHOICE OF ANSWERS IS:

- 1 — Would marry into group
- 2 — Would have as close friends
- 3 — Would have as next door neighbors
- 4 — Would work in same office
- 5 — Would have as speaking acquaintances only
- 6 — Would not want in my community
- 7 — Would debar from my nation

- 258. Hippies
- 259. Alcoholics
- 260. Members of Students for Democratic Society (SDS)
- 261. Negroes
- 262. Welfare mothers with illegitimate children
- 263. Catholics
- 264. Members of John Birch Society
- 265. Mentally disturbed persons
- 266. Divorcees
- 267. High school dropouts

- 268. Jews
- 269. Communists
- 270. American Indians
- 271. Homosexuals
- 272. Atheists
- 273. Non-Lutheran Protestants
- 274. Ex-convicts
- 275. Drug addicts
- 276. Orientals
- 277. Whites



## PERSPECTIVE

The relationships described below may or may not be part of your present experience. If they are not, mark the "G" space. Answer each of the rest by marking the response that comes closest to the way you feel.

### YOUR CHOICE OF ANSWERS IS:

- A — I am happy about it.
- B — I am quite happy about it, but I have a few complaints.
- C — There are many things which I do not like about it, but in some ways I am happy with it.
- D — I am not happy about it.
- E — I do not have much feeling one way or the other.
- F — I would rather not say.
- G — This isn't part of my experience at present.

- 278. How do you feel about your church?
- 279. How do you feel about your relationship with your husband or wife?

- 280. How do you feel about your family life?
- 281. How do you feel about your school life?
- 282. How do you feel about your work?

## OPINIONS

In this section, each statement presents an opinion. It is sometimes difficult to know what your opinion is on a subject you have not thought about lately. Also, any person's opinions change from time to time. In going through this section, show how much you agree or disagree with each statement by marking the response that *occurs to you first*. Do not linger too long over any one item. A quick, honest expression of your immediate feeling is your best answer.

### YOUR CHOICE OF ANSWERS IS:

- SA — Strongly Agree
- A — Agree

- D — Disagree
- SD — Strongly Disagree

- 283. The true Christian is sure that his beliefs are correct.
- 284. No punishment is too severe for those guilty of sex killings.
- 285. People in a congregation should accept those who differ radically in what they believe is the work of the Church.
- 286. These days a person must look out for himself since there is no one else to depend on for help.
- 287. With so many different religions around, one doesn't really know which to believe.
- 288. If a child is unusual in any way, his parents should get him to be more like other children.
- 289. The use of marijuana should not be legalized.
- 290. Science makes a greater contribution than the arts to human well being.
- 291. Excluding blacks (or other racial groups) from church activities would be justified in some communities.
- 292. The true Christian believes honestly and wholeheartedly in the doctrines of his Church.
- 293. Lutheran Church bodies should attempt to get their congregations to adopt an "open church" policy of accepting persons as members who are from minority racial and nationality groups.
- 294. The elimination of all racial discrimination is a goal of Christianity.
- 295. Although there is no essential difference between blacks and whites, it is preferable for them not to mingle socially.
- 296. To be a Lutheran is to believe strongly in the Bible as God's Word.

- 297. There is little one person can do to make the world a better place in which to live.
- 298. There should be a frank sharing of differences among people in a congregation.
- 299. A congregation should encourage the minister during the sermon by saying, "Amen."
- 300. Colored people are by nature inferior to white people.
- 301. It is wise to sacrifice now in order to have a better life in later years.
- 302. Men should not be permitted greater sexual freedom than women by society.
- 303. Conscientious objectors should be treated as traitors to their country.
- 304. Religious education in schools should be compulsory.
- 305. Jews are just as honest as other businessmen.
- 306. There is little chance to get ahead on a job unless a man gets a break.
- 307. I have no objection to Negroes and whites dating each other.
- 308. Lutherans are more strict in what they believe than members of most other church bodies.
- 309. If I were to become convinced that the resurrection never happened, I could no longer be a Christian.
- 310. The death penalty is barbaric and should be abolished.
- 311. Justice demands the punishment of criminals.
- 312. Alcoholics and drug addicts should be regarded as victims of a disease.

313. Jews have a lot of irritating faults.
314. If children are told much about sex, they are likely to go too far in experimenting with it.
315. Old people demand more consideration than they have any right to expect.
316. Most people can be trusted.
317. Lutherans are more like Roman Catholics than like Southern Baptists.
318. Those who deny their desires become neurotics and rigid personalities.
319. By comparison with other Christians, Lutherans are more narrow minded and keep more to themselves.
320. Christians should leave other people alone and not try to change their religion.
321. It is right for husband and wife to enjoy sex relations without the intention of conceiving children.
322. Lutherans are more hypocritical than other Christians.
323. Worry to a Christian is really a sin because if he truly had faith in God he wouldn't worry about anything.
324. If a Christian truly believes in God's promises and takes God at His Word, he will tithe.
325. A worthwhile goal in life is to find security and certainty.
326. The only way to build an ideal world society is to convert everyone to Christianity.
327. Most people who live in poverty could do something about it if they really wanted to.
328. An experienced person knows that most people can't be trusted to be honest in their personal relationships.
329. Lutherans are not different from other Christians.
330. Jews don't care what happens to anyone but their own kind.
331. The Church should have more evangelism programs that encourage church members to go out and visit others and witness.
332. A Lutheran is different from other Christians because he has different beliefs.
333. The true Christian has the joy and peace which come from recognizing that he is a forgiven sinner.
334. Jews always like to be at the head of things.
335. If one will only grasp God's grace and trust in His love, all doors will be opened and all obstacles will melt away.
336. Lutherans believe more strongly in salvation by faith alone than other Christians do.
337. If every Christian were a witness for Christ, we wouldn't have all the problems we have now.
338. Jews are more willing than others to use shady practices to get what they want.

339. Poor people would be better off if they took advantage of the opportunities available to them rather than spending so much time protesting.
340. All Christians, not just pastors, share the responsibility for being witnesses to Christ and the faith.
341. If a child is allowed to talk back to his parents, he will lose respect for them.
342. Negroes could solve many of their own problems if they would not be so irresponsible and carefree about life.
343. There can be harm in trying LSD or speed just to see what happens.
344. Lutherans seem to be more sad, less happy, and less emotional generally than other Christians.
345. Sometimes it's all right to get around the law if you don't actually break it.
346. Every person has a right to free medical care if he needs it but cannot afford it.
347. People (white or black) have a right to keep others out of their neighborhood if they want to, and this right should be respected.
348. Every person has a right to adequate housing, even if he cannot afford it.
349. The true Christian is likely to have sincere and searching questions about the nature of a life of faith in God.
350. You have to be a little bit bad to make money these days.
351. Jews are more loyal to Israel than to America.
352. A person should make a public testimony about his religion before he becomes a church member.
353. Most Protestant churches need to have more revivals.
354. What is different about Lutherans is that they have pure and true doctrine.
355. To get ahead today you sometimes have to be bad as well as good.
356. The trouble with Jewish businessmen is that they are so shrewd and tricky that other people don't have a fair chance in competition.
357. The family is a sacred institution, divinely ordained.
358. In times like these a person ought to enjoy what he can *now* and not wait.
359. Their German or Scandinavian origin makes Lutherans different from other Christians.
360. Knowing Christ as Lord brings complete happiness no matter what.
361. A Lutheran is different from other Christians because he has different worship practices.
362. Christians should be willing to speak up and protest what is not right.

## CONCERNS

One of the most individual things about you is the list of things that seriously trouble you. Probably no two people are bothered by exactly the same things to exactly the same degree.

Respond to each of the statements in this section by deciding how seriously you are bothered by each of them, and mark your answer accordingly.

### YOUR CHOICE OF ANSWERS IS:

- N (Never) — I am not bothered by this, and I never have been.
- NL (No Longer) — This used to bother me, but it doesn't any more.
- V (Very Much) — This bothers me a lot.
- Q (Quite a Bit) — This bothers me less than "a lot," but still quite a bit.
- S (Somewhat) — This bothers me somewhat.
- L (Very Little) — This bothers me only a little.

- 363. I do not know if I will go to heaven when I die.
- 364. It is hard for me to give a reason for my faith and convictions.
- 365. I do not feel I am close enough to Christ.
- 366. I am afraid I am losing my faith.
- 367. Smoking is thought to be a health hazard, yet some of my friends still smoke.
- 368. I cannot believe some things I have been taught in church.
- 369. I am not living up to my Christian convictions.
- 370. It's hard to share my religious faith in a natural way.
- 371. God does not seem to hear me when I pray.
- 372. I wish I could have a deep faith in God.

## SOCIAL PRESSURES (RESTRAINTS)

No man is an island. Everyone, with the possible exception of a lifelong, full-time hermit, is affected in one way or another by the people, the rules, and the kinds of behavior he meets or observes. Mark the number that best expresses the amount of ease or difficulty you have in accepting each of the following. Your choice of answers goes from 1 to 6; the more easily you accept something, the closer your answer will be to 1; the more difficulty you find in accepting something, the closer your answer will be to 6.

### YOUR CHOICE OF ANSWERS IS:

- |                       |   |   |   |   |                         |
|-----------------------|---|---|---|---|-------------------------|
| 1                     | 2 | 3 | 4 | 5 | 6                       |
| Accept<br>most easily |   |   |   |   | Impossible<br>to accept |

- 373. Prohibitions of use of marijuana.
- 374. Prohibitions of use of other mind-expanding drugs.
- 375. The power and authority of the "boss" in a work situation.
- 376. Conforming in matters of clothing and personal grooming.
- 377. Outward respectability for the sake of career advancement.
- 378. Having little decision-making power in the first few years of a job.
- 379. Abiding by laws you don't agree with.
- 380. Being expected to show respect for all authority.
- 381. Pressure to close one's eyes to dishonest behavior.
- 382. The assumption that leisure must be justified (earned).

## SELF DESCRIPTION

Mark the space that expresses your feeling. Even if you lean only slightly toward the "Yes" or "No," mark it. Those responses are much more helpful than the "?."

- 383. I often feel as if it would be good to get away from it all.
- 384. In general, I respect and appreciate most of the adults I know.
- 385. There are so many problems to deal with today that sometimes I could just "blow up."
- 386. (If you are a youth, answer this:) Contrary to what is being said, I trust many adults over 30 years of age.
- (If you are an adult, answer this:) Contrary to what is being said, I trust most youth I know.
- 387. It seems as though my father was absent from our home entirely or most of the time during my growing years.
- 388. Sometimes I feel God must hate me because there is so much misery in my life.
- 389. I enjoy visiting with older people.

390. In general, I am a suspicious person.
391. Whenever I talk about my faith in God and what it means to me, I feel very good afterwards.
392. When making decisions, I listen primarily to my own age group.
393. I feel guilty about not doing more speaking up for Christ.
394. (If you are a youth, answer this:) I do not enjoy being with adults.  
(If you are an adult, answer this:) I do not enjoy being with young people.
395. I have no moral reasons for delaying an experience that will bring me pleasure.
396. The only ones I really trust are other people about my age.
397. I often feel left out of things that are going on around here.
398. My understanding of the central doctrines of the Church has changed considerably during the last several years.

399. I don't know a single adult whom I trust and enjoy.
400. I enjoy little children.
401. I feel all alone in the world fairly often.
402. Many times I know that I should have protested an injustice, but I just couldn't get up enough courage to speak out.
403. I often get the feeling that my ideas are out of date.
404. (If you are a youth, answer this:) My first reaction to adults is to suspect their motives. I don't trust them.  
(If you are an adult, answer this:) My first reaction to youth is to suspect their motives. I don't trust them.
405. I often feel people around here are not too friendly.
406. I am not afraid to work with young people.
407. In a spirit of love I generally talk honestly about my disagreements and negative feelings.

## GENERATIONS

For each of the following statements, decide whether it is a better description of you or of your parents. If your parents are no longer living, answer as you remember them. If someone other than your parents raised you, keep them in mind as you answer. Mark the appropriate response on the answer sheet.

### YOUR CHOICE OF ANSWERS IS:

- LM (Like Me) — More like me  
S (Same) — About the same for both my parents and me  
LP (Like Parents) — More like my parents

408. Likely to compromise with things one doesn't like
409. Respectful of people in positions of authority
410. Likely to accept things as they are
411. Fearful of financial insecurity
412. Have faith in the democratic process
413. Tolerant of other people's views

414. Honest with oneself
415. Open to the world
416. Optimistic about the future
417. Self-centered
418. Concerned with what is happening to the country

Mark on the answer sheet the response that seems to you most appropriate.

419. Concerning the idea of a "generation gap" today, do you feel that
1. There is such a gap
  2. It exists but has been exaggerated
  3. It doesn't exist
420. Do you think that belief in Jesus Christ as Saviour
1. Is absolutely necessary for salvation
  2. Would probably help for salvation
  3. Probably has no influence for salvation

421. Do you think that being a member of your particular religious faith
1. Is absolutely necessary for salvation
  2. Would probably help for salvation
  3. Probably has no influence for salvation
422. Do you think people being completely ignorant of Jesus, as might be the case for people living in other countries,
1. Will definitely prevent salvation
  2. May possibly prevent salvation
  3. Probably has no influence on salvation

## OPINIONS

Each statement that follows presents an opinion; there are no "right" or "wrong" responses. Show how much you agree or disagree with each statement by choosing one of the following responses and marking the appropriate space on the answer sheet.

### YOUR CHOICE OF ANSWERS IS:

SA — Strongly Agree  
A — Agree

D — Disagree  
SD — Strongly Disagree

423. There is hardly anything lower than a person who does not feel a great love, gratitude, and respect for his parents.
424. In the final analysis, the strongest basis for planning for the future is to trust to the experience of the past and base the decision-making on the facts, the historical facts.
425. Re-evaluation and reform are constantly necessary, and I am ever eager for each new effort to make a better world.
426. From my experience, I have learned to believe that there is nothing new under the sun.
427. A woman whose children are at all messy or rowdy has failed in her duties as a mother.
428. When you are young, you can afford to be an enthusiastic supporter of reform and change, but as you grow older, you learn that it is wiser to be cautious about making changes.
429. Some equality in marriage is a good thing, but by and large the husband ought to have the main say-so in family matters.
430. The current situation in the Church calls for change. We must respond at once.
431. Concerns about caution have little place when the issue is one of social injustice.
432. The world as it is is a pretty good place. We really don't need all this concern about change.
433. My first reaction when I think of the future is to be aware of its dangers.
434. The best way to improve world conditions is for each man to take care of his own corner of the vineyard.
435. A man should not be expected to have respect for a woman if they have sexual relations before they are married.
436. In the last analysis, it's having the power that makes the difference.
437. It is somehow unnatural to place women in positions of authority over men.
438. If I were to follow my deep convictions, I would devote much time to reform movements. This seems to me to be a primary need today.
439. The facts on crime and sexual immorality show that we will have to crack down harder on young people if we are going to save our moral standards.
440. Every great step forward in world history has been accomplished through the inspiration of reformers and creative men.
441. Women who want to remove the word *obey* from the marriage service don't understand what it means to be a wife.
442. There is really something refreshing about enthusiasm for change.
443. We Christians have to exercise caution when we act in the local community, because it is so easy for those outside the Church to misinterpret what we are trying to do.
444. Man should try to improve in creation everything he can improve.
445. The society of tomorrow is already developing from the values believed in by people today.
446. Having ideals is a wonderful thing, but realistically speaking, in most of the really important decisions in life, personal or group interests, and not ideals, play the major decisive role.
447. The most important qualities of a real man are determination and driving ambition.
448. The future is in God's hands. I will await what He sends and accept what comes as His will for me.
449. If I were to follow my deepest concern, I would concentrate on trying to preserve the very best of a long tradition. This seems to me to be a primary need today.
450. The most important issues in the world today are issues of social justice.
451. The Church should never be silent over an injustice in a local community.

IF THIS IS THE LAST OF THE THREE SURVEY BOOKS FOR YOU . . .

Before you turn in your answer sheets, please look at them again. If you changed your mind on any answers while taking the survey, be sure you erased thoroughly, so as not to confuse the computer. For the same reason, erase any stray marks that are on your paper.

# **A STUDY OF GENERATIONS**

## BOOK III — YOUR ATTITUDES AND WAY OF LIFE

(Begin with Answer Sheet 3 in the upper left hand corner)

### PARTICIPATION

After reading each of these statements, mark the answer sheet to show which response is most nearly true for you. Notice that the responses always run from one extreme to its opposite extreme. You may be at one or the other of the extremes, or somewhere in the middle. The numbers do not always run in the same direction, so in placing yourself on the scale, it will make it easier for you if you pay more attention to the *words* than to the *numbers*.

452. How would you rate your activity in your congregation?

|             |   |   |          |
|-------------|---|---|----------|
| 4           | 3 | 2 | 1        |
| very active |   |   | inactive |

453. How often do you spend evenings at church meetings or in church work?

|           |   |   |       |
|-----------|---|---|-------|
| 4         | 3 | 2 | 1     |
| regularly |   |   | never |

454. How often have you taken Communion during the past year?

|           |   |   |       |
|-----------|---|---|-------|
| 4         | 3 | 2 | 1     |
| regularly |   |   | never |

455. I keep pretty well informed about my congregation.

|                            |   |   |                              |
|----------------------------|---|---|------------------------------|
| 4                          | 3 | 2 | 1                            |
| accurate description of me |   |   | inaccurate description of me |

456. Participating in congregational activities is a major source of satisfaction in my life.

|          |   |   |            |
|----------|---|---|------------|
| 4        | 3 | 2 | 1          |
| accurate |   |   | inaccurate |

457. I enjoy working in the activities of the congregation.

|          |   |   |            |
|----------|---|---|------------|
| 4        | 3 | 2 | 1          |
| accurate |   |   | inaccurate |

458. I try to cooperate with the pastor in his program for the congregation.

|          |   |   |            |
|----------|---|---|------------|
| 4        | 3 | 2 | 1          |
| accurate |   |   | inaccurate |

459. All in all, how well do you think you fit in with the groups of people who make up your congregation?

|           |   |   |               |
|-----------|---|---|---------------|
| 4         | 3 | 2 | 1             |
| very well |   |   | rather poorly |

460. In proportion to your income, do you consider that your contributions of money to all areas of the Church as a whole are:

|          |   |   |       |
|----------|---|---|-------|
| 4        | 3 | 2 | 1     |
| generous |   |   | small |

461. I have some influence on the decisions made by my congregation.

|          |   |   |            |
|----------|---|---|------------|
| 4        | 3 | 2 | 1          |
| accurate |   |   | inaccurate |

462. How often do you read the Bible?

|       |        |              |       |
|-------|--------|--------------|-------|
| 4     | 3      | 2            | 1     |
| daily | weekly | occasionally | never |

463. In talking with members of your family, how often do you yourself mention Christianity or church activities?

|           |   |   |       |
|-----------|---|---|-------|
| 4         | 3 | 2 | 1     |
| regularly |   |   | never |

464. How many times during the last month have you attended Sunday School or some equivalent educational activity?

|      |   |   |               |
|------|---|---|---------------|
| 0    | 1 | 2 | 3             |
| none |   |   | three or more |

465. Count the offices, special jobs, committees, etc., of either the congregation or denomination in which you served during the past year.

|      |   |   |               |
|------|---|---|---------------|
| 0    | 1 | 2 | 3             |
| none |   |   | three or more |

466. We spend time together as a family for devotions or worship in our home.

|       |        |              |       |
|-------|--------|--------------|-------|
| A     | B      | C            | D     |
| daily | weekly | occasionally | never |

467. Last year, approximately what percent of your total family income was contributed to any and all kinds of church work?

|            |      |      |             |
|------------|------|------|-------------|
| A          | B    | C    | D           |
| 1% or less | 2-5% | 6-9% | 10% or more |

468. Think of your *five* closest friends in the community where you live. How many of them are members of the congregation you attend?

|      |     |     |               |
|------|-----|-----|---------------|
| A    | B   | C   | D             |
| none | one | two | three or more |

469. How long have you been a member of *this* congregation?

|                |                  |                     |                    |
|----------------|------------------|---------------------|--------------------|
| A              | B                | C                   | D                  |
| under one year | one or two years | three or four years | five or more years |

## BELIEF AND ACTION

Read each statement and mark the response that is true of you or that most accurately expresses your view.

470. When church activities conflict with your community responsibilities, how do you handle the situation?
- I usually choose the church activities.
  - I choose church activities more than half the time.
  - I choose community activities more than half the time.
  - I am usually faithful to my community responsibilities.
471. I think the Christian Church should take the following attitude toward sexual intercourse before marriage:
- Entirely permissible.
  - Permissible if partners care for each other.
  - Permissible if partners plan to marry eventually.
  - Not permissible.
472. What my religion offers me most is comfort when sorrows and misfortune strike.
- I definitely disagree
  - I tend to disagree
  - I tend to agree
  - I definitely agree
473. I try hard to carry my religion over into all my other dealings in life.
- I definitely disagree
  - I tend to disagree
  - I tend to agree
  - I definitely agree
474. One reason for my being a church member is that such membership helps to establish a person in the community.
- Definitely not true
  - Tends not to be true
  - Tends to be true
  - Definitely true
475. Quite often I have been keenly aware of the presence of God.
- Definitely not true
  - Tends not to be true
  - Tends to be true
  - Definitely true
476. The purpose of prayer is to secure a happy and peaceful life.
- I definitely disagree
  - I tend to disagree
  - I tend to agree
  - I definitely agree
477. My Christian beliefs are what really lie behind my whole approach to life.
- This is definitely not so
  - Probably not so
  - Probably so
  - Definitely so
478. It doesn't matter so much what I believe as long as I lead a moral life.
- I definitely disagree
  - I tend to disagree
  - I tend to agree
  - I definitely agree
479. The prayers I say when I am alone carry at least as much meaning and personal emotion as those said by me during services.
- Almost never
  - Sometimes
  - Usually
  - Almost always
480. Although I am a religious person, I refuse to let religious considerations influence my everyday affairs.
- Definitely not true of me
  - Tends not to be true
  - Tends to be true
  - Clearly true in my case
481. If not prevented by unavoidable circumstances, I attend worship services
- More than once a week
  - About once a week
  - Two or three times a month
  - Less than once a month
482. If I were to join a group within the congregation and had to choose between a Bible study and a social fellowship,
- I would definitely prefer to join a Bible study
  - I probably would prefer a Bible study
  - I probably would prefer a social fellowship
  - I definitely would prefer to join a social fellowship
483. Although I believe in my religion, I feel there are many more important things in my life.
- I definitely disagree
  - I tend to disagree
  - I tend to agree
  - I definitely agree



484. Christianity is especially important to me because it answers many questions about the meaning of life.
- Definitely disagree
  - Tend to disagree
  - Tend to agree
  - Definitely agree
485. The only benefit one receives from prayer is psychological.
- I definitely disagree
  - I tend to disagree
  - I tend to agree
  - I definitely agree
486. I read literature about my faith (or church)
- Frequently
  - Occasionally
  - Rarely
  - Never
487. It is important to me to spend periods of time in private religious thought and meditation.
- Frequently true
  - Occasionally true
  - Rarely true
  - Never true

488. Occasionally I find it necessary to go against what I believe to keep my friends.
- Definitely disagree
  - Tend to disagree
  - Tend to agree
  - Definitely agree
489. With which of the following have you *experimented* (tried once or twice)? Mark as many as apply.
- Alcoholic beverages
  - Marijuana (pot), hashish, peyote, or psilocybin, etc.
  - LSD (acid) and/or other strong psychedelics
  - Heroin and/or "speed," amphetamines or barbituates
490. Which of the following do you use *occasionally*? Mark as many as apply.
- Alcoholic beverages
  - Marijuana (pot), hashish, peyote, or psilocybin, etc.
  - LSD (acid) and/or other strong psychedelics
  - Heroin and/or "speed," amphetamines or barbituates
491. Which of the following do you use *regularly*? Mark as many as apply.
- Alcoholic beverages
  - Marijuana (pot), hashish, peyote, or psilocybin, etc.
  - LSD (acid) and/or other strong psychedelics
  - Heroin and/or "speed," amphetamines or barbituates

For whom did you vote in each of the following presidential elections? Answer only for those years when you were old enough to vote; leave all others blank.

|      | Year | Candidate     |              |             |                 |
|------|------|---------------|--------------|-------------|-----------------|
| 492. | 1968 | a. Nixon      | b. Humphrey  | c. Wallace  | d. Did not vote |
| 493. | 1964 | a. Johnson    | b. Goldwater | c. Other    | d. Did not vote |
| 494. | 1960 | a. Kennedy    | b. Nixon     | c. Other    | d. Did not vote |
| 495. | 1956 | a. Eisenhower | b. Stevenson | c. Other    | d. Did not vote |
| 496. | 1952 | a. Eisenhower | b. Stevenson | c. Other    | d. Did not vote |
| 497. | 1948 | a. Dewey      | b. Truman    | c. Thurmond | d. Did not vote |
| 498. | 1944 | a. Roosevelt  | b. Dewey     | c. Other    | d. Did not vote |
| 499. | 1940 | a. Roosevelt  | b. Wilkie    | c. Other    | d. Did not vote |
| 500. | 1936 | a. Roosevelt  | b. Landon    | c. Other    | d. Did not vote |
| 501. | 1932 | a. Roosevelt  | b. Hoover    | c. Other    | d. Did not vote |

502. The amount of financial support given by the Church to its colleges is
- Less than ought to be given
  - About right
  - More than ought to be given
  - No financial support is justified

## POSITION

Mark the response that is closest to your feeling on each question.

*YOUR CHOICE OF RESPONSES IS:*

SA — Strongly Agree  
A — Agree

D — Disagree  
SD — Strongly Disagree

503. After a man has been brought to faith, he is no longer under the teaching power of the Law of God.
504. Laws and rules keep people immature by eliminating the need for people to take responsibility for their own decisions.
505. The Gospel rather than the Law of God is the only power which can actually produce a change in a person's life.
506. In the Church everybody is equal to everybody else.
507. If faith and science disagree on any issue, faith must be accepted rather than science.

508. God's Law makes it clear that setting up categories of good and bad persons is foolish because there are no good or bad people as such; there are only people who have sinned.
509. Since God loves you, you must do your best to keep His Commandments or He will stop loving you.
510. A merger of all Lutheran groups in the United States into one organization is desirable.
511. It is the responsibility of the government to provide medical care for all its citizens.

## PASTORS' SOCIAL ACTION

There are many ways by which clergymen can and do express their views on public issues. Not everyone agrees, however, that all of these and other forms of social action are appropriate for ministers. Please indicate for each of the following how much you approve or disapprove of clergymen who take that action.

*YOUR CHOICE OF ANSWERS IS:*

SA — Strongly Approve  
A — Approve

D — Disapprove  
SD — Strongly Disapprove

512. Publicly (not from the pulpit) take a stand on some political issue.
513. Publicly (not from the pulpit) support a political candidate.
514. Take a stand from the pulpit on some political issue.
515. Deliver a sermon on a controversial political or social topic.
516. Urge the members of their congregation to vote.
517. Organize study groups within their congregations to discuss public affairs.

518. Organize social action groups within their congregations to accomplish directly some political or social goal.
519. Participate in civil rights protest marches.
520. Participate in anti-war protest marches.
521. Participate in civil rights civil disobedience (risk arrest to symbolize protest).
522. Participate in anti-war civil disobedience (risk arrest).

## POINTS OF VIEW

For each of the following statements please mark the response that most closely fits your feeling or opinion.

*YOUR CHOICE OF ANSWERS IS:*

SA — Strongly Agree  
A — Agree

D — Disagree  
SD — Strongly Disagree

523. An important purpose of worship is to find out what God wants us to do.
524. The essence of all religion is authority and obedience.
525. The primary task of the Church is to proclaim the Gospel so that people believe in Jesus Christ as their Saviour.
526. We should be concerned with our own private welfare and stop trying to help others by butting into their private lives.
527. Christ is more real to me during my attendance at public worship services.

528. To present Christianity as one religion, missionaries should plan evangelism together with other missionaries representing various denominations.
529. I am interested in the Church because of its efforts for moral and social reform in which I desire to share.
530. One of the most important aspects of Christianity is the liturgical service of public worship.
531. Missionaries should not proclaim God's Law too often to people suffering from poverty and sickness.

532. Brotherly love was the heart of the teaching of Jesus.
533. I like to think that Christians all over the world are going through nearly the same liturgical service in their public worship.
534. The Church's task to help eliminate physical sufferings of people is more important than proclaiming the Gospel by preaching and teaching.
535. Christianity causes one to love his enemies.
536. The doctrines of the Lutheran Church, as I understand them, encourage active participation in social reform.
537. Missionaries must teach people to give of their time and treasure in response to Christ's love for them regardless of their poverty.
538. The Church is helping me to develop the social attitudes of understanding, sympathy, and cooperation.
539. A worship service must be beautiful to be readily meaningful to me.
540. Our missionaries should not cooperate in joint evangelism with missionaries of other denominations, as such actions hinder the spread of the pure Gospel.
541. I believe the Church is absolutely needed to overcome the tendency to selfishness.
542. It is equally important to preach the Gospel and to work to improve the material well-being of people so that these two aims are kept in balance.
543. The more a worship service is formal and liturgical, the more it has meaning for me.
544. Unselfish love is the prerequisite for any real knowledge of Christianity.
545. Prayers in church services are better if they are free and spontaneous rather than read from a service or prayer book.
546. Tender concern for others is a means of finding joy in one's Christian faith.
547. I like variety in the order of service rather than the same order every week.

The next four items deal with intensity of religious observance. Mark the answer that comes closest to fitting you.

548. Which of the following best describes your participation in the act of prayer?
  - a. Prayer is a regular part of my behavior.
  - b. I pray primarily in times of stress and/or need, but not much otherwise.
  - c. My prayer is restricted pretty much to formal worship services.
  - d. I pray very rarely.
  - e. I never pray.
549. During the last year what was the average *monthly* contribution of your family to your local congregation?
  - a. Under \$5
  - b. \$5 to \$24
  - c. \$25 to \$49
  - d. \$50 and up
  - e. I do not know
550. Compared with my *mother* (If you were not raised by your mother, answer for the woman who had most responsibility for you in your childhood.)
  - a. I am much more religious
  - b. I am somewhat more religious
  - c. I am about as religious
  - d. I am somewhat less religious
  - e. I am much less religious
551. Compared with my *father* (If you were not raised by your father, answer for the man who had most responsibility for you in your childhood.)
  - a. I am much more religious
  - b. I am somewhat more religious
  - c. I am about as religious
  - d. I am somewhat less religious
  - e. I am much less religious

## CHURCH ROLE

If you read magazines or newspapers, no doubt you have come across a good many people expressing their opinions about the proper role of the Church. Here is a chance for you to express your own opinion on what the Church should do for individual church members and in society as a whole.

*Fill in the answer sheet space for each statement to which you would answer "Yes." If you do not agree with the statement, leave it blank.*

552. Even though it asks for service on boards, committees, Sunday Schools, etc., the average congregation does *not* expect too much of people.
553. For the most part, Lutheran congregations have been woefully inadequate in facing up to the civil rights issues.
554. A congregation can expect more time and work from its members since many people now have more leisure time.
555. Christian education needs to bring laymen face to face with urban problems, racial discrimination, and possible solutions to these matters.
556. When I do church work of any kind, I generally do it because I believe it is my duty to serve the Church.
557. The Christian layman should examine his business to make sure it does not discriminate against Negroes.
558. Much of the so-called church work today is just "busy work" that doesn't do a thing to or for anybody.
559. Clergy should stick to religion and not concern themselves with social, economic, and political questions.

560. Much of what my congregation asks me to do just doesn't seem to be meaningful at all.
561. A congregation should cut off financial support from church institutions (hospitals, missions, etc.) that discriminate against Negroes.
562. I really enjoy the work that I do for the Church at large.
563. Clergymen have a responsibility to speak out as the moral conscience of this nation.
564. The best thing about working in the Church is the fellowship with the people.

565. A Christian layman should work to make sure Negroes can buy property in the area of their choice.
566. If my congregation offered me a chance to be active in meaningful work that made a difference in something, I would gladly do it.
567. When the Church at any level gives me an opportunity to use my occupational skills and training in serving my Lord and the Church, I am pleased and happy to do so and generally find it very meaningful.

## LEADERSHIP AND SERVICE

Here is a list of activities in which people are often asked to engage. Please mark on the answer sheet the response that most closely reports what you have done or what you would do.

**YOU HAVE FIVE CHOICES. THEY ARE:**

- HR — I have been asked (or have had opportunity) to do this, but *have refused*.  
 WR — I have never been asked (or had opportunity), but I *would refuse* if asked.  
 HT — I have done this, but I really did not want to. I felt I *had to* do it.  
 WD — I have not been asked, but if I were, I *would do* this.  
 HD — I have been asked, and I *have done* this willingly.

568. Bring a grievance to the attention of the boss.
569. Ask for an increase in wages at the job.
570. Serve as an officer or board member for my congregation.
571. Teach Sunday School or Bible Class.
572. Serve on a committee to improve conditions at school or in the neighborhood.
573. Conduct a small group Bible study program in my home or the home of someone else.
574. Serve as a picket during a strike.
575. Help in maintenance and repair tasks around the church building or parsonage.
576. Attend a political party precinct caucus.
577. Participate in politics as a campaign worker for a candidate.
578. Help with planning and work for social or fellowship events in a congregation.
579. Give a talk or layman's sermon before a church group or in worship.

580. Participate in an effort to remove an incompetent or ineffective official in school, church, union, at work, or in government.
581. Serve as delegate to a church conference or convention.
582. Help in a stewardship drive by visiting fellow members to obtain pledges.
583. Work for youth as a supporter of youth programs in the congregation or denomination.
584. Serve on a citizens' review board to assess functions of public officials.
585. Help in money-raising projects for some form of church work.
586. Serve on congregational or denominational committees concerned with social issues.
587. Join and work in congregational organizations (Ladies Guilds, Youth Groups, Laymen's Leagues, etc.).

## CHURCH AND FAMILY

These statements are about your family and the *congregation* of which you are a member. If you think the statement is *true*, fill in the space for that statement. If it is *not true*, leave the space *blank*. (If you have no family, answer for yourself where family is mentioned.)

588. The congregation where I am a member is doing something about some problems of social concern (for example, injustice, racism, housing, civil rights).
589. The congregation where I am a member tries to meet the pressing personal problems of people like me.
590. (If you are an adult, answer this:) Some children in my congregation recognize me and call me by name.

591. (If you are a youth, answer this:) Some adults in my congregation recognize me and call me by name.
592. Most members of my congregation would accept a family of another race or religion into their community.
593. Most members of my congregation are quick to help those who are sick or in need.

- 594. Most adults in my congregation are concerned about such world problems as starvation, poverty, war.
- 595. Older people in my congregation seem to be suspicious of what the young people do.
- 596. My congregation is trying to help families improve parent-child relationships.
- 597. My congregation brings young people and adult members together to share points of view.
- 598. People who are quite different (richer, poorer, of another race, different in dress and hair) are welcome in my congregation.
- 599. Most confirmed members in my congregation would be able to tell you what the purpose of our congregation is.

- 600. The Christian faith has little effect on the actual lives of most members of my congregation.
- 601. My congregation seems interested in my age group.
- 602. My family seldom does anything about helping meet social problems.
- 603. My family and I are willing to invite persons of other races into our home.
- 604. My family would support neighborhood efforts to keep out persons of other races.
- 605. My family often helps someone in need.
- 606. I appreciate the example in caring for others that my parents set for me.
- 607. My family discusses the use of our money as it relates to sharing with others.

## EVENTS

Listed below are a number of experiences of a religious nature which people have reported having. Since you have been an adult, have you ever had any of these experiences, and how sure are you that you had it?

- 608. A feeling that you were somehow in the presence of God.
  - a. Yes, I'm sure I have
  - b. Yes, I think I have
  - c. No
- 609. A sense of being saved in Christ.
  - a. Yes, I'm sure I have
  - b. Yes, I think I have
  - c. No
- 610. A feeling of being punished by God for something you had done.
  - a. Yes, I'm sure I have
  - b. Yes, I think I have
  - c. No
- 611. Assurance of having received the Holy Spirit.
  - a. Yes, I'm sure I have
  - b. Yes, I think I have
  - c. No
- 612. An experience of speaking in tongues.
  - a. Yes, I'm sure I have
  - b. Yes, I think I have
  - c. No
- 613. Evidence of having powers of healing or having been healed by faith.
  - a. Yes, I'm sure I have
  - b. Yes, I think I have
  - c. No
- 614. Choose the view which corresponds most closely with yours.
  - a. Life is unchanging and will continue largely as I know it now.
  - b. Though life is constantly changing, human nature and human ideals do not change.
  - c. Life has changed so radically that youth and adults cannot understand each other.

- 615. Choose the view of education that corresponds most closely with yours.
  - a. The accumulated wisdom of the past should be one's primary source of learning.
  - b. What is currently being discovered and what men have learned in the past are about equally important to learn.
  - c. The past is such a colossal failure that there is little or nothing from the past worth learning except "know how."
- 616. Which kind of person is most influential in what young people learn?
  - a. Young people learn primarily from their forefathers and elders.
  - b. Young people learn primarily from their own age group (peers).
  - c. Young people learn primarily from participating with adults and youth together.
- 617. Choose the statement that best describes your understanding of how you have learned what is most important to you.
  - a. I have accepted unquestioningly what was taught by my elders.
  - b. Conflict and change have forced me to rethink and restate ageless truths for myself.
  - c. I have questioned everything from the past, and together with my own age group, have sought new approaches to life.
- 618. Do you think loving your neighbor
  - a. Is absolutely necessary for salvation.
  - b. Would probably help for salvation.
  - c. Probably has no influence for salvation.
- 619. Do you think doing good for others
  - a. Is absolutely necessary for salvation.
  - b. Would probably help for salvation.
  - c. Probably has no influence for salvation.

620. Family worship or devotions should be primarily the responsibility of  
 a. Father  
 b. Mother  
 c. Both parents together
621. Have you completed a course in catechetical instruction (confirmation classes) or membership training, or both, in the Lutheran Church? (If neither, leave blank.)  
 a. Catechetical instruction (youth)  
 b. Membership training (adult)  
 c. Both
622. My marriage ceremony was performed by (If not married, answer as you would want if you were to marry.)  
 a. A religious official, (clergyman)  
 b. Either a religious official or a civil authority  
 c. A civil authority
623. What is your experience in church school teaching?  
 a. I am presently teaching church school (or taught this last school year).  
 b. I have taught church school previously but not this school year.  
 c. I have never taught church school.
624. By comparison with 5 years ago, the percentage of my income I am now giving to *non-church* charities is  
 a. Greater  
 b. About the same  
 c. Less

625. If you have not already done so, do you plan to attend college? (If you have attended any college, leave blank.)  
 a. Yes  
 b. No  
 c. Undecided
626. If you plan to attend college, what sort of school are you primarily considering?  
 (If you do *not* plan to attend, leave blank.  
 If you have already attended, mark *as many* as you attended for undergraduate training, *not* graduate school.)  
 a. Church supported school  
 b. Other private school  
 c. State supported school
627. Which statement best describes your use of tobacco?  
 a. Have never tried  
 b. Have used regularly in the past but do not use now  
 c. Regular user now

## PERSONAL ACTIVITIES

Beginning with the Apostle Paul, who first admitted it in writing, Christians have had trouble with the gap between what they believe and what they do. We are not concerned here with what you think you *ought* to do, or with what you would *like* to do in the future. This section should contain a picture of what you actually *have done during the past year*. Please be honest. The computer has never been known to issue a sermon, or even to raise an eyebrow. For each activity listed, mark the answer sheet with the response that is true for you.

### YOUR CHOICE OF RESPONSES IS:

F — Frequently      O — Occasionally      N — Never

628. Listened to a friend's (or neighbor's) problems and tried to give help or advice.
629. Helped a friend or neighbor with some building or repair project.
630. Cared for a friend's (or neighbor's) children while the parent(s) were sick or required to be away.
631. Fought and argued within your immediate family circle.
632. Loaned religious books to others.
633. Invited other Christians to your Church or Sunday School.
634. Participated in heavy petting (with someone to whom you were not married).
635. Had sexual intercourse with someone to whom you were not married.
636. Tried to offer comfort or support to a friend or neighbor in event of a death or tragedy either by talking or by action (e.g., taking a casserole dish to a family where the mother has been hospitalized).
637. Expressed concern about a friend's (or neighbor's) welfare by sending a card in time of illness.
638. Told a lie.
639. Visited a friend or neighbor in the hospital.
640. Attended a funeral of a friend or neighbor (non-family member).
641. Contributed to a special fund for aiding or helping a friend or neighbor.

642. Invited non-Christians to your Church or Sunday School.
643. Shared the Gospel with others through home visitation.
644. Masturbated.
645. Helped a friend catch up with assignments that he had missed.
646. Defended a friend or acquaintance who was being talked about when he wasn't there.
647. Drank alcoholic beverages (other than at Communion).
648. Attended X-rated movies.
649. Witnessed for Jesus through your actions or behavior but not by speaking about Jesus.
650. Distributed Christian tracts.
651. Witnessed for Jesus in any way to persons at work.
652. Contributed to a special fund for a person whom you did not know personally but had either read about or heard about who had had some tragic event occur.
653. Helped a friend or neighbor meet normal responsibilities in his life when he or she couldn't (helped get crops in when neighbor injured; on your own time helped finish a job at work when worker sick; done yard work for an elderly person, etc.).
654. Had homosexual sexual intercourse.
655. Attended movies.
656. Read pornographic literature.
657. Successfully persuaded non-Christians to attend your Church or Sunday School.
658. Discussed religion with friends or acquaintances without making a specific declaration of personal faith.
659. Made a specific declaration of personal faith to friends or acquaintances.
660. Swore or used profanity or vulgar language.
661. Made a specific declaration of personal faith to strangers.
662. Participated in evangelistic rallies or meetings.
663. Thought of committing suicide.
664. Ran errands for someone who couldn't get them done either temporarily or permanently.
665. Looked after a friend's (or neighbor's) home while he was gone.
666. Participated in mutual exchange of marital partners.
667. After assisting persons who were in trouble or needed help of some kind, was able to make a specific declaration of your faith.
668. Conducted Bible study in your home and/or helped to train and encourage fellow Christians to be better witnesses (with or without the active support of your congregation or pastor).
669. Gambled (cards, dice, racing, sports events, etc.).
670. Fought (actual physical combat other than war, sports, or as part of job).
671. Visited a friend in jail or helped in other ways when a friend or neighbor got in trouble with the law.
672. Took a friend or neighbor as guest in your home when some kind of difficulty had occurred.
673. Was drunk.
674. Gave old clothing or furniture or other things to a charitable organization (Goodwill, Salvation Army) or a church sponsored second-hand store.
675. Drove a friend somewhere when transportation wasn't available for him or her.
676. Loaned money to a friend or neighbor.
677. Welcomed a new family into your neighborhood by inviting them to your home or giving some token of your acceptance (e.g., cake or coffee).
678. Gave some aid or help to a total stranger whom you ran across who was in trouble of some sort (flat tire, sick, etc.).

***At this point a skyward stretch of the arms and a heavy sigh are recommended but not required.***

## OPINIONS

Now we are back to opinions — to where you stand on a variety of matters. As in previous sections, marks in the "Agree" or "Disagree" columns are more useful than marks in the "?" column. Please read each statement and mark your response on the answer sheet.

679. A person who does not believe in God should not be permitted to teach in a church-related college.
680. The campus minister, particularly on the state university campus, should seek to bring the students a program as nearly as possible like that of the student's home congregation.
681. Pastors should be well-trained in psychology.
682. Congregations should continue to support their liberal arts colleges.
683. The most effective sermons are those which emphasize God's love and forgiveness and do not emphasize the Law which tells us how bad we are or how much we have failed.
684. Church-supported welfare and service agencies do a better job than similar state or private agencies.
685. Church-supported colleges do a better job than comparable state or private schools in teaching academic subjects like math, history, and biology.
686. In view of the increasing costs, our Lutheran churches as synods and denominations should seriously consider abandoning their social service work to competent private and public agencies.
687. Either the Church as a whole doesn't know what is really going on, or it doesn't have answers for today's problems.
688. As far as the real questions that I wrestle with are concerned, the Church generally provides answers that are helpful.
689. The protests of college students are a healthy sign for America.
690. Courses in school do not apply to the world I know.
691. Students should have more to say about what is taught in high schools.
692. I enjoy giving money to the work of the Church as a national body (synodical or denominational budget).
693. Congregations talk too much about money and not enough about what it means to be a Christian.
694. The more liberally I support my congregation financially, the closer I feel to it and to God.
695. Hardly anyone in my congregation would miss me if I stopped going.
696. When I attend worship services I am among friends.
697. What the Lutheran Church teaches has little to say about life as it really is.
698. Most of my friends would feel welcome at any service or meeting in my congregation.
699. We don't need denominations any more, but a new form for the Church.

700. Reunion of the denominations is, humanly speaking, an altogether hopeless question.
701. Couples should be strongly encouraged to have no more than two natural children.
702. The free enterprise system is the single economic system compatible with the requirements of personal freedom and constitutional government.
703. With the increasing costs of higher education and the competition for qualified faculty, we Lutherans should seriously consider abandoning many of our private colleges.
704. The Church as an institution is necessary to establish and preserve concepts of right and wrong in society.
705. Every person needs to have the feeling of security given by belonging to a congregation.
706. Parents should not ask forgiveness of their children. It lowers them in the eyes of the children.
707. Our Church as a national organization should take an official position and speak out on important social and political issues of the day.

These items continue to deal with your opinions, but, as you notice, the possibility of responding with "?" is no longer present.

708. Women should be able to hold office and vote in congregations just as men do.
709. It should be possible for women to be ordained into the ministry.
710. Women are more religious than men.
711. Women's organizations in the Church don't really accomplish very much.
712. Women are better teachers of religion than men.

In the following section, young people may be considered as youth who have been confirmed but who are not yet of voting age.

713. Young people should be taken more seriously in their congregations.
714. Pastors should be especially concerned with youth programs.
715. Young people should be able to serve on congregational boards and committees and hold offices in congregations.
716. In today's world young people know better than the older people what the Church should be doing.
717. The Church is doing a pretty good job of involving youth and teaching them about the Christian life.



## PERSONAL DATA

Please mark the answer sheet with the appropriate answer.

718. Which of the following theological positions is nearest your own?
- I believe all things in Scripture are literal and historical (Fundamentalist).
  - I hold or retain the essential beliefs of the Christian faith (Conservative).
  - I retain the basic faith but reinterpret it in the light of today's situation (Neo-Orthodox).
  - I am willing to change some aspects of the faith in the light of new understanding (Liberal).
719. How long have you been a member of the Lutheran Church?
- Less than 1 year
  - 1 to 4 years
  - 5 to 10 years
  - More than 10 years
720. What part of your general education below college was from church operated schools (Christian day school, parochial schools)? *Mark as many as apply to your attendance, even if you attended only part of the time. If none, leave blank.*
- Grades 1-3
  - Grades 4-6
  - Grades 7-9
  - Grades 10-12 (or their equivalent)
721. How active was your *father* in church during your youth?
- Very active
  - Moderately active
  - Hardly active at all
  - Had nothing to do with church
722. How active was your *mother* in church during your youth?
- Very active
  - Moderately active
  - Hardly active at all
  - Had nothing to do with church
723. I expect that in the future my percentage of giving to the Church will be
- Increasing
  - Staying the same
  - Diminishing
  - May stop altogether
724. About how many years (if any) have you regularly attended Sunday School or equivalent religious training? If none, leave blank.
- Two years or less
  - Three to seven years
  - Eight to 12 years
  - 13 years or more
725. THE END OF MAN: At a party some people were talking about the possibility of the extinction of the human race due to a nuclear war. Which of these statements is closest to what you would say?
- One person said that it could well happen because men are on their own in the universe. Even if God exists, men can make the final mistake and destroy themselves completely.
  - Another said that men couldn't really blow themselves up because God has made us and is present with us in our lives. He will see to it that our leaders make right decisions so we won't destroy ourselves before He brings the world to an end in His way.
  - A third person said that he didn't believe that it was likely to happen because men are developing the way God planned, and that the God-given desire to live and survive will keep men from being so foolish as to start a nuclear holocaust.
  - Another felt that, yes, it could be that a totally destructive nuclear war will happen, but that if it does God will somehow keep some persons alive to build a new civilization.
726. LOSS OF ALL: In a disaster a man lost his wife, four children, and a nice home. He was sad and discouraged. Some friends counseled him. Which friend gave the most realistic advice?
- One friend said God is a person who can be trusted even though He is not directly involved in what goes on here. He has set up the world so that in the end good will come, even from this tragedy.
  - Another friend said to the man that if he would throw himself upon God's mercy he would experience peace and happiness right now in the midst of trouble and turmoil. He said that he could rely upon the people around him — his friends and his family — as well as new people whom he would meet, for this is the way in which God helps people in need.
  - A third friend told him he was very sorry, but that's the way life is. God has set up the laws of life, and we just have to take the good with the bad and do the best we can.
  - A fourth friend said God is involved in this life, but He is a just God who insists upon obedience and repentance. The friend said that the man must have done something sinful to be punished so by God, and that he should repent now and seek forgiveness.

**727. GODLINESS:** A congregation has no pastor, and a choice must be made by the members as to which of four pastors is to be called to fill the vacancy. Which of these pastors is most Christlike?

- a. One pastor is known to be a man who can administer the programs and affairs of a congregation very well. He is a rather cold and distant man who preaches lofty but beautifully phrased sermons and does not mix very much with members.
- b. Another pastor is involved with people in the whole community and congregation. His sermons stress active work for personal and social improvement. When people talk to him about deep personal concerns, he tries hard but is not able to understand them, and his advice does not help very much. He does get a lot done though.
- c. Another pastor is involved in civic affairs but commits himself deeply to his congregation. He calls on members individually, talks to them easily, understands, and remembers everybody's name. He is not the world's greatest preacher, but he tells people what they are doing wrong and talks about love and forgiveness.
- d. The last pastor is a very gracious man who sends a card to all the members on their birthdays. He seldom calls in their homes, but he organizes programs well and is a good speaker. His sermons are thoughtful and well-worked out, dealing largely with personal problems that people have in their daily lives.

**728. To what extent are you inspired by the worship services in your church?**

- a. Never inspired, only bored
- b. No longer inspired, but I once was
- c. Very often inspired
- d. Quite often inspired
- e. Sometimes inspired
- f. Seldom inspired

**729. Which of the following statements comes closest to expressing what you believe about Jesus?**

- a. Jesus is the Divine Son of God, and I have no doubts about it.
- b. While I have some doubts, I believe that Jesus is Divine.
- c. I believe that Jesus was a great man and very holy, but I don't believe Him to be the Son of God any more than all of us are children of God.
- d. I think Jesus was only a man, although an extraordinary one.
- e. Frankly, I'm not entirely sure there really was such a person as Jesus.
- f. None of the above represents what I believe.

**730. Frequent family worship in the home is (Read each statement carefully and *mark all* those you agree with.)**

- a. An ideal I would like to see my family carry out.
- b. A source of strength that draws the family together.
- c. A nice thing but difficult or impossible because there is never a time when the whole family is together.
- d. Not beneficial because no group worship can meet the needs of the very young child and the mature adult.
- e. Undesirable because it is often hypocritical or just dull routine.
- f. Potentially harmful if children are sometimes forced into it and later rebel against the faith.

**731. What is your race?**

- a. White
- b. Black
- c. Red
- d. Yellow
- e. Brown
- f. Mixed

**732. Are you now**

- a. Single (never married)
- b. Married once
- c. Divorced and single
- d. Divorced and remarried
- e. Widowed
- f. Widowed and remarried

**733. The best source from which a child can receive education about sex is the**

- a. Home
- b. School
- c. Church
- d. All of the above
- e. Peer group
- f. None (should not receive it)

**734. Within the family the *best* person(s) to give a child education about sex is (are)**

- a. Grandparents
- b. Father
- c. Mother
- d. Both parents together
- e. Brothers and sisters
- f. Other relatives

**735. Within the family the *least desirable* person(s) to give a child education about sex is (are)**

- a. Grandparents
- b. Father
- c. Mother
- d. Both parents together
- e. Brothers and sisters
- f. Other relatives

**736. How many years have you been married to your present spouse? (If not married, leave blank.)**

- a. Less than 1 year
- b. 1 - 5
- c. 6 - 10
- d. 11 - 20
- e. 21 - 30
- f. 31 - 40
- g. 41 - 50
- h. Over 50

**IF THIS IS THE LAST OF THE THREE SURVEY BOOKS FOR YOU . . .**

**Before you turn in your answer sheets, please look at them again. If you changed your mind on any answers while taking the survey, be sure you erased thoroughly, so as not to confuse the computer. For the same reason, erase any stray marks that are on your paper.**

**APPENDIX B**  
**SELECTION OF SCALES**

## SELECTION OF SCALES FOR ANALYSIS OF FUNCTION FLUCTUATION

The 50 attitude scales which were available were deemed to be too many for analysis. As can be seen from Table B.1, some of them are substantially correlated. Hence, to analyse all of them would have been unnecessary repetition. However, in selecting a sub-set of scales for analysis, it would be ideal if a set of scales could be chosen such that they are least interrelated. In this fashion, redundancy in analyses could be avoided. This problem is essentially a grouping problem in that the scales are grouped such that those belonging to a given group measure related constructs. From each such group of scales, then, one scale can be chosen to represent that group in further analyses.

Again, factor analysis appeared to be the best method for solving this grouping problem. Therefore, the intercorrelation matrix among the 50 scales was factor analyzed using the principal component technique described by Harman (1967). Ten eigenvalues were greater than one. The ten factors associated with these eigenvalues were rotated to orthogonal simple structure, using the Varimax criterion of Kaiser (1958). Since the entries in the orthogonal factor matrix are synonymous with the correlations between the scales and the factors (c.f., Harman, 1967), the scales could then be examined in terms of their representativeness of any given factor.

The results of the orthogonal rotation of the ten factors are given in Table B.2. One scale (identified by + ) was chosen from each factor such that the selected scale loaded highly on that factor, and minimally on all others. Hence, the scales so chosen satisfy the requirement of representing maximally independent constructs.

TABLE B.1  
CORRELATION MATRIX OF 50 SCALE SCORES\*

| SCALE # | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1       | 100 | -5  | 12  | -4  | 17  | -5  | -12 | -8  | -17 | 5   | -4  | -7  | -7  |
| 2       | -5  | 100 | 18  | 5   | 9   | 15  | 39  | -12 | 31  | 0   | 4   | 27  | 6   |
| 3       | 12  | 18  | 100 | -4  | 17  | 0   | 16  | -32 | 11  | -1  | 0   | 13  | 1   |
| 4       | -4  | 5   | -4  | 100 | 0   | 4   | 0   | 23  | 3   | 9   | -1  | 5   | 2   |
| 5       | 17  | 9   | 17  | 0   | 100 | 16  | 9   | -10 | 4   | 3   | -4  | 16  | 2   |
| 6       | -5  | 15  | 0   | 4   | 16  | 100 | 21  | 5   | 14  | -18 | 11  | 25  | 22  |
| 7       | -12 | 39  | 16  | 0   | 9   | 21  | 95  | -12 | 35  | -6  | 5   | 38  | 15  |
| 8       | -8  | -12 | -32 | 23  | -10 | 5   | -12 | 100 | 1   | 10  | -2  | -6  | 7   |
| 9       | -17 | 31  | 11  | 3   | 4   | 14  | 35  | 1   | 100 | 3   | 0   | 36  | 13  |
| 10      | 5   | 0   | -1  | 9   | 3   | -18 | -6  | 10  | 3   | 100 | -14 | -1  | -6  |
| 11      | -4  | 4   | 0   | -1  | -4  | 11  | 5   | -2  | 0   | -14 | 100 | 0   | -2  |
| 12      | -7  | 27  | 13  | 5   | 16  | 25  | 38  | -6  | 36  | -1  | 0   | 100 | 22  |
| 13      | -7  | 6   | 1   | 2   | 2   | 22  | 15  | 7   | 13  | -6  | -2  | 22  | 100 |
| 14      | -1  | 17  | 13  | 0   | 15  | 25  | 22  | -5  | 26  | -1  | -4  | 45  | 44  |
| 15      | 1   | 0   | -4  | 3   | 5   | 19  | 3   | 13  | 6   | 2   | -5  | 22  | 59  |
| 16      | 13  | -9  | -8  | 8   | 1   | -13 | -24 | 7   | -18 | 19  | -10 | -13 | -5  |
| 17      | -19 | 25  | 7   | 1   | 9   | 44  | 41  | 0   | 33  | -14 | 9   | 33  | 20  |
| 18      | 4   | -13 | -10 | 6   | -11 | -28 | -24 | 25  | -4  | 25  | -12 | -15 | -3  |
| 19      | -14 | 38  | 22  | -4  | 12  | 22  | 57  | -30 | 41  | -8  | 6   | 47  | 16  |
| 20      | 0   | -8  | -13 | 11  | -10 | -9  | -21 | 22  | -3  | 18  | -10 | -8  | -7  |
| 21      | -26 | 10  | -13 | 8   | -33 | 18  | 16  | 25  | 20  | -5  | 8   | 8   | 17  |
| 22      | -17 | 4   | -7  | 5   | -15 | 9   | 6   | 19  | 23  | 4   | 0   | 3   | 5   |
| 23      | -5  | -8  | -9  | 7   | -11 | -9  | -13 | 24  | 1   | 20  | -7  | -12 | -9  |
| 24      | -14 | 32  | 14  | 5   | 14  | 19  | 37  | -3  | 47  | 3   | 0   | 45  | 15  |
| 25      | -25 | 17  | -7  | 13  | -14 | 19  | 21  | 29  | 37  | 6   | 2   | 24  | 15  |
| 26      | 3   | 21  | 26  | -9  | 26  | 24  | 31  | -21 | 23  | -13 | 3   | 32  | 20  |
| 27      | -5  | 28  | 30  | -11 | 23  | 32  | 45  | -24 | 37  | -18 | 3   | 52  | 31  |
| 28      | 20  | -14 | 1   | -1  | 28  | -11 | -20 | 0   | -15 | 6   | -5  | -9  | -15 |
| 29      | -25 | 20  | -8  | 14  | 0   | 29  | 29  | 26  | 40  | 1   | 3   | 28  | 18  |
| 30      | -21 | 40  | 16  | 2   | 2   | 18  | 55  | -18 | 48  | -6  | 7   | 41  | 12  |
| 31      | 13  | 11  | 25  | -10 | 35  | 17  | 18  | -24 | 6   | -11 | 1   | 25  | 17  |
| 32      | 6   | -5  | -1  | 1   | 3   | -14 | -5  | -1  | -14 | 31  | -5  | -20 | -13 |
| 33      | -6  | 10  | 2   | -1  | 0   | 16  | 18  | -4  | 5   | -16 | 10  | 5   | 7   |
| 34      | -13 | 9   | 2   | 3   | 1   | 16  | 21  | 14  | 24  | -5  | 0   | 22  | 23  |
| 35      | -5  | 0   | -11 | 9   | -2  | 6   | 1   | 26  | 5   | 6   | -2  | 0   | 6   |
| 36      | -2  | -2  | -7  | 9   | -3  | -4  | -5  | 27  | 10  | 18  | -5  | 3   | -1  |
| 37      | 23  | -6  | 11  | -5  | 12  | -13 | -17 | -16 | -26 | -2  | 2   | -13 | -18 |
| 38      | -32 | 8   | -12 | 6   | -24 | 15  | 18  | 18  | 24  | -4  | 5   | 10  | 15  |
| 39      | -25 | 8   | -8  | 7   | -15 | 11  | 15  | 17  | 31  | 1   | -2  | 17  | 13  |
| 40      | 6   | 38  | 22  | 6   | 18  | 17  | 38  | -14 | 21  | 1   | 5   | 27  | 2   |
| 41      | 0   | 15  | 7   | 2   | 21  | 17  | 25  | 3   | 20  | 0   | -3  | 32  | 18  |
| 42      | 3   | 25  | 22  | -5  | 21  | 10  | 28  | -18 | 27  | 0   | -1  | 34  | 12  |
| 43      | -2  | 0   | 2   | -1  | -2  | -7  | -4  | 3   | 8   | 8   | -3  | -4  | -5  |
| 44      | 0   | -20 | -14 | 3   | -6  | -4  | -23 | 30  | -12 | 4   | -4  | -21 | -2  |
| 45      | 11  | -7  | -2  | 9   | 8   | -30 | -24 | 14  | -2  | 37  | -20 | -4  | -10 |
| 46      | 7   | -12 | -9  | 10  | 16  | -5  | -17 | 30  | -1  | 21  | -12 | -1  | -1  |
| 47      | 23  | -7  | 4   | -4  | 39  | -8  | -8  | 1   | -15 | 7   | -7  | 0   | -7  |
| 48      | -16 | 32  | 13  | -1  | 9   | 32  | 56  | -15 | 31  | -16 | 8   | 46  | 20  |
| 49      | -13 | 3   | -18 | 20  | -14 | 9   | 1   | 44  | 15  | 13  | -5  | 7   | 8   |
| 50      | 0   | 9   | 4   | -4  | 5   | 23  | 16  | -3  | 7   | -44 | 7   | 22  | 20  |

\*ALL ENTRIES IN TABLE ARE MULTIPLIED BY 100

## CORRELATION MATRIX OF 50 SCALE SCORES (CONT.)\*

| SCALE | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1     | -1  | 1   | 13  | -19 | 4   | -14 | 0   | -26 | -17 | -5  | -14 | -25 | 3   |
| 2     | 17  | 0   | -9  | 25  | -13 | 38  | -8  | 10  | 4   | -8  | 32  | 17  | 21  |
| 3     | 13  | -4  | -8  | 7   | -10 | 22  | -13 | -13 | -7  | -9  | 14  | -7  | 26  |
| 4     | 0   | 3   | 8   | 1   | 6   | -4  | 11  | 8   | 5   | 7   | 5   | 13  | -9  |
| 5     | 15  | 5   | 1   | 9   | -11 | 12  | -10 | -33 | -15 | -11 | 14  | -14 | 26  |
| 6     | 25  | 19  | -13 | 44  | -28 | 22  | -9  | 18  | 9   | -9  | 19  | 19  | 24  |
| 7     | 22  | 3   | -24 | 41  | -24 | 57  | -21 | 16  | 6   | -13 | 37  | 21  | 31  |
| 8     | -5  | 13  | 7   | 0   | 25  | -30 | 22  | 25  | 19  | 24  | -3  | 29  | -21 |
| 9     | 26  | 6   | -18 | 33  | -4  | 41  | -3  | 20  | 23  | 1   | 47  | 37  | 23  |
| 10    | -1  | 2   | 19  | -14 | 25  | -8  | 18  | -5  | 4   | 20  | 3   | 6   | -13 |
| 11    | -4  | -5  | -10 | 9   | -12 | 6   | -10 | 8   | 0   | -7  | 0   | 2   | 3   |
| 12    | 45  | 22  | -13 | 33  | -15 | 47  | -8  | 8   | 3   | -12 | 45  | 24  | 32  |
| 13    | 44  | 59  | -5  | 20  | -3  | 16  | -7  | 17  | 5   | -9  | 15  | 15  | 20  |
| 14    | 100 | 55  | -2  | 26  | -10 | 31  | -5  | 5   | 4   | -5  | 39  | 18  | 40  |
| 15    | 55  | 100 | 19  | 7   | 3   | 4   | 3   | 3   | 0   | -4  | 12  | 7   | 12  |
| 16    | -2  | 19  | 100 | -25 | 17  | -28 | 28  | -13 | -5  | 12  | -16 | -13 | -21 |
| 17    | 26  | 7   | -25 | 100 | -35 | 40  | -13 | 34  | 21  | -9  | 38  | 38  | 33  |
| 18    | -10 | 3   | 17  | -35 | 100 | -30 | 20  | 2   | 7   | 28  | -10 | 6   | -32 |
| 19    | 31  | 4   | -28 | 40  | -30 | 98  | -33 | 7   | 2   | -22 | 44  | 17  | 37  |
| 20    | -5  | 3   | 28  | -13 | 20  | -33 | 100 | 6   | 13  | 25  | -4  | 11  | -13 |
| 21    | 5   | 3   | -13 | 34  | 2   | 7   | 6   | 99  | 48  | 23  | 15  | 57  | 0   |
| 22    | 4   | 0   | -5  | 21  | 7   | 2   | 13  | 48  | 100 | 43  | 12  | 45  | 2   |
| 23    | -5  | -4  | 12  | -9  | 28  | -22 | 25  | 23  | 43  | 100 | -12 | 28  | -14 |
| 24    | 39  | 12  | -16 | 38  | -10 | 44  | -4  | 15  | 12  | -12 | 100 | 42  | 30  |
| 25    | 18  | 7   | -13 | 38  | 6   | 17  | 11  | 57  | 45  | 28  | 42  | 100 | 9   |
| 26    | 40  | 12  | -21 | 33  | -32 | 37  | -13 | 0   | 2   | -14 | 30  | 9   | 100 |
| 27    | 53  | 19  | -36 | 46  | -32 | 56  | -25 | 8   | 3   | -22 | 46  | 18  | 70  |
| 28    | -3  | -3  | 16  | -22 | 8   | -17 | 3   | -45 | -13 | 10  | -18 | -31 | -5  |
| 29    | 21  | 10  | -14 | 51  | -8  | 25  | 5   | 41  | 31  | 9   | 43  | 57  | 15  |
| 30    | 24  | 2   | -21 | 39  | -22 | 59  | -10 | 17  | 11  | -11 | 45  | 28  | 30  |
| 31    | 37  | 19  | -8  | 17  | -26 | 25  | -19 | -15 | -11 | -21 | 17  | -13 | 57  |
| 32    | -17 | -8  | 17  | -15 | 13  | -11 | 5   | -9  | -2  | 10  | -11 | -9  | -14 |
| 33    | 0   | -2  | -17 | 20  | -17 | 14  | -13 | 17  | 1   | -14 | 6   | 9   | 9   |
| 34    | 24  | 14  | -18 | 27  | -3  | 22  | -7  | 23  | 13  | -1  | 31  | 31  | 12  |
| 35    | 0   | 5   | 5   | 7   | 7   | -6  | 12  | 18  | 13  | 14  | 3   | 20  | -4  |
| 36    | 5   | 5   | 5   | -2  | 18  | -8  | 22  | 5   | 16  | 26  | 11  | 21  | -8  |
| 37    | -9  | -5  | 18  | -27 | -2  | -20 | 1   | -32 | -21 | -8  | -20 | -34 | 0   |
| 38    | 4   | 1   | -22 | 33  | -1  | 13  | 6   | 60  | 38  | 16  | 16  | 49  | 4   |
| 39    | 15  | 4   | -20 | 27  | 2   | 16  | 11  | 41  | 38  | 20  | 22  | 44  | 10  |
| 40    | 14  | 0   | -8  | 22  | -15 | 35  | -14 | 1   | -2  | -12 | 27  | 9   | 24  |
| 41    | 26  | 16  | -11 | 28  | -13 | 24  | -9  | 0   | -5  | -21 | 39  | 15  | 23  |
| 42    | 25  | 11  | -10 | 22  | -16 | 36  | -17 | -6  | -14 | -36 | 55  | 9   | 27  |
| 43    | 2   | -3  | 1   | -3  | 16  | -5  | 8   | 12  | 35  | 43  | -4  | 17  | 1   |
| 44    | -13 | -3  | 5   | -11 | 24  | -29 | 13  | 10  | 18  | 34  | -24 | 9   | -19 |
| 45    | -1  | 5   | 27  | -33 | 42  | -25 | 27  | -20 | 0   | 24  | -1  | -2  | -12 |
| 46    | 0   | 6   | 12  | -11 | 22  | -20 | 16  | -13 | 7   | 22  | 0   | 6   | -11 |
| 47    | -2  | 3   | 10  | -17 | 1   | -7  | -5  | -52 | -34 | -20 | 0   | -33 | -1  |
| 48    | 30  | 6   | -34 | 48  | -33 | 59  | -26 | 17  | 5   | -21 | 39  | 20  | 38  |
| 49    | 5   | 9   | 6   | 14  | 19  | -9  | 26  | 35  | 33  | 34  | 14  | 45  | -6  |
| 50    | 19  | 13  | -16 | 23  | -19 | 16  | -15 | 8   | -2  | -23 | 11  | 3   | 20  |

\*ALL ENTRIES IN TABLE ARE MULTIPLIED BY 100

## CORRELATION MATRIX OF 50 SCALE SCORES (CONT.)\*

| SCALE | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1     | -5  | 20  | -25 | -21 | 13  | 6   | -6  | -13 | -5  | -2  | 23  | -32 | -25 |
| 2     | 28  | -14 | 20  | 40  | 11  | -5  | 10  | 9   | 0   | -2  | -6  | 8   | 8   |
| 3     | 30  | 1   | -8  | 16  | 25  | -1  | 2   | 2   | -11 | -7  | 11  | -12 | -8  |
| 4     | -11 | -1  | 14  | 2   | -10 | 1   | -1  | 3   | 9   | 9   | -5  | 6   | 7   |
| 5     | 23  | 28  | 0   | 2   | 35  | 3   | 0   | 1   | -2  | -3  | 12  | -24 | -15 |
| 6     | 32  | -11 | 29  | 18  | 17  | -14 | 16  | 16  | 6   | -4  | -13 | 15  | 11  |
| 7     | 45  | -20 | 29  | 55  | 18  | -5  | 18  | 21  | 1   | -5  | -17 | 18  | 15  |
| 8     | -24 | 0   | 26  | -18 | -24 | -1  | -4  | 14  | 26  | 27  | -16 | 18  | 17  |
| 9     | 37  | -15 | 40  | 48  | 6   | -14 | 5   | 24  | 5   | 10  | -26 | 24  | 31  |
| 10    | -18 | 6   | 1   | -6  | -11 | 31  | -16 | -5  | 6   | 18  | -2  | -4  | 1   |
| 11    | 3   | -5  | 3   | 7   | 1   | -5  | 10  | 0   | -2  | -5  | 2   | 5   | -2  |
| 12    | 52  | -9  | 28  | 41  | 25  | -20 | 5   | 22  | 0   | 3   | -13 | 10  | 17  |
| 13    | 31  | -15 | 18  | 12  | 17  | -13 | 7   | 23  | 6   | -1  | -18 | 15  | 13  |
| 14    | 53  | -3  | 21  | 24  | 37  | -17 | 0   | 24  | 0   | 5   | -9  | 4   | 15  |
| 15    | 19  | -3  | 10  | 2   | 19  | -8  | -2  | 14  | 5   | 5   | -5  | 1   | 4   |
| 16    | -36 | 16  | -14 | -21 | -8  | 17  | -17 | -18 | 5   | 5   | 18  | -22 | -20 |
| 17    | 46  | -22 | 51  | 39  | 17  | -15 | 20  | 27  | 7   | -2  | -27 | 33  | 27  |
| 18    | -32 | 8   | -8  | -22 | -26 | 13  | -17 | -3  | 7   | 18  | -2  | -1  | 2   |
| 19    | 56  | -17 | 25  | 59  | 25  | -11 | 14  | 22  | -6  | -8  | -20 | 13  | 16  |
| 20    | -25 | 3   | 5   | -10 | -19 | 5   | -13 | -7  | 12  | 22  | 1   | 6   | 11  |
| 21    | 8   | -45 | 41  | 17  | -15 | -9  | 17  | 23  | 18  | 5   | -32 | 60  | 41  |
| 22    | 3   | -13 | 31  | 11  | -11 | -2  | 1   | 13  | 13  | 16  | -21 | 38  | 38  |
| 23    | -22 | 10  | 9   | -11 | -21 | 10  | -14 | -1  | 14  | 26  | -8  | 16  | 20  |
| 24    | 46  | -18 | 43  | 45  | 17  | -11 | 6   | 31  | 3   | 11  | -20 | 16  | 22  |
| 25    | 18  | -31 | 57  | 28  | -13 | -9  | 9   | 31  | 20  | 21  | -34 | 49  | 44  |
| 26    | 70  | -5  | 15  | 30  | 57  | -14 | 9   | 12  | -4  | -8  | 0   | 4   | 10  |
| 27    | 100 | -16 | 24  | 45  | 48  | -26 | 15  | 27  | -6  | -7  | -10 | 11  | 16  |
| 28    | -16 | 100 | -23 | -23 | 8   | 9   | -20 | -12 | -1  | 8   | 17  | -37 | -17 |
| 29    | 24  | -23 | 100 | 35  | -2  | -9  | 13  | 31  | 19  | 15  | -33 | 41  | 38  |
| 30    | 45  | -23 | 35  | 98  | 14  | -11 | 14  | 19  | -1  | -3  | -23 | 22  | 22  |
| 31    | 48  | 8   | -2  | 14  | 100 | -7  | 8   | 3   | -7  | -14 | 16  | -14 | -10 |
| 32    | -26 | 9   | -9  | -11 | -7  | 100 | -10 | -12 | 0   | 4   | 6   | -8  | -10 |
| 33    | 15  | -20 | 13  | 14  | 8   | -10 | 100 | 14  | 1   | -10 | -2  | 13  | -2  |
| 34    | 27  | -12 | 31  | 19  | 3   | -12 | 14  | 100 | 26  | 23  | -24 | 19  | 20  |
| 35    | -6  | -1  | 19  | -1  | -7  | 0   | 1   | 26  | 100 | 28  | -13 | 10  | 9   |
| 36    | -7  | 8   | 15  | -3  | -14 | 4   | -10 | 23  | 28  | 100 | -11 | 2   | 15  |
| 37    | -10 | 17  | -33 | -23 | 16  | 6   | -2  | -24 | -13 | -11 | 100 | -31 | -30 |
| 38    | 11  | -37 | 41  | 22  | -14 | -8  | 13  | 19  | 10  | 2   | -31 | 100 | 65  |
| 39    | 16  | -17 | 38  | 22  | -10 | -10 | -2  | 20  | 9   | 15  | -30 | 65  | 100 |
| 40    | 28  | -7  | 14  | 31  | 19  | 1   | 12  | 5   | 2   | -4  | 2   | 0   | -2  |
| 41    | 33  | -8  | 31  | 21  | 18  | -3  | 8   | 24  | 5   | 0   | -5  | 3   | 3   |
| 42    | 41  | -13 | 19  | 30  | 27  | -4  | 9   | 19  | -5  | -10 | 1   | -4  | -6  |
| 43    | -4  | 11  | 6   | -1  | -3  | 8   | -6  | -1  | 5   | 14  | -2  | 8   | 15  |
| 44    | -26 | 19  | 4   | -24 | -19 | 4   | -8  | 0   | 11  | 17  | -5  | 6   | 7   |
| 45    | -24 | 22  | -11 | -20 | -12 | 18  | -29 | -8  | 3   | 21  | 7   | -17 | -2  |
| 46    | -16 | 29  | 5   | -18 | -7  | 8   | -18 | 3   | 15  | 21  | 0   | -9  | 2   |
| 47    | -5  | 41  | -15 | -18 | 14  | 10  | -5  | -4  | 0   | 0   | 22  | -41 | -33 |
| 48    | 56  | -22 | 30  | 51  | 24  | -18 | 20  | 22  | 0   | -12 | -19 | 20  | 18  |
| 49    | -7  | -10 | 39  | 4   | -18 | -3  | -2  | 15  | 27  | 27  | -22 | 28  | 30  |
| 50    | 31  | -6  | 8   | 12  | 22  | -29 | 18  | 13  | -1  | -13 | 1   | 6   | 2   |

\*ALL ENTRIES IN TABLE ARE MULTIPLIED BY 100



## CORRELATION MATRIX OF 50 SCALE SCORES (CONT.)\*

| SCALE | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1     | 6   | 0   | 3   | -2  | 0   | 11  | 7   | 23  | -16 | -13 | 0   |
| 2     | 38  | 15  | 25  | 0   | -20 | -7  | -12 | -7  | 32  | 3   | 9   |
| 3     | 22  | 7   | 22  | 2   | -14 | -2  | -9  | 4   | 13  | -18 | 4   |
| 4     | 6   | 2   | -5  | -1  | 3   | 9   | 10  | -4  | -1  | 20  | -4  |
| 5     | 18  | 21  | 21  | -2  | -6  | 8   | 16  | 39  | 9   | -14 | 5   |
| 6     | 17  | 17  | 10  | -7  | -4  | -30 | -5  | -8  | 32  | 9   | 23  |
| 7     | 38  | 25  | 28  | -4  | -23 | -24 | -17 | -8  | 56  | 1   | 16  |
| 8     | -14 | 3   | -18 | 3   | 30  | 14  | 30  | 1   | -15 | 44  | -3  |
| 9     | 21  | 20  | 27  | 8   | -12 | -2  | -1  | -15 | 31  | 15  | 7   |
| 10    | 1   | 0   | 0   | 8   | 4   | 37  | 21  | 7   | -16 | 13  | -44 |
| 11    | 5   | -3  | -1  | -3  | -4  | -20 | -12 | -7  | 8   | -5  | 7   |
| 12    | 27  | 32  | 34  | -4  | -21 | -4  | -1  | 0   | 46  | 7   | 22  |
| 13    | 2   | 18  | 12  | -5  | -2  | -10 | -1  | -7  | 20  | 8   | 20  |
| 14    | 14  | 26  | 25  | 2   | -13 | -1  | 0   | -2  | 30  | 5   | 19  |
| 15    | 0   | 16  | 11  | -3  | -3  | 5   | 6   | 3   | 6   | 9   | 13  |
| 16    | -8  | -11 | -10 | 1   | 5   | 27  | 12  | 10  | -34 | 6   | -16 |
| 17    | 22  | 28  | 22  | -3  | -11 | -33 | -11 | -17 | 48  | 14  | 23  |
| 18    | -15 | -13 | -16 | 16  | 24  | 42  | 22  | 1   | -33 | 19  | -19 |
| 19    | 35  | 24  | 36  | -5  | -29 | -25 | -20 | -7  | 59  | -9  | 16  |
| 20    | -14 | -9  | -17 | 8   | 13  | 27  | 16  | -5  | -26 | 26  | -15 |
| 21    | 1   | 0   | -6  | 12  | 10  | -20 | -13 | -52 | 17  | 35  | 8   |
| 22    | -2  | -5  | -14 | 35  | 18  | 0   | 7   | -34 | 5   | 33  | -2  |
| 23    | -12 | -21 | -36 | 43  | 34  | 24  | 22  | -20 | -21 | 34  | -23 |
| 24    | 27  | 39  | 55  | -4  | -24 | -1  | 0   | 0   | 39  | 14  | 11  |
| 25    | 9   | 15  | 9   | 17  | 9   | -2  | 6   | -33 | 20  | 45  | 3   |
| 26    | 24  | 23  | 27  | 1   | -19 | -12 | -11 | -1  | 38  | -6  | 20  |
| 27    | 28  | 33  | 41  | -4  | -26 | -24 | -16 | -5  | 56  | -7  | 31  |
| 28    | -7  | -8  | -13 | 11  | 19  | 22  | 29  | 41  | -22 | -10 | -6  |
| 29    | 14  | 31  | 19  | 6   | 4   | -11 | 5   | -15 | 30  | 39  | 8   |
| 30    | 31  | 21  | 30  | -1  | -24 | -20 | -18 | -18 | 51  | 4   | 12  |
| 31    | 19  | 18  | 27  | -3  | -19 | -12 | -7  | 14  | 24  | -18 | 22  |
| 32    | 1   | -3  | -4  | 8   | 4   | 18  | 8   | 10  | -18 | -3  | -29 |
| 33    | 12  | 8   | 9   | -6  | -8  | -29 | -18 | -5  | 20  | -2  | 18  |
| 34    | 5   | 24  | 19  | -1  | 0   | -8  | 3   | -4  | 22  | 15  | 13  |
| 35    | 2   | 5   | -5  | 5   | 11  | 3   | 15  | 0   | 0   | 27  | -1  |
| 36    | -4  | 0   | -10 | 14  | 17  | 21  | 21  | 0   | -12 | 27  | -13 |
| 37    | 2   | -5  | 1   | -2  | -5  | 7   | 0   | 22  | -19 | -22 | 1   |
| 38    | 0   | 3   | -4  | 8   | 6   | -17 | -9  | -41 | 20  | 28  | 6   |
| 39    | -2  | 3   | -6  | 15  | 7   | -2  | 2   | -33 | 18  | 30  | 2   |
| 40    | 100 | 18  | 29  | -3  | -19 | -8  | -5  | 3   | 34  | -2  | 11  |
| 41    | 18  | 100 | 44  | -19 | -25 | -5  | 4   | 19  | 27  | 1   | 14  |
| 42    | 29  | 44  | 98  | -26 | -34 | -9  | -4  | 22  | 26  | -12 | 13  |
| 43    | -3  | -19 | -26 | 100 | 25  | 12  | 10  | -15 | -11 | 14  | -8  |
| 44    | -19 | -25 | -34 | 25  | 100 | 12  | 21  | -1  | -25 | 22  | -8  |
| 45    | -8  | -5  | -9  | 12  | 12  | 100 | 32  | 15  | -36 | 13  | -26 |
| 46    | -5  | 4   | -4  | 10  | 21  | 32  | 100 | 28  | -21 | 21  | -11 |
| 47    | 3   | 19  | 22  | -15 | -1  | 15  | 28  | 100 | -12 | -17 | 0   |
| 48    | 34  | 27  | 26  | -11 | -25 | -36 | -21 | -12 | 94  | 0   | 26  |
| 49    | -2  | 1   | -12 | 14  | 22  | 13  | 21  | -17 | 0   | 100 | -5  |
| 50    | 11  | 14  | 13  | -8  | -8  | -26 | -11 | 0   | 26  | -5  | 100 |

\*ALL ENTRIES IN TABLE ARE MULTIPLIED BY 100

TABLE B.2\*  
FACTOR LOADINGS FOR 10 FACTORS WITH EIGENVALUES GREATER THAN ONE

| All Scales | Chosen Scales | Factors |     |     |     |     |     |     |      |     |     |
|------------|---------------|---------|-----|-----|-----|-----|-----|-----|------|-----|-----|
|            |               | I       | II  | III | IV  | V   | VI  | VII | VIII | IX  | X   |
| 1          | 10            | -17     | -16 | -6  | -5  | -4  | 0   | 18  | 48+  | 1   | 6   |
| 2          |               | 60      | 2   | -2  | 10  | 0   | -7  | -7  | 12   | 3   | 23  |
| 3          |               | 31      | -7  | -17 | -5  | 4   | -3  | -1  | 46   | 1   | -20 |
| 4          |               | 8       | 5   | 15  | 2   | 0   | -1  | 7   | -11  | 1   | 55  |
| 5          |               | 18      | -7  | 2   | 12  | -7  | 9   | 62  | 32   | 9   | -2  |
| 6          |               | 21      | 8   | 19  | 55  | 3   | 30  | 11  | 0    | -9  | 13  |
| 7          |               | 68      | 10  | 0   | 30  | -5  | 3   | -2  | -4   | 8   | -4  |
| 8          |               | -24     | 9   | 58  | -4  | 5   | 6   | 9   | -26  | -5  | 20  |
| 9          |               | 64      | 10  | 19  | -14 | 7   | 2   | -7  | -10  | -10 | -5  |
| 10         | 1             | 5       | 0   | 10  | -37 | 4   | 2   | 5   | 0    | 65+ | 12  |
| 11         |               | 2       | -2  | -3  | 35  | 2   | -11 | -9  | -2   | -9  | 6   |
| 12         |               | 62      | 5   | 7   | -2  | -9  | 28  | 9   | 2    | -19 | 5   |
| 13         | 2             | 7       | 7   | 9   | 9   | -8  | 76+ | -9  | -10  | -2  | -5  |
| 14         |               | 38      | -1  | 6   | -7  | 3   | 71  | 4   | 12   | -12 | -4  |
| 15         |               | 0       | -1  | 6   | -6  | -8  | 85  | 0   | -1   | 0   | 15  |
| 16         | 3             | -25     | -13 | -6  | -22 | 1   | 16  | -1  | 16   | 21  | 53+ |
| 17         |               | 47      | 18  | 28  | 46  | 2   | 15  | -2  | -5   | -5  | -7  |
| 18         |               | -24     | 0   | 16  | -55 | 10  | -3  | -6  | -7   | 11  | 8   |
| 19         |               | 75      | 4   | -14 | 20  | -6  | 9   | 0   | -9   | 1   | -20 |
| 20         |               | -15     | 10  | 19  | -36 | 12  | -1  | -9  | 9    | -5  | 42  |
| 21         |               | 9       | 36  | 39  | 19  | 21  | 7   | -55 | -12  | -1  | 2   |
| 22         | 4             | 11      | 27  | 34  | 0   | 53+ | 1   | -21 | -2   | 1   | -1  |
| 23         |               | -11     | 10  | 26  | -21 | 67  | -5  | -2  | -1   | 15  | 11  |
| 24         |               | 68      | 5   | 31  | -13 | -20 | 11  | -4  | 6    | -5  | -7  |
| 25         | 5             | 34      | 27  | 58+ | -1  | 20  | 6   | -29 | -9   | -1  | 4   |
| 26         |               | 44      | 4   | -3  | 17  | 10  | 31  | 10  | 40   | -14 | -25 |
| 27         |               | 62      | 5   | 0   | 18  | -1  | 35  | 3   | 22   | -23 | -34 |
| 28         |               | -16     | -17 | -11 | -13 | 18  | -5  | 70  | 1    | -2  | 3   |
| 29         |               | 41      | 22  | 56  | 16  | 2   | 9   | -7  | -15  | 0   | 8   |
| 30         | 6             | 76+     | 7   | -3  | 12  | 0   | 1   | -14 | -12  | -2  | 0   |
| 31         |               | 23      | -5  | -13 | 20  | 0   | 36  | 21  | 50   | -8  | -20 |
| 32         |               | -12     | -1  | -2  | -1  | 2   | -6  | 7   | 4    | 76  | 0   |
| 33         | 7             | 3       | 2   | 18  | 45+ | -15 | -6  | -24 | 17   | -3  | -11 |
| 34         |               | 21      | 3   | 52  | 1   | -11 | 16  | -4  | -9   | -8  | -33 |
| 35         |               | -6      | 2   | 55  | 6   | 3   | 0   | 2   | 1    | 7   | 5   |
| 36         |               | 1       | -1  | 45  | -30 | 17  | -2  | 10  | -6   | 2   | 1   |
| 37         |               | -24     | -10 | -25 | -2  | -9  | -11 | 10  | 53   | -6  | 14  |
| 38         | 8             | 11      | 74+ | 21  | 12  | 9   | 4   | -29 | -19  | -1  | -5  |
| 39         |               | 23      | 70  | 16  | -12 | 21  | 8   | -4  | -26  | -11 | -7  |
| 40         |               | 51      | 2   | 0   | 22  | -7  | -7  | 6   | 31   | 13  | 22  |
| 41         |               | 33      | 2   | 33  | 2   | -46 | 17  | 12  | 13   | 2   | -10 |
| 42         |               | 47      | -1  | 12  | -6  | -56 | 7   | 0   | 26   | 2   | -15 |
| 43         |               | 2       | 6   | 8   | -11 | 70  | -2  | 2   | 12   | 8   | -9  |
| 44         |               | -36     | 4   | 26  | 0   | 44  | -3  | 18  | -14  | 0   | -1  |
| 45         |               | -8      | -5  | 7   | -66 | 9   | 0   | 19  | 8    | 17  | 19  |
| 46         |               | -11     | 0   | 35  | -27 | 8   | 1   | 51  | -4   | 5   | 11  |
| 47         | 9             | -10     | -22 | 5   | -8  | -37 | -4  | 64+ | 14   | 7   | -3  |
| 48         |               | 65      | 10  | -2  | 40  | -7  | 13  | -1  | -10  | -10 | -12 |
| 49         |               | 5       | 14  | 55  | -9  | 25  | 6   | -9  | -13  | -2  | 32  |
| 50         |               | 9       | 6   | 2   | 29  | -13 | 15  | 1   | 13   | -61 | -1  |

\* All factor loadings in this table are multiplied by 100.

+ These scales were chosen for further analysis.