# DEVELOPMENT OF A KNOWLEDGE ABOUT AGING SCALE

BY

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## Abstract

The purpose of this study was to develop a reliable and valid knowledge about aging scale. Two hundred and ninety-eight subjects (128 males, 170 females) from the University of British Columbia, Simon Fraser University, and members of the general population, ranging from 17 to 65 years of age, and having 0 to 12 years of post secondary education, participated in this study. Subjects were chosen on the basis of having gerontological, versus no gerontological training.

Subjects responded to computer randomized Likert scale questionnaires consisting of the initial 60 item Proto Knowledge About Aging Scale, Palmore's Facts on Aging Quiz (FAQ), and Kogan's Old People Scale (OP).

Responses to the initial Proto scale were used to construct a psychometrically appropriate 40 item scale that consisted of three factor dimensions interpreted as Psychological, Biological Change, and Social Lifestyle/Histological Change. This 40 item scale had a Chronbach's alpha of 0.839 and a construct validity value of 0.701. Analysis of Covariance results indicated that the independent variables of age, gender, and years of post secondary education, had no significant extraneous confounding influence ($p \leq 0.05$) on Proto scale results. However, type of training did influence

Proto scale results, with those subjects having gerontological training scoring significantly higher (Duncan's Multiple Range Test $p \leq 0.05$) than those with no gerontological training.

Investigation into Proto's scale characteristics were further analyzed in relation to the subjects in this investigation, Palmore's FAQ, and Kogan's OP scale, with discussion focussing on Proto's psychometric rigor as compared to Palmore's FAQ.

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# CHAPTER I

## INTRODUCTION

The growing size of North America's over 65 age group is increasing the necessity to meet the needs of an aging population (National Advisory on Aging, 1980). At present, the 65 and over age group represents 9.7% of the Canadian population, but is expected to increase to 17% by the year 2021 (Fact Book on Aging in Canada, 1983). Numerous reasons have been cited for this increase, including advances in medical knowledge (sanitation, immunization), decline in birth rates, as well as the maturing of baby boom cohort groups (Kimmel, 1980). Since it is unlikely that the trend towards an aging population will be altered, increasing attention is being turned towards effects this will have on society. As a result, studies of the biological, psychological, and social aspects of the human aging process have become topical areas of research (Canadian Association on Gerontology, 1984).

As one response to the changing age profile of the population, professional schools in North America have begun to develop gerontology/geriatric curricula to increase students' awareness of the differences between young and old individuals. However, disinterest in working with the elderly by professional groups such as

clergy (Longino & Kitson, 1976), medical students (Cicchetti, Fletcher, Lerner, & Coleman, 1973), and nurses (Elliot, Personal communications, 1984) have been reported in the literature. This disinterest has paralleled the presence of negative attitudes towards aging and the elderly [i.e. positive attitudes toward the elderly are related to greater interest in working with this age group] (Mills, 1972).

In order to rectify the growing need for gerontological specialists, it is important to find ways of encouraging individuals to enter this area of practice. Of particular interest is the need to determine how attitudes are developed and influenced. This is an area of interest to many groups and a clear understanding could hold the key to increased interest in working with the elderly.

Of particular interest to educators is the hypothesized link between knowledge and attitudes (Maisonville, 1984; Holtzman & Beck, 1979). Namely, do high levels of knowledge relate to positive attitudes towards a particular target, in this case, elderly individuals. If such a relationship could be shown to exist, it would have important ramifications for educators, since it would indicate the possible usage of education in attitude change. In the specific area of

gerontology/geriatrics it would support the need to increase curriculum time in professional schools and undergraduate departments. Adult educators in the area of program planning and gerontological instruction would find more interest in developing curricula of substance and duration. Those in administration would have greater proof for the need to involve staff in continuing education. Additionally, counsellors might send individuals troubled about their own aging process to gerontology classes, for the same reasons that future retirees attend preretirement seminars.

There is great need for adult educators to become active in the study of relationships between knowledge and attitudes, and secondly, whether this effects behavior towards a particular target (Maisonville, 1984). However, a dearth of adequate research tools has made it difficult to pursue this line of inquiry. At this time, although psychometrically reliable scales which measure attitudes towards the elderly and aging exist, no scale capable of measuring "pure" knowledge about aging, unconfounded by the dimensions of attitudes, stereotypes, etc., is available.

The purpose of the study described in this thesis, therefore, was to develop a psychometrically sound, dimensionally pure, instrument for assessing knowledge

about aging. The development of such a scale is outlined in this study as follows; after the introduction, chapter two reviews the pertinent literature. Chapter three describes the research methodology employed as well as how the scale was developed. Chapter four presents the study's findings, and chapter five constitutes a discussion and summary of these findings.

# CHAPTER II

## REVIEW OF THE LITERATURE

Currently, only one scale capable of measuring knowledge about aging is readily available to the researcher. This scale, Palmore's Facts on Aging Quiz [FAQ], (Palmore, 1977) [see Appendix A] was developed as an instrument which could 1) act as a stimulus for group discussion, 2) determine overall levels of knowledge about aging, 3) identify the most common misconceptions about aging, and 4) act as an indirect measure of positive and/or negative bias towards older people. However, it is questionable whether this scale is adequate for anything other than as a stimulus for group discussion (Lutsky,1980; Klemmack,1978).

Numerous reasons can be cited for the FAQ's inadequacy as a research tool. The criticisms range from item construction to inadequate psychometric properties. In an investigation conducted by Miller and Dodder (1980) four major problems regarding item construction were alleged. Their criticisms included the prevalent use of ambiguous terminology. For example, eight out of twenty-five items in the FAQ incorporate phrases such as "most old people." Item #15 exemplifies this criticism; "In general, most old people are pretty much alike." Terminology such as this is open to various

interpretations and therefore could be said to have little applicability in scales which measure knowledge.

Secondly, Miller and Dodder criticized the FAQ for containing statements which were double-barrelled in nature. For example, item number three states, "most old people have no interest in, or capacity for, sexual relations." In responses to items of this type the investigator can never be sure if the respondent chose his/her answer on the basis of information contained in one part of the statement, namely, either 1) no interest in sexual relations, or 2) no capacity for sexual relations, or both parts of the statement, namely, no interest in, or capacity for sexual relations. Six out of 25 items contained in the FAQ were concluded to be of this nature.

Other criticisms of Palmore's FAQ include the questionable documentation of statement items. Items such as #13 "It is almost impossible for most old people to learn something new" is not only non-documentable in nature, but also presents the respondent with the dilemma of qualifying the meaning of "almost impossible" as well as "most old people." An additional problem with the FAQ is that it is riddled with the fusion of subjective and objective facts. To illustrate this is item #11, "most old people are set in their ways and

unable to change." "Set in their ways" is subjective in nature whereas "unable to change", although vague, is objective.

In their investigation Miller and Dodder changed items containing the terminology of "most" to "majority (more than half)" and found that respondents scored approximately five percent higher. Although they did not set out to directly determine how well the FAQ measured knowledge, the high levels of variation in correct responses attributable to their changes in item construction (i.e. changing ambiguous terminology and double-barrelled statements), indicates that wording is a critical factor in answering FAQ items.

An additional criticism this author would like to make concerning FAQ item construction is that the true/false response category gives the respondent a 50% chance of guessing the correct response. In addition, the general findings that the greater the educational level of the respondent the higher the FAQ score should be seriously analyzed. Many individuals who have extensive experience in the educational system are aware of the adage that it is unwise to consider an item which makes adamant statements (such as "the majority of" or "it is almost impossible") as being true. Upon

inspection of the FAQ it was determined that the majority of questions using these adamant qualifiers were odd numbered items. Since Palmore devised the FAQ so that odd numbered items were false and even numbered items were true, it is to a respondents advantage to answer an adamant item correctly, as being false.

Contributing to the questionable utility of the FAQ for any purpose other than as a stimulus for group discussion are the results of investigations into its psychometric properties. McKinlay (Palmore, 1981) found that the alpha reliability of this scale (item to total reliability) was 0.47. Similarly, a pilot study conducted by this author indicated a 0.57 level of reliability (see Appendix B). This represents an extremely low consistency level. No reported validity value exists for this scale (other than those reporting face validity).

An investigation conducted by Klemmack (1978) to determine FAQ's item to total correlation and first principal factor loadings indicated that the instrument possessed poor item discriminary powers as well as low item to total correlations (18 out of the 25 items had no statistical significance in relation to total score). This was interpreted by Klemmack as indicating that there was "little reason to believe that the total score

on the FAQ is reflective of an individual's level of information on aging" (p. 405). In addition, the first principal factor loading results were low, but a relationship between Palmore's hypothesized positive and negative bias questions was interpreted by Klemmack as indicating that "Palmore's FAQ does not measure knowledge on aging, but rather, appears to be a function of an image one holds about older people" (p. 405). Adding to the substantiation of these inadequacies are the results obtained in a study conducted by this author (Gallie, 1984). Whereas Palmore (1977) contends that he chose his 25 FAQ items from the three subject areas of physical, mental, and social facts about aging, this author's factor analysis indicated a four factor solution (see Appendix C). The analysis indicated the factors of Myths or Stereotypes, Socio-Economic, Factual-Medical, and Factual-General aspects of aging. Taken together, these results can be used to seriously question the psychometric rigor of the FAQ and lends credence to Klemmack's comments that it is "inadequate as a research tool for assessing levels of knowledge on aging" and that FAQ scores "are more a function of a stereotype of older persons rather than level of knowledge per se" (1978; p. 403).

In response to these various criticisms Palmore (1978) has admitted that the FAQ's psychometric

properties could be improved. However, he contends that it is undesirable to do so since "this would reduce FAQ's edumetric qualities, [the measurement of before/after changes on a ratio scale basis], and interfere with its major purposes of identifying most frequent misconceptions, measuring levels of information, and changes in these levels quickly and simply" (p.406). However, in later publications Palmore claims that the FAQ can be used to study attitudes toward the aged which is an admission that the FAQ does not solely measure knowledge about aging.

It is the opinion of this author that the FAQ is adequate as a stimulus for group discussion and as an "edumetric" tool for gauging before/after changes. However, the plethora of investigators who are uncritically using the FAQ to compare levels of knowledge in different subject groups are inappropriately using the quiz. Unfortunately, the more the FAQ is used to assess levels of knowledge, the more it is falsely associated with being a reliable and valid research tool. To illustrate this point, this author inspected articles which used the FAQ (West & Levy, 1984; Luszcz, 1982; Allen, 1981; Laner, 1981; Holtzman & Beck, 1979; Klemmack, 1978). In five out of six studies the FAQ was used to assess levels of knowledge. In these studies the authors concluded that the FAQ was

appropriate in assessing knowledge on aging, although many of them had also simultaneously used it to measure attitudes.

Therefore, in light of these facts, a definite need exists for a psychometrically sound scale which measures strictly knowledge about aging without the confounds of attitudes and stereotypes.

# CHAPTER III

# METHODOLOGY

## Subjects

Subjects consisted of students from the University of British Columbia, Simon Fraser University and the general public who volunteered to participate in the study. Volunteers were chosen on the basis of their ability to be categorized into either gerontological or nongerontological backgrounds, and were further categorized into one of the following groups; biology, education, gerontology, non-academic (general population), psychology, and social work. In total, 298 subjects (128 males, 170 females) ranging from 17 to 64 years of age, and 0 to 12 years of post-secondary education, were included in this investigation.

## Materials

### Development of the Initial Proto Knowledge about Aging Scale

Development of the initial (or first draft) Proto scale (see Appendix D), which measures knowledge about aging, proceeded by avoiding the item construct

difficulties found in the FAQ. Namely, Proto items avoided the use of ambiguous terminology such as "most" and did not include double-barrelled statements. Items were also based on documentable facts. Keeping in mind the multi-disciplinary nature of gerontology, the scale was constructed from information chosen from the subject domains of Biology (Physiology, Pathology), Psychology, and the Social Sciences.

The following reference sources were used in the documentation of Proto Scale items; Butler, 1975; Cross,1982; Fact Book on Aging in Canada, 1983; Junquerira, Carneiro, & Contopoulos, 1977; Kimmel, 1980; Moore, 1977; Petrofsky, 1975; Poon, 1980; Shock, 1962; Woodruff & Birren, 1983 (See Appendix E). Sixty items were selected to represent easy (n=20), medium (n=20), and hard (n=20) item difficulty levels, so that the scale would be able to discriminate between different levels of knowledge. Questions categorized as easy sampled information obtainable through observing life events, whereas medium difficulty items represented facts that could be discerned by thinking about life situations. Items of hard difficulty were designed to test knowledge which was highly specialized in nature. In addition, Proto scale items were developed with the intention of treating the process of aging as a continuum, rather than as an event which occurs at the

age of 65 years.

Since Proto items were based on documented information, content of an attitudinal or stereotypical nature was avoided. In order to escape the problems inherent in a dichotomous response format, a five-point response scale ranging from "Definitely False", "Might Be False", "Don't Know", "Might Be True", and "Definitely True" was used. This was done in order to avoid a 50% chance of guessing the correct response. This scale also provided the flexibility for using parametric versus non-parametric statistical methodologies. In addition, items were computer randomized in order to avoid a predictable true/false response format. Since the scale was developed for Canadian usage, item content was representative of Canadian and not American facts as is Palmore's Facts on Aging Quiz.

Before proceeding with data collection, a pilot study was conducted in order to detect any ambiguity or flaws in Proto's construction. Results from this pilot study were used to further refine Proto scale items.

## Kogan's Attitude Towards Old People Scale

Since test construction in itself should be

developed with respect to some covert and/or overt criteria (Anastasi, 1961) Proto was tested in relation to attitudes about aging, therefore allowing investigation into its construct validity characteristics. Using an attitude scale also provided an indication of whether Proto could be used for future inquiries into possible knowledge and attitude relationships. The scale that was used in measuring attitudes was Kogan's Attitude Towards Old People Scale (OP) which is generally regarded as "among the better scales for an investigator to select" (McTavish, 1982, p.556). Kogan's OP scale assesses attitudes towards old people with respect to both norms and individual differences, stereotypes, and misconceptions about older people (McTavish, 1982). This scale consists of a seven point Likert scale with 34 short statements (17 negative statements and 17 identical but positively stated statements (Kogan, 1961) [refer to Appendix F]. Odd-even Spearman-Brown reliability coefficients for the negative scale have been found to range from 0.76 to 0.83, whereas the positive scale ranges from 0.66 to 0.77. Interscale correlations between the negative and positive scale was found to range between 0.46 and 0.52 (McTavish, 1982).

Two types of validity examinations have been conducted on the OP scale; correlations of scales with

other variables, and correlations of scales with later behaviors. Construct validity of the OP has been successfully assessed with Adorno's F-scale (authoritarian scale) as well as anti-minority, disability scales, and the Srole Anomie Scale (Kogan, 1961).

The OP scale has also been successfully used in differentiating attitudes held by undergraduate education (Gordon & Hallau, 1976) and psychology students (Kogan, 1961; Silverman, 1966), as well as with practitioners in service-delivery fields (Thorson, Whatley & Hancock, 1974). Of the possible demographic variables such as age and sex, none appear to significantly affect scores on the OP (McTavish, 1982).

Palmore's Facts on Aging Quiz (FAQ).

A revised FAQ scale was included in the test battery given to volunteers since its inclusion allowed direct comparison with Proto. Revising the FAQ involved changing the original FAQ true/false response format to a five-point response format (Definitely False, Might Be False, Don't Know, Might Be True, Definitely True), as well as changing American to Canadian facts (refer to Appendix G). A pilot study was conducted in order to

determine what changes, if any, resulted from changing items from American to Canadian content (see Appendix H). Any changes that occurred due to changing the FAQ's true/false format were determined by comparing pilot study results with the results of the fully revised FAQ used in the test battery administered to volunteers in this study. The results of this pilot study indicated that no significant changes to the FAQ were incurred by introducing a five-point response scale or changing American to Canadian facts.

## Procedure

Subjects were required to respond to a battery consisting of the Proto, Palmore's FAQ (revised), and Kogan's OP. The order of each scale in the battery, as well as the order of each of the items within each scale were randomized to remove possible order effects. Subjects were told to follow the instructions found at the beginning of each scale which asked them to answer each statement by circling the degree to which they thought the statement was true or false (refer to Appendix F). In addition, subjects were asked to complete a biographical sheet indicating their age, sex, years of post-secondary education and primary area of study. For example, if they were enrolled in a gerontology program they were included in the subject area of gerontology. This sheet notified volunteers that results were strictly anonymous, and informed them that they could withdraw their participation at any time. Furthermore, if they agreed to participate, it informed them that they would receive a copy of the answers to knowledge-related questions in the battery, along with a debriefing and notification of the study's results (see Appendix J).

Once completed, responses to the test battery were unscrambled, scored (see Appendix K) and the appropriate analyses were conducted.

## Analysis

### Refinement Of Initial 60 Item Proto Scale

It is standard procedure in developing a psychological scale, to begin with more items than are desired in the final scale. Pretesting of the total item pool on a sample of the population the scale is being designed for enables selection of the items for the final version (Ferguson, 1971). To select the initial item pool three main techniques are used alone or in combination. These are rational item selection, selection by factor analytic techniques, or selection by criterion item keying (Butt, Personal communications, 1985). The commonly used techniques involve selection based upon item to item, item to subscale (where applicable) and item to total scale score correlations (Ferguson, 1971). Since it is best to use a number of criteria for selecting items (Guilford, 1938; Jackson, 1966) the following strategy was chosen so that a scale

with the highest possible reliability, validity and discrimination based on subject's age, education, sex, and area of study, would be developed.

Using the Homogeneity of Variance Programme (HOMOG) (Gronek & Tyler, 1967) item-to-subscale correlations for items in each of the three subscale domains (biological, psychological, and social science), and item-to-total scale score correlations were computed on dichotomous data, i.e. the five-point scale ranging from "Definitely False" to "Definitely True" was collapsed into a true/false format since analysis of continuous data would lend no meaningful interpretation regarding whether items had been correctly answered. After correcting the correlations for overlap, those of the original 60 Proto items which a) had the highest correlation to each subscale (i.e. items 1 to 20 Social Science, 21 to 40 Biology, and 41 to 60 Psychology) and b) had a correlation of 0.30 or higher were retained. Secondly, Analysis of Variance using the criteria of age, number of years of post-secondary education, sex, and subject area, were computed to determine which additional items would be retained. That is, retention was based on the ability of the item to discriminate these four independent variables. Thirdly, item alphas were computed so that items with the highest alpha contributions to the scale were retained.

## Psychometric Properties of the Final 40 Item Proto Scale

Examination of the item difficulty level of the 40 final selected Proto items revealed those items of an easy (n=12), medium (n=17), and hard (n=11) difficulty level.

Psychometric properties of the final 40 item Proto scale and its three subscales were assessed using FAN (Le, 1981), HOMOG (Gronek & Tyler, 1967) and the Statistical Package for the Social Sciences (SPSS, 1983) program. Inter item reliabilities in the form of Chronbach's alpha were computed to determine the consistency of homogeneity of test items. This type of reliability was chosen over other types since it could be computed from intact scale results obtained from a single scale administration. Further examination of Proto's psychometric properties was conducted using factor analytic techniques.

With respect to the independent variables of age, number of years of post-secondary education, sex, and subject area ANOVA's were computed using the Statistical Package for the Social Sciences. The possibility existed that age, number of years of post secondary education and subject group might interact to produce confounding influences on these ANOVA results. Therefore, Analyses

of Covariance were computed holding each of these three variables constant. Construct validity, or the extent to which Proto measures what it purports to measure, (i.e. knowledge about aging), was examined by calculating point-by-serial correlations against Palmore's FAQ and Kogan's OP scales (refer to Appendix L for a summary of reliability and validity types).

## Psychometric Properties of Palmore's FAQ

Psychometric properties of the revised FAQ (i.e. five-point response format and Canadian items) were assessed using FAN (Le, 1981), HOMOG (Gronek & Tyler, 1967) and SPSS (SPSS, 1983) computer packages. Inter item reliability in the form of Chronbach's alpha was computed in order to determine consistency of homogeneity of test items. This type of reliability was chosen over other types since it could be computed from intact scale results obtained from a single scale administration. Further examination of FAQ's psychometric properties was conducted using factor analytic techniques.

With respect to the independent variables of age, number of years of post secondary education, sex, and subject area ANOVA's were computed using the SPSS

package. Since the possibility existed that age, number of years of post secondary education and subject group might interact, Analyses of Covariance were computed holding each of these three variables constant.

Construct validity, or the extent to which the FAQ measures what it purports to measure, was examined by calculating point-by-serial correlations against Proto and Kogan's OP scale.

To establish whether Proto possessed better psychometric properties than Palmore's FAQ, reliability (Chronbach's alpha) and construct validity estimates were conducted on the FAQ.

# CHAPTER IV

# RESULTS

## Properties of the Initial 60 Item Proto Scale

Tables 1a-1p provide profiles of subjects used in this study regarding age, years of postsecondary education, sex (gender), subject area breakdown and mean and standard deviations of Proto. Tables 2a-2d and 3a-3d provide similar breakdowns for Palmore's FAQ and Kogan's OP scales respectively.

To determine whether differences occurred between subjects who completed the test battery in class and those who completed it at their own leisure, a One Way Analysis of Variance (ANOVA) was computed (see Tables 4a-4f) on the total scale and three subscale scores of Proto, Palmore's FAQ and Kogan OP scales. These results indicated that there was no significant difference between those who completed the questionnaire in class and those that completed it at their own leisure for the Proto scale (60 item) ($F=0.105$, $df.=1,292$, $p=0.745$), the social science subscale ($F=0.000$, $df.=1,292$, $p=0.985$), the biology subscale ($F=0.132$, $df.=1,292$, $p= 0.716$), and the psychology subscale ($F=0.183$, $df.=1,292$, $p=0.668$). Similar nonsignificant results were found for Palmore's FAQ ($F=2.235$, $df.=1,292$, $p=0.135$) and Kogan's OP

TABLE 1a

MEANS AND STANDARD DEVIATIONS FOR TOTAL SCORES ON THE 60 ITEM PROTO SCALE BY AGE GROUP.

| AGE GROUP | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| 17-20 YRS. | 127 | 33.59 | 7.25 | 0.64 | 3.0 | 48.0 |
| 21-30 YRS. | 100 | 37.17 | 8.04 | 0.80 | 9.0 | 51.0 |
| 31-40 YRS. | 40 | 37.98 | 10.09 | 1.60 | 2.0 | 50.0 |
| 41-50 YRS. | 15 | 40.07 | 9.77 | 2.52 | 16.0 | 52.0 |
| 51-65 YRS. | 13 | 36.31 | 6.54 | 1.81 | 23.0 | 50.0 |
| TOTAL | 295 | 37.02 | 8.34 | 1.47 | 10.6 | 50.2 |

TABLE 1b

MEANS AND STANDARD DEVIATIONS FOR THE SOCIAL SCIENCE SUBSCALE SCORES ON THE 60 ITEM PROTO SCALE BY AGE GROUP.

| AGE GROUP | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| 17-20 YRS. | 127 | 11.22 | 2.91 | 0.26 | 1.0 | 16.0 |
| 21-30 YRS. | 100 | 12.28 | 2.94 | 0.29 | 2.0 | 17.0 |
| 31-40 YRS. | 40 | 12.60 | 3.19 | 0.50 | 2.0 | 17.0 |
| 41-50 YRS. | 15 | 13.00 | 3.57 | 0.92 | 5.0 | 18.0 |
| 51-65 YRS. | 13 | 12.46 | 2.60 | 0.72 | 7.0 | 17.0 |
| TOTAL | 295 | 12.31 | 3.04 | 0.54 | 3.4 | 17.0 |

TABLE 1c

MEANS AND STANDARD DEVIATIONS FOR BIOLOGICAL SUBSCALE SCORES ON THE 60 ITEM PROTO SCALE BY AGE GROUP.

| AGE GROUP | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| 17-20 YRS. | 127 | 12.58 | 2.99 | 0.27 | 1.0 | 18.0 |
| 21-30 YRS. | 100 | 13.65 | 3.45 | 0.35 | 1.0 | 20.0 |
| 31-40 YRS. | 40 | 13.43 | 4.07 | 0.64 | 0.0 | 20.0 |
| 41-50 YRS. | 15 | 14.73 | 3.64 | 0.94 | 6.0 | 19.0 |
| 51-65 YRS. | 13 | 12.54 | 2.33 | 0.65 | 9.0 | 16.0 |
| TOTAL | 295 | 13.39 | 3.30 | 0.57 | 3.4 | 18.6 |

TABLE 1d

MEANS AND STANDARD DEVIATIONS FOR PSYCHOLOGICAL SUBSCALE SCORES ON THE 60 ITEM PROTO SCALE BY AGE GROUP.

| AGE GROUP | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| 17-20 YRS. | 127 | 9.80 | 2.76 | 0.25 | 1.0 | 17.0 |
| 21-30 YRS. | 100 | 11.24 | 3.31 | 0.33 | 3.0 | 18.0 |
| 31-40 YRS. | 40 | 11.95 | 3.78 | 0.60 | 0.0 | 17.0 |
| 41-50 YRS. | 15 | 12.33 | 3.35 | 0.87 | 5.0 | 17.0 |
| 51-65 YRS. | 13 | 11.31 | 3.07 | 0.85 | 7.0 | 17.0 |
| TOTAL | 295 | 11.33 | 3.25 | 0.58 | 3.2 | 17.2 |

TABLE 1e

MEANS AND STANDARD DEVIATIONS FOR TOTAL SCORES ON THE 60 ITEM PROTO SCALE BY YEARS OF POST SECONDARY EDUCATION.

| YEARS OF EDUCATION | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| 0 YRS. | 14 | 33.21 | 8.67 | 2.32 | 11.0 | 50.0 |
| 1-4 YRS. | 216 | 34.98 | 7.71 | 0.53 | 3.0 | 52.0 |
| 5-12 YRS | 65 | 39.31 | 9.12 | 1.13 | 2.0 | 51.0 |
| TOTAL | 295 | 35.83 | 8.49 | 1.32 | 5.3 | 51.0 |

TABLE 1f

MEANS AND STANDARD DEVIATIONS FOR SOCIAL SCIENCES SUBSCALE SCORES ON THE 60 ITEM PROTO SCALE BY YEARS OF POST SECONDARY EDUCATION.

| YEARS OF EDUCATION | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| 0 YRS. | 14 | 11.79 | 2.97 | 0.79 | 7.0 | 18.0 |
| 1-4 YRS. | 216 | 11.67 | 2.99 | 0.20 | 1.0 | 17.0 |
| 5-12 YRS | 65 | 12.75 | 3.08 | 0.38 | 2.0 | 17.0 |
| TOTAL | 295 | 12.07 | 3.01 | 0.46 | 3.3 | 17.3 |

TABLE 1g

MEANS AND STANDARD DEVIATIONS FOR BIOLOGICAL SUBSCALE SCORES ON THE 60 ITEM PROTO SCALE BY YEARS OF POST SECONDARY EDUCATION.

| YEARS OF EDUCATION | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| 0 YRS. | 14 | 11.86 | 3.76 | 1.01 | 3.0 | 19.0 |
| 1-4 YRS. | 216 | 12.88 | 3.16 | 0.22 | 1.0 | 19.0 |
| 5-12 YRS | 65 | 14.40 | 3.62 | 0.45 | 0.0 | 20.0 |
| TOTAL | 295 | 13.05 | 3.51 | 0.56 | 1.3 | 19.3 |

TABLE 1h

MEANS AND STANDARD DEVIATIONS FOR PSYCHOLOGICAL SUBSCALE SCORES ON THE 60 ITEM PROTO SCALE BY YEARS OF POST SECONDARY EDUCATION.

| YEARS OF EDUCATION | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| 0 YRS. | 14 | 9.57 | 3.11 | 0.83 | 0.0 | 13.0 |
| 1-4 YRS. | 216 | 10.44 | 3.09 | 0.21 | 1.0 | 18.0 |
| 5-12 YRS | 65 | 12.15 | 3.46 | 0.43 | 0.0 | 18.0 |
| TOTAL | 295 | 10.71 | 3.21 | 0.49 | 0.3 | 16.3 |

TABLE 1i

MEANS AND STANDARD DEVIATIONS FOR TOTAL SCORES ON THE 60 ITEM PROTO SCALE BY SEX.

| SEX | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| FEMALE | 170 | 36.18 | 8.17 | 0.63 | 2.0 | 52.0 |
| MALE | 125 | 35.40 | 8.42 | 0.75 | 3.0 | 51.0 |
| TOTAL | 295 | 35.79 | 8.29 | 0.69 | 2.5 | 51.5 |

TABLE 1j

MEANS AND STANDARD DEVIATIONS FOR SOCIAL SCIENCES SUBSCALE SCORES ON THE 60 ITEM PROTO SCALE BY SEX.

| SEX | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| FEMALE | 170 | 12.04 | 2.90 | 0.22 | 2.0 | 18.0 |
| MALE | 125 | 11.74 | 3.20 | 0.29 | 1.0 | 17.0 |
| TOTAL | 295 | 11.89 | 3.05 | 0.26 | 1.5 | 17.5 |

TABLE 1k

MEANS AND STANDARD DEVIATIONS FOR BIOLOGICAL SUBSCALE SCORES ON THE 60 ITEM PROTO SCALE BY SEX.

| SEX | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| FEMALE | 170 | 13.24 | 3.43 | 0.26 | 0.0 | 20.0 |
| MALE | 125 | 13.06 | 3.27 | 0.29 | 1.0 | 18.0 |
| TOTAL | 295 | 13.15 | 3.35 | 0.28 | 0.5 | 19.0 |

TABLE 1l

MEANS AND STANDARD DEVIATIONS FOR PSYCHOLOGICAL SUBSCALE SCORES ON THE 60 ITEM PROTO SCALE BY SEX.

| SEX | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| FEMALE | 170 | 10.90 | 3.17 | 0.24 | 0.0 | 17.0 |
| MALE | 125 | 10.60 | 3.37 | 0.30 | 1.0 | 18.0 |
| TOTAL | 295 | 10.75 | 3.27 | 0.27 | 0.5 | 17.5 |

TABLE 1m

MEANS AND STANDARD DEVIATIONS FOR TOTAL SCORES ON THE 60 ITEM PROTO SCALE BY SUBJECT AREA.

| AREA | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| PSYCHOLOGY | 169 | 34.39 | 7.13 | 0.55 | 3.0 | 48.0 |
| NON-ACADEMIC | 20 | 31.55 | 7.04 | 1.57 | 11.0 | 40.0 |
| BIOLOGY | 21 | 40.00 | 11.14 | 2.43 | 2.0 | 51.0 |
| GERONTOLOGY | 37 | 43.97 | 6.22 | 1.02 | 30.0 | 52.0 |
| EDUCATION | 24 | 34.46 | 8.20 | 1.67 | 16.0 | 46.0 |
| SOCIAL WORK | 23 | 34.48 | 8.31 | 1.73 | 16.0 | 48.0 |
| TOTAL | 294 | 36.48 | 8.01 | 1.49 | 13.0 | 47.5 |

TABLE 1n

MEANS AND STANDARD DEVIATIONS FOR SOCIAL SCIENCES SUBSCALE SCORES ON THE 60 ITEM PROTO SCALE BY SUBJECT AREA.

| AREA | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| PSYCHOLOGY | 169 | 11.53 | 2.89 | 0.22 | 1.0 | 17.0 |
| NON-ACADEMIC | 20 | 11.05 | 2.65 | 0.59 | 5.0 | 15.0 |
| BIOLOGY | 21 | 12.33 | 3.26 | 0.71 | 2.0 | 17.0 |
| GERONTOLOGY | 37 | 14.30 | 2.37 | 0.39 | 7.0 | 18.0 |
| EDUCATION | 24 | 11.42 | 3.48 | 0.71 | 5.0 | 17.0 |
| SOCIAL WORK | 23 | 11.65 | 3.01 | 0.63 | 5.0 | 17.0 |
| TOTAL | 294 | 12.05 | 2.94 | 0.54 | 4.2 | 16.8 |

TABLE 1o

MEANS AND STANDARD DEVIATIONS FOR BIOLOGICAL SUBSCALE SCORES ON THE 60 ITEM PROTO SCALE BY SUBJECT AREA.

| AREA | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| PSYCHOLOGY | 169 | 12.91 | 3.04 | 0.23 | 1.0 | 18.0 |
| NON-ACADEMIC | 20 | 11.25 | 2.97 | 0.66 | 3.0 | 16.0 |
| BIOLOGY | 21 | 14.33 | 4.44 | 0.98 | 0.0 | 19.0 |
| GERONTOLOGY | 37 | 15.97 | 2.68 | 0.44 | 8.0 | 20.0 |
| EDUCATION | 24 | 12.17 | 3.17 | 0.65 | 6.0 | 17.0 |
| SOCIAL WORK | 23 | 12.09 | 3.38 | 0.71 | 5.0 | 17.0 |
| TOTAL | 294 | 13.12 | 3.28 | 0.61 | 3.8 | 17.8 |

TABLE 1p

MEANS AND STANDARD DEVIATIONS FOR PSYCHOLOGICAL SUBSCALE SCORES ON THE 60 ITEM PROTO SCALE BY SUBJECT AREA.

| AREA | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| PSYCHOLOGY | 169 | 9.95 | 2.70 | 0.21 | 1.0 | 17.0 |
| NON-ACADEMIC | 20 | 9.25 | 2.83 | 0.63 | 1.0 | 14.0 |
| BIOLOGY | 21 | 13.33 | 4.64 | 1.01 | 0.0 | 18.0 |
| GERONTOLOGY | 37 | 13.70 | 2.47 | 0.41 | 9.0 | 17.0 |
| EDUCATION | 24 | 10.88 | 3.13 | 0.64 | 5.0 | 17.0 |
| SOCIAL WORK | 23 | 10.74 | 3.09 | 0.65 | 4.0 | 16.0 |
| TOTAL | 294 | 11.30 | 3.14 | 0.59 | 3.3 | 16.5 |

TABLE 2a

MEANS AND STANDARD DEVIATIONS FOR SCORES ON PALMORE'S FACTS ON AGING QUIZ BY AGE GROUP.

| AGE GROUP | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| 17-20 YRS. | 127 | 12.75 | 3.03 | 0.27 | 0.0 | 19.0 |
| 21-30 YRS. | 100 | 14.61 | 3.38 | 0.34 | 8.0 | 23.0 |
| 31-40 YRS. | 40 | 15.65 | 4.41 | 0.70 | 0.0 | 22.0 |
| 41-50 YRS. | 15 | 17.60 | 2.97 | 0.77 | 10.0 | 21.0 |
| 51-65 YRS. | 13 | 15.92 | 3.10 | 0.86 | 10.0 | 21.0 |
| TOTAL | 295 | 15.31 | 3.38 | 0.59 | 5.6 | 21.2 |

TABLE 2b

MEANS AND STANDARD DEVIATIONS FOR SCORES ON PALMORE'S FACTS ON AGING QUIZ BY YEARS OF POST SECONDARY EDUCATION.

| YEARS OF EDUCATION | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| 0 YRS. | 14 | 13.93 | 3.45 | 0.92 | 8.0 | 19.0 |
| 1-4 YRS. | 216 | 13.51 | 3.30 | 0.23 | 0.0 | 22.0 |
| 5-12 YRS | 65 | 16.35 | 3.87 | 0.48 | 0.0 | 23.0 |
| TOTAL | 295 | 14.60 | 3.54 | 0.54 | 2.7 | 21.3 |

TABLE 2c

MEANS AND STANDARD DEVIATIONS FOR SCORES ON PALMORE'S FACTS ON AGING QUIZ BY SEX.

| SEX | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| FEMALE | 170 | 14.27 | 3.51 | 0.27 | 0.0 | 23.0 |
| MALE | 125 | 14.01 | 3.79 | 0.34 | 0.0 | 22.0 |
| TOTAL | 295 | 14.14 | 3.65 | 0.31 | 0.0 | 22.5 |

TABLE 2d

MEANS AND STANDARD DEVIATIONS FOR SCORES ON PALMORE'S FACTS ON AGING QUIZ BY SUBJECT AREA.

| AREA | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| PSYCHOLOGY | 169 | 12.90 | 3.11 | 0.24 | 0.0 | 20.0 |
| NON-ACADEMIC | 20 | 14.15 | 3.03 | 0.68 | 8.0 | 19.0 |
| BIOLOGY | 21 | 15.48 | 4.47 | 0.98 | 0.0 | 20.0 |
| GERONTOLOGY | 37 | 18.08 | 3.00 | 0.49 | 10.0 | 23.0 |
| EDUCATION | 24 | 15.00 | 3.07 | 0.63 | 10.0 | 20.0 |
| SOCIAL WORK | 23 | 14.65 | 2.87 | 0.60 | 10.0 | 20.0 |
| TOTAL | 294 | 15.04 | 3.26 | 0.60 | 6.3 | 20.3 |

TABLE 3a

MEANS AND STANDARD DEVIATIONS FOR SCORES ON KOGAN'S O.P. SCALE BY AGE GROUP.

| AGE GROUP | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| 17-20 YRS. | 127 | 6.39 | 4.05 | 0.36 | -3.0 | 15.0 |
| 21-30 YRS. | 100 | 8.42 | 4.05 | 0.41 | -6.0 | 16.0 |
| 31-40 YRS. | 40 | 8.88 | 3.01 | 0.48 | 3.0 | 16.0 |
| 41-50 YRS. | 15 | 10.13 | 3.99 | 1.03 | 3.0 | 15.0 |
| 51-65 YRS. | 13 | 9.08 | 2.93 | 0.81 | 4.0 | 13.0 |
| TOTAL | 295 | 8.58 | 3.61 | 0.62 | 0.2 | 15.0 |

TABLE 3b

MEANS AND STANDARD DEVIATIONS FOR SCORES ON KOGAN'S O.P. SCALE BY YEARS OF POST SECONDARY EDUCATION.

| YEARS OF EDUCATION | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| 0 YRS. | 14 | 8.21 | 3.38 | 0.90 | 4.0 | 14.0 |
| 1-4 YRS. | 216 | 7.22 | 4.20 | 0.29 | -6.0 | 16.0 |
| 5-12 YRS. | 65 | 9.29 | 3.18 | 0.40 | 3.0 | 16.0 |
| TOTAL | 295 | 8.24 | 3.59 | 0.53 | 0.3 | 15.3 |

TABLE 3c

MEANS AND STANDARD DEVIATIONS FOR SCORES ON KOGAN'S O.P. SCALE BY SEX.

| SEX | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| FEMALE | 170 | 7.85 | 3.93 | 0.30 | -2.0 | 16.0 |
| MALE | 125 | 7.55 | 4.20 | 0.38 | -6.0 | 16.0 |
| TOTAL | 295 | 7.70 | 4.06 | 0.34 | -4.0 | 16.0 |

TABLE 3d

MEANS AND STANDARD DEVIATIONS FOR SCORES ON KOGAN'S O.P. SCALE BY SUBJECT AREA.

| AREA | N | MEAN | STANDARD DEVIATION | STANDARD ERROR | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|
| PSYCHOLOGY | 169 | 6.80 | 4.13 | 0.32 | -6.0 | 16.0 |
| NON-ACADEMIC | 20 | 9.00 | 2.94 | 0.66 | 4.0 | 14.0 |
| BIOLOGY | 21 | 8.62 | 3.89 | 0.85 | -3.0 | 14.0 |
| GERONTOLOGY | 37 | 10.14 | 3.27 | 0.54 | 4.0 | 16.0 |
| EDUCATION | 24 | 9.08 | 3.45 | 0.70 | 3.0 | 15.0 |
| SOCIAL WORK | 23 | 7.22 | 4.02 | 0.84 | -1.0 | 16.0 |
| TOTAL | 294 | 8.48 | 3.62 | 0.65 | 0.2 | 15.1 |

TABLE 4a

ONE WAY ANALYSIS OF VARIANCE OF PROTO TOTAL SCORES BETWEEN IN-CLASS AND OUT-OF-CLASS COMPLETION OF QUESTIONNAIRE BOOKLETS.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| BETWEEN | 1 | 7.156 | 7.156 | 0.105 | 0.745 |
| WITHIN | 292 | 19803.554 | 67.820 | | |
| TOTAL | 293 | 19810.710 | | | |

TABLE 4b

ONE WAY ANALYSIS OF VARIANCE OF PROTO SOCIAL SCIENCES SUBSCALE SCORES BETWEEN IN-CLASS AND OUT-OF-CLASS COMPLETION OF QUESTIONNAIRE BOOKLETS.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| BETWEEN | 1 | 0.003 | 0.003 | 0.000 | 0.985 |
| WITHIN | 292 | 2641.197 | 9.045 | | |
| TOTAL | 293 | 2641.200 | | | |

TABLE 4c

ONE WAY ANALYSIS OF VARIANCE OF PROTO BIOLOGICAL SUBSCALE SCORES BETWEEN IN-CLASS AND OUT-OF-CLASS COMPLETION OF QUESTIONNAIRE BOOKLETS.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| BETWEEN | 1 | 1.508 | 1.508 | 0.132 | 0.716 |
| WITHIN | 292 | 3335.293 | 11.422 | | |
| TOTAL | 293 | 3336.802 | | | |

TABLE 4d

ONE WAY ANALYSIS OF VARIANCE OF PROTO PSYCHOLOGICAL SUBSCALE SCORES BETWEEN IN-CLASS AND OUT-OF-CLASS COMPLETION OF QUESTIONNAIRE BOOKLETS.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| BETWEEN | 1 | 1.934 | 1.934 | 0.183 | 0.668 |
| WITHIN | 292 | 3078.433 | 10.542 | | |
| TOTAL | 293 | 3080.367 | | | |

TABLE 4e

ONE WAY ANALYSIS OF VARIANCE OF PALMORE'S FACTS ON AGING QUIZ BETWEEN IN-CLASS AND OUT-OF-CLASS COMPLETION OF QUESTIONNAIRE BOOKLETS.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| BETWEEN | 1 | 28.986 | 28.962 | 2.235 | 0.135 |
| WITHIN | 292 | 3785.571 | 12.964 | | |
| TOTAL | 293 | 3814.557 | | | |

TABLE 4f

ONE WAY ANALYSIS OF VARIANCE OF KOGAN'S O.P. BETWEEN IN-CLASS AND OUT-OF-CLASS COMPLETION OF QUESTIONNAIRE BOOKLETS.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| BETWEEN | 1 | 170.447 | 170.447 | 10.742 | 0.052 |
| WITHIN | 292 | 4633.120 | 15.866 | | |
| TOTAL | 293 | 4803.568 | | | |

scale (F=10.742, df.=1,292, p=0.052).

Table 5 presents the results of item to subscale and total correlations of the 60 item Proto scale.

Asterisks indicate the items which met the criteria of a) having the highest correlation value falling on its respective subscale (i.e. items 1-20 social science, items 21-40 biology, items 41-60 psychology) with a correlation value ≥ 0.30. Those initial Proto items meeting these qualifications included items 2,17,24,28,30,32,34,38,40,43,45,47,48,53,and 59.

Tables 6a-6d present analysis of variance results of responses to the 60 item Proto scale based on the independent variables of age, years of post-secondary education, sex (gender), and subject area. These results indicated that using the criterion of $p \leq 0.05$, items 1, 2, 3, 8, 10, 12, 13, 17, 19, 20, 24, 26, 28, 30, 32, 33, 34, 35, 36, 37, 38, 40, 42, 43, 45, 46, 47, 48, 52, 53, 54, 55, 56, 58, 59 and 60 should be included in Proto's final version based on their ability to distinguish response differences on the aforementioned independent variables of subject age, years of post-secondary education, sex (gender), and subject area. However, due to comments made by subjects about items 36,46,52, and 55 concerning contradictory documentation, these items were subsequently deleted.

TABLE 5

ITEM SUBSCALE POINT BISERIAL CORRELATIONS FOR THE 60 ITEM PROTO SCALE.

| ITEM** | SOCIAL SCIENCE | BIOLOGICAL | PSYCHOLOGICAL | TOTAL |
|---|---|---|---|---|
| 1 | 0.30 | 0.28 | 0.36 | 0.36 |
| 2 | 0.40* | 0.30 | 0.31 | 0.39 |
| 3 | 0.23 | 0.23 | 0.11 | 0.22 |
| 4 | 0.18 | 0.13 | 0.18 | 0.19 |
| 5 | 0.12 | 0.11 | 0.14 | 0.14 |
| 6 | 0.13 | 0.13 | 0.10 | 0.14 |
| 7 | 0.03 | 0.07 | 0.09 | 0.07 |
| 8 | 0.12 | 0.22 | 0.02 | 0.14 |
| 9 | 0.10 | 0.08 | 0.14 | 0.12 |
| 10 | 0.31 | 0.37 | 0.34 | 0.40 |
| 11 | 0.11 | 0.11 | 0.11 | 0.15 |
| 12 | 0.11 | 0.15 | 0.16 | 0.16 |
| 13 | 0.31 | 0.38 | 0.35 | 0.41 |
| 14 | 0.12 | 0.11 | 0.14 | 0.15 |
| 15 | 0.30 | 0.30 | 0.40 | 0.39 |
| 16 | 0.33 | 0.32 | 0.34 | 0.38 |
| 17 | 0.31* | 0.30 | 0.19 | 0.31 |
| 18 | 0.18 | 0.12 | 0.23 | 0.21 |
| 19 | 0.27 | 0.29 | 0.22 | 0.30 |
| 20 | 0.13 | 0.23 | 0.18 | 0.21 |
| 21 | 0.35 | 0.40 | 0.41 | 0.41 |
| 22 | 0.06 | 0.15 | 0.18 | 0.16 |
| 23 | 0.41 | 0.39 | 0.28 | 0.42 |
| 24 | 0.25 | 0.41* | 0.36 | 0.40 |
| 25 | 0.38 | 0.36 | 0.26 | 0.38 |
| 26 | 0.25 | 0.24 | 0.30 | 0.30 |
| 27 | 0.27 | 0.26 | 0.28 | 0.28 |
| 28 | 0.29 | 0.35* | 0.34 | 0.39 |
| 29 | 0.30 | 0.29 | 0.26 | 0.33 |
| 30 | 0.26 | 0.34* | 0.23 | 0.32 |
| 31 | 0.27 | 0.30 | 0.31 | 0.30 |
| 32 | 0.23 | 0.31* | 0.16 | 0.27 |
| 33 | 0.21 | 0.22 | 0.22 | 0.26 |
| 34 | 0.24 | 0.30* | 0.27 | 0.31 |
| 35 | 0.15 | 0.19 | 0.21 | 0.22 |
| 36 | 0.18 | 0.17 | 0.13 | 0.21 |
| 37 | 0.34 | 0.25 | 0.38 | 0.38 |
| 38 | 0.33 | 0.39* | 0.29 | 0.39 |
| 39 | 0.16 | 0.22 | 0.27 | 0.25 |

* ITEM SELECTED FOR REFINED PROTO SCALE
** SEE APPENDIX D FOR ITEMS REFERRED TO IN TABLE

TABLE 5 (CONT.)

| ITEM** | SOCIAL SCIENCE | BIOLOGICAL | PSYCHOLOGICAL | TOTAL |
|---|---|---|---|---|
| 40 | 0.29 | 0.33* | 0.23 | 0.33 |
| 41 | 0.24 | 0.25 | 0.25 | 0.29 |
| 42 | 0.27 | 0.29 | 0.28 | 0.33 |
| 43 | 0.31 | 0.32 | 0.42* | 0.41 |
| 44 | 0.18 | 0.17 | 0.18 | 0.21 |
| 45 | 0.32 | 0.36 | 0.41* | 0.43 |
| 46 | 0.08 | 0.16 | 0.08 | 0.13 |
| 47 | 0.22 | 0.30 | 0.31* | 0.32 |
| 48 | 0.23 | 0.24 | 0.34* | 0.31 |
| 49 | 0.28 | 0.22 | 0.14 | 0.24 |
| 50 | 0.21 | 0.19 | 0.21 | 0.26 |
| 51 | 0.21 | 0.34 | 0.25 | 0.32 |
| 52 | 0.04 | 0.12 | 0.12 | 0.12 |
| 53 | 0.35 | 0.28 | 0.36* | 0.38 |
| 54 | 0.21 | 0.12 | 0.18 | 0.20 |
| 55 | 0.09 | 0.09 | 0.09 | 0.10 |
| 56 | 0.23 | 0.28 | 0.27 | 0.30 |
| 57 | 0.38 | 0.37 | 0.28 | 0.40 |
| 58 | 0.22 | 0.29 | 0.23 | 0.29 |
| 59 | 0.29 | 0.26 | 0.33* | 0.34 |
| 60 | 0.16 | 0.22 | 0.18 | 0.22 |

* ITEM SELECTED FOR REFINED PROTO SCALE
** SEE APPENDIX D FOR ITEMS REFERRED TO IN TABLE

TABLE 6a
ANALYSIS OF VARIANCE OF PROTO (60 ITEM) SCALE BY AGE GROUP.

| ITEM # | ** DF | F. RATIO | F. PROB. |
|---|---|---|---|
| 1 | 4 | 2.307 | 0.058 |
| 2 | | 4.608 | 0.001* |
| 3 | | 1.656 | 0.160 |
| 4 | | 0.492 | 0.741 |
| 5 | | 1.571 | 0.181 |
| 6 | | 1.035 | 0.389 |
| 7 | | 0.756 | 0.554 |
| 8 | | 3.495 | 0.008* |
| 9 | | 2.338 | 0.055 |
| 10 | | 3.188 | 0.013* |
| 11 | | 0.786 | 0.534 |
| 12 | | 2.588 | 0.037* |
| 13 | | 3.221 | 0.013* |
| 14 | | 2.877 | 0.052 |
| 15 | | 1.720 | 0.145 |
| 16 | | 1.155 | 0.330 |
| 17 | | 1.135 | 0.339 |
| 18 | | 3.562 | 0.061 |
| 19 | | 4.140 | 0.002* |
| 20 | | 3.922 | 0.004* |
| 21 | | 0.813 | 0.517 |
| 22 | | 1.194 | 0.313 |
| 23 | | 0.523 | 0.718 |
| 24 | | 4.433 | 0.001* |
| 25 | | 0.736 | 0.567 |
| 26 | | 5.003 | 0.000* |
| 27 | | 0.329 | 0.858 |
| 28 | | 2.037 | 0.089 |
| 29 | | 1.269 | 0.282 |
| 30 | | 1.081 | 0.365 |
| 31 | | 1.131 | 0.341 |
| 32 | | 1.373 | 0.243 |
| 33 | | 2.431 | 0.047* |
| 34 | | 0.223 | 0.925 |
| 35 | | 1.838 | 0.121 |
| 36 | | 2.327 | 0.056*** |
| 37 | | 6.733 | 0.000* |
| 38 | | 0.815 | 0.516 |
| 39 | | 2.365 | 0.053 |
| 40 | | 0.703 | 0.590 |
| 41 | | 0.106 | 0.980 |
| 42 | | 2.284 | 0.060 |
| 43 | | 7.837 | 0.000* |
| 44 | | 0.540 | 0.706 |

TABLE 6a (CONT.)

| ITEM # ** | DF | F. RATIO | F. PROB. |
|---|---|---|---|
| 45 | 4 | 2.350 | 0.054 |
| 46 | | 0.785 | 0.535*** |
| 47 | | 4.881 | 0.000* |
| 48 | | 6.954 | 0.000* |
| 49 | | 1.855 | 0.118 |
| 50 | | 0.611 | 0.654 |
| 51 | | 2.385 | 0.051 |
| 52 | | 2.865 | 0.023*** |
| 53 | | 1.108 | 0.352 |
| 54 | | 2.615 | 0.055 |
| 55 | | 3.692 | 0.006*** |
| 56 | | 4.240 | 0.052 |
| 57 | | 1.394 | 0.236 |
| 58 | | 2.291 | 0.059 |
| 59 | | 8.731 | 0.000* |
| 60 | | 4.442 | 0.001* |

* ITEM SELECTED FOR FINAL 40 ITEM PROTO SCALE
** SEE APPENDIX D FOR ITEMS REFERRED TO IN TABLE
*** ITEM REMOVED FROM CONSIDERATION DUE TO PARTICIPANT COMMENTS

TABLE 6b
ANALYSIS OF VARIANCE OF PROTO (TOTAL) SCALE BY YEARS OF POST SECONDARY EDUCATION.

| ITEM # | ** DF | F. RATIO | F. PROB. |
|---|---|---|---|
| 1 | 2 | 3.189 | 0.042* |
| 2 | | 3.520 | 0.030* |
| 3 | | 2.222 | 0.110 |
| 4 | | 0.473 | 0.623 |
| 5 | | 1.451 | 0.236 |
| 6 | | 1.152 | 0.317 |
| 7 | | 2.130 | 0.120 |
| 8 | | 4.439 | 0.012* |
| 9 | | 0.562 | 0.570 |
| 10 | | 5.330 | 0.005* |
| 11 | | 1.607 | 0.202 |
| 12 | | 0.724 | 0.485 |
| 13 | | 2.364 | 0.095 |
| 14 | | 1.375 | 0.254 |
| 15 | | 2.041 | 0.131 |
| 16 | | 2.392 | 0.093 |
| 17 | | 0.284 | 0.752 |
| 18 | | 0.891 | 0.411 |
| 19 | | 4.848 | 0.008* |
| 20 | | 6.631 | 0.001* |
| 21 | | 0.689 | 0.502 |
| 22 | | 0.951 | 0.387 |
| 23 | | 1.522 | 0.219 |
| 24 | | 3.357 | 0.036* |
| 25 | | 0.163 | 0.849 |
| 26 | | 3.823 | 0.023* |
| 27 | | 1.363 | 0.257 |
| 28 | | 2.427 | 0.090 |
| 29 | | 0.372 | 0.689 |
| 30 | | 2.866 | 0.058 |
| 31 | | 0.008 | 0.991 |
| 32 | | 1.256 | 0.286 |
| 33 | | 10.540 | 0.000* |
| 34 | | 0.208 | 0.811 |
| 35 | | 5.065 | 0.060 |
| 36 | | 4.536 | 0.061*** |
| 37 | | 7.275 | 0.008* |
| 38 | | 0.164 | 0.848 |
| 39 | | 1.140 | 0.321 |
| 40 | | 0.515 | 0.597 |
| 41 | | 0.088 | 0.915 |
| 42 | | 2.936 | 0.054 |
| 43 | | 9.957 | 0.000* |
| 44 | | 2.799 | 0.062 |

TABLE 6b (CONT.)

| ITEM # ** | DF | F. RATIO | F. PROB. |
|---|---|---|---|
| 45 | 2 | 0.394 | 0.674 |
| 46 | | 0.249 | 0.779*** |
| 47 | | 12.123 | 0.000* |
| 48 | | 5.137 | 0.006* |
| 49 | | 0.285 | 0.752 |
| 50 | | 2.263 | 0.105 |
| 51 | | 1.736 | 0.178 |
| 52 | | 5.140 | 0.006*** |
| 53 | | 2.327 | 0.099 |
| 54 | | 5.505 | 0.054 |
| 55 | | 7.768 | 0.000*** |
| 56 | | 3.385 | 0.055 |
| 57 | | 0.608 | 0.545 |
| 58 | | 1.497 | 0.225 |
| 59 | | 8.449 | 0.000* |
| 60 | | 6.998 | 0.001* |

* ITEM SELECTED FOR FINAL 40 ITEM PROTO SCALE
** SEE APPENDIX D FOR ITEMS REFERRED TO IN TABLE
*** ITEM REMOVED FROM CONSIDERATION DUE TO PARTICIPANT COMMENTS

TABLE 6c
ONE WAY ANALYSIS OF VARIANCE OF PROTO (60 ITEM) SCALE BY SEX (GENDER).

| ITEM # | ** DF | F. RATIO | F. PROB. |
|---|---|---|---|
| 1 | 1 | 2.050 | 0.153 |
| 2 | | 0.464 | 0.496 |
| 3 | | 12.075 | 0.000* |
| 4 | | 0.989 | 0.320 |
| 5 | | 0.867 | 0.352 |
| 6 | | 0.891 | 0.345 |
| 7 | | 2.042 | 0.154 |
| 8 | | 0.086 | 0.768 |
| 9 | | 1.099 | 0.295 |
| 10 | | 0.177 | 0.674 |
| 11 | | 0.588 | 0.443 |
| 12 | | 4.556 | 0.033* |
| 13 | | 0.959 | 0.328 |
| 14 | | 0.689 | 0.407 |
| 15 | | 1.501 | 0.221 |
| 16 | | 2.008 | 0.157 |
| 17 | | 2.469 | 0.117 |
| 18 | | 1.383 | 0.240 |
| 19 | | 1.755 | 0.186 |
| 20 | | 0.843 | 0.359 |
| 21 | | 1.383 | 0.240 |
| 22 | | 1.909 | 0.168 |
| 23 | | 0.127 | 0.721 |
| 24 | | 1.215 | 0.271 |
| 25 | | 0.002 | 0.958 |
| 26 | | 0.230 | 0.631 |
| 27 | | 1.361 | 0.244 |
| 28 | | 7.118 | 0.008* |
| 29 | | 0.565 | 0.452 |
| 30 | | 1.989 | 0.159 |
| 31 | | 0.199 | 0.655 |
| 32 | | 1.258 | 0.262 |
| 33 | | 0.099 | 0.753 |
| 34 | | 0.161 | 0.687 |
| 35 | | 0.729 | 0.393 |
| 36 | | 0.174 | 0.676*** |
| 37 | | 0.135 | 0.713 |
| 38 | | 0.792 | 0.374 |
| 39 | | 0.337 | 0.561 |
| 40 | | 1.694 | 0.194 |
| 41 | | 1.112 | 0.292 |
| 42 | | 11.194 | 0.000* |
| 43 | | 2.570 | 0.109 |
| 44 | | 0.233 | 0.629 |

TABLE 6c (CONT.)

| ITEM | DF | F. RATIO | F. PROB. |
|---|---|---|---|
| 45 | 1 | 0.057 | 0.810 |
| 46 | | 1.924 | 0.166*** |
| 47 | | 0.046 | 0.828 |
| 48 | | 0.085 | 0.770 |
| 49 | | 2.313 | 0.129 |
| 50 | | 1.017 | 0.313 |
| 51 | | 0.904 | 0.342 |
| 52 | | 2.330 | 0.128*** |
| 53 | | 1.878 | 0.171 |
| 54 | | 0.698 | 0.404 |
| 55 | | 4.514 | 0.034*** |
| 56 | | 0.069 | 0.792 |
| 57 | | 0.106 | 0.744 |
| 58 | | 2.520 | 0.113 |
| 59 | | 2.330 | 0.128 |
| 60 | | 0.811 | 0.368 |

* ITEM SELECTED FOR FINAL 60 ITEM PROTO SCALE
** SEE APPENDIX D FOR ITEMS REFERRED TO IN TABLE
*** ITEM REMOVED FROM CONSIDERATION DUE TO PARTICIPANT COMMENTS

TABLE 6d
ANALYSIS OF VARIANCE OF PROTO (60 ITEM) SCALE BY SUBJECT AREA.

| ITEM # | ** DF | F. RATIO | F. PROB. |
|---|---|---|---|
| 1 | 5 | 4.017 | 0.001* |
| 2 | | 4.768 | 0.000* |
| 3 | | 2.822 | 0.016* |
| 4 | | 0.897 | 0.483 |
| 5 | | 2.130 | 0.061 |
| 6 | | 1.757 | 0.121 |
| 7 | | 0.867 | 0.503 |
| 8 | | 5.745 | 0.000* |
| 9 | | 2.012 | 0.076 |
| 10 | | 2.162 | 0.058 |
| 11 | | 1.276 | 0.274 |
| 12 | | 3.525 | 0.004* |
| 13 | | 3.513 | 0.004* |
| 14 | | 1.806 | 0.111 |
| 15 | | 0.800 | 0.550 |
| 16 | | 1.714 | 0.131 |
| 17 | | 2.911 | 0.013* |
| 18 | | 1.621 | 0.154 |
| 19 | | 3.743 | 0.002* |
| 20 | | 6.622 | 0.000* |
| 21 | | 1.444 | 0.208 |
| 22 | | 2.269 | 0.057 |
| 23 | | 0.629 | 0.677 |
| 24 | | 6.594 | 0.000* |
| 25 | | 1.780 | 0.116 |
| 26 | | 6.301 | 0.000* |
| 27 | | 1.214 | 0.302 |
| 28 | | 3.064 | 0.010* |
| 29 | | 1.768 | 0.119 |
| 30 | | 4.326 | 0.000* |
| 31 | | 0.246 | 0.941 |
| 32 | | 5.602 | 0.000* |
| 33 | | 11.840 | 0.000* |
| 34 | | 0.868 | 0.502 |
| 35 | | 4.707 | 0.000* |
| 36 | | 3.016 | 0.011*** |
| 37 | | 6.034 | 0.000* |
| 38 | | 0.523 | 0.758 |
| 39 | | 3.177 | 0.053 |
| 40 | | 1.192 | 0.313 |
| 41 | | 0.643 | 0.666 |
| 42 | | 5.054 | 0.000* |
| 43 | | 11.616 | 0.000* |
| 44 | | 0.889 | 0.488 |

TABLE 6d (CONT.)

| ITEM # ** | DF | F. RATIO | F. PROB. |
|---|---|---|---|
| 45 | 5 | 3.201 | 0.007* |
| 46 | | 3.686 | 0.003*** |
| 47 | | 4.164 | 0.001* |
| 48 | | 10.403 | 0.000* |
| 49 | | 0.714 | 0.613 |
| 50 | | 1.995 | 0.794 |
| 51 | | 1.380 | 0.231 |
| 52 | | 3.705 | 0.002*** |
| 53 | | 5.095 | 0.051 |
| 54 | | 6.514 | 0.054 |
| 55 | | 7.211 | 0.000*** |
| 56 | | 4.804 | 0.060 |
| 57 | | 0.427 | 0.829 |
| 58 | | 3.141 | 0.000* |
| 59 | | 19.852 | 0.000* |
| 60 | | 4.591 | 0.000* |

* ITEM SELECTED FOR FINAL 40 ITEM PROTO SCALE
** SEE APPENDIX D FOR ITEMS REFERRED TO IN TABLE
*** ITEM REMOVED FROM CONSIDERATION DUE TO PARTICIPANT COMMENTS

Table 7 presents item alpha values which was the third major criteria in final scale item selection.

Those of the original 60 Proto items which had not been selected on the basis of item to subscale correlations or ANOVA analysis on the basis of subject age, educational level, sex, and subject area were now scrutinized for their alpha value contribution based on the original 60 item scale. Using the criterion of selection based on highest alpha value contribution (i.e. items were selected on their ability to lower total alpha if removed from scale), the following items were selected for inclusion in the final Proto scale: 9, 15, 16, 23, 25, 29, 50, 51.

Psychometric Properties of the 40 Item Proto Scale

Table 8a presents the frequency with which subjects correctly responded to the 40 selected Proto items. Using the arbitrary criterion of an 80 to 100% correct item response as indicating an item of easy difficulty 12 of the 40 items or 30% of items fell into this category. Secondly, using the criterion of a 41 to 70% correct item response rate as representing an item of medium difficulty 17 or 42.5% of the 40 items fell into this category. Thirdly, using the criterion of a 0 to 40% correct response rate as representing an item of

TABLE 7

ALPHA VALUE**** OF PROTO SCALE
IF ITEM DELETED.

| ITEM # | ALPHA IF ITEM DELETED | ITEM # | ALPHA IF ITEM DELETED |
|---|---|---|---|
| 1 | 0.5897** | 31 | 0.7262 |
| 2 | 0.5787** | 32 | 0.7221** |
| 3 | 0.5998** | 33 | 0.7263** |
| 4 | 0.7275 | 34 | 0.7229** |
| 5 | 0.7257 | 35 | 0.7304** |
| 6 | 0.7219 | 36 | 0.7286*** |
| 7 | 0.7219 | 37 | 0.7250** |
| 8 | 0.6165** | 38 | 0.7167** |
| 9 | 0.6147* | 39 | 0.7287 |
| 10 | 0.5896** | 40 | 0.7191** |
| 11 | 0.7295 | 41 | 0.7317 |
| 12 | 0.6117** | 42 | 0.6579** |
| 13 | 0.5871** | 43 | 0.6406** |
| 14 | 0.7255 | 44 | 0.7381 |
| 15 | 0.5935* | 45 | 0.6417** |
| 16 | 0.5897* | 46 | 0.6808*** |
| 17 | 0.5884** | 47 | 0.6558** |
| 18 | 0.7252 | 48 | 0.6514** |
| 19 | 0.5949** | 49 | 0.7308 |
| 20 | 0.6169** | 50 | 0.6570* |
| 21 | 0.7218 | 51 | 0.6621* |
| 22 | 0.7337 | 52 | 0.6740*** |
| 23 | 0.7180* | 53 | 0.7481** |
| 24 | 0.7101** | 54 | 0.7682** |
| 25 | 0.7184* | 55 | 0.6803*** |
| 26 | 0.7262** | 56 | 0.7589** |
| 27 | 0.7224 | 57 | 0.7617 |
| 28 | 0.7163** | 58 | 0.6630** |
| 29 | 0.7217* | 59 | 0.6518** |
| 30 | 0.7177** | 60 | 0.6688** |

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*ITEM SELECTED FOR FINAL 40 ITEM PROTO SCALE
**ITEM PREVIOUSLY SELECTED FOR FINAL PROTO SCALE FROM ANOVA RESULTS
***ITEM REMOVED FROM CONSIDERATION DUE TO PATICIPANT COMMENTS
****ALPHA VALUES TAKEN TO FOUR DECIMAL PLACES FOR PRECISION IN MAGNITUDE DISCRIMINATION POWERS.

TABLE 8a

ITEM DIFFICULTY LEVELS OF THE FINAL 40 ITEM PROTO SCALE.

| ITEM # | PERCENT CORRECT | ITEM # | PERCENT CORRECT |
|---|---|---|---|
| 1 | 65.0% | 32 | 57.3% |
| 2 | 75.6 | 33 | 12.9 |
| 3 | 64.0 | 34 | 50.2 |
| 8 | 68.0 | 35 | 27.8 |
| 9 | 13.6 | 37 | 74.9 |
| 10 | 80.3 | 38 | 89.8 |
| 12 | 48.8 | 40 | 81.4 |
| 13 | 62.4 | 42 | 24.7 |
| 15 | 82.4 | 43 | 41.4 |
| 16 | 85.8 | 45 | 40.0 |
| 17 | 69.5 | 47 | 56.0 |
| 19 | 76.6 | 48 | 29.5 |
| 20 | 47.1 | 50 | 50.2 |
| 23 | 91.9 | 51 | 87.5 |
| 24 | 47.5 | 53 | 54.2 |
| 25 | 89.5 | 54 | 24.7 |
| 26 | 29.5 | 56 | 28.8 |
| 28 | 66.1 | 58 | 33.9 |
| 29 | 79.7 | 59 | 38.6 |
| 30 | 70.8 | 60 | 66.1 |

hard difficulty, 11 or 27.5% of the items fell into this category (see Table 8b).

Table 9 presents Chronbach's reliability alphas (corrected for attenuation using Guilford's formula) for the 40 item Proto scale and its social science, biology, and psychology subscales. Results indicated an overall scale alpha of 0.8391 for the 40 item scale and a projected alpha of 0.9287 for a 100 item scale. For the social science subscale an overall alpha of 0.6140 for the 13 items and a projected alpha of 0.9244 for a 100 item subscale were determined. For the biology subscale an overall alpha of 0.6759 for the 14 items and a projected alpha of 0.9371 for a 100 item subscale were determined. For the psychology subscale an overall alpha of 0.6842 for the 13 items and a projected alpha of 0.9434 for a 100 item subscale were determined.

Table 10 presents the results of an investigation into the factor analytic properties of the 40 item Proto scale. Using the technique of multiple r's, a Scree test analysis indicated a 3 Factor solution. These factors were interpreted as follows; Factor I representing a Psychology Dimension, Factor II as a Biological Change Dimension and Factor III as a combined Social Lifestyle/ Histological Change Factor. An overall sampling adequacy of 0.8809 and a 20.6% cumulative proportion of total

TABLE 8b
CATEGORIZATION OF 40 ITEM PROTO SCALE AS EASY, MEDIUM AND HARD* BASED ON ITEM DIFFICULTY LEVELS.

| ITEM DIFFICULTY | PERCENT CORRECT RESPONSE RATE | ITEM NUMBER | N |
|---|---|---|---|
| | > 90% | 23 | 1 |
| EASY * | 81-90 | 15 16 25 38 40 51 | 6 |
| | 71-80 | 2 10 19 29 37 | 5 |
| | | | 12 |
| | 61-70% | 1 3 8 13 17 28 30 60 | 8 |
| MEDIUM * | 51-60 | 32 47 53 | 3 |
| | 41-50 | 12 20 24 34 43 50 | 6 |
| | | | 17 |
| | 31-40% | 45 58 59 | 3 |
| HARD * | 21-30 | 26 35 42 48 54 56 | 6 |
| | 11-20 | 9 33 | 2 |
| | 0-10 | | 0 |
| | | | 11 |
| | | ITEM TOTAL | 40 |

* Items of easy difficulty were arbitrarily chosen as items that 100 to 80% of participants answered correctly. Items of medium difficulty were determined on the basis of a 70 to 41% correct response rate and items of hard difficulty as a 40 to 0% correct response.

TABLE 9

CHRONBACH'S RELIABILITY ALPHAS* OF PROTO (40 ITEM) AND SOCIAL SCIENCE, BIOLOGY, AND PSYCHOLOGY SUBSCALES.

| | ALPHA** | NUMBER OF ITEMS | ALPHA PROJECTED TO 100 ITEMS |
|---|---|---|---|
| FINAL PROTO SCALE | 0.8391 | 40 | 0.9287 |
| SUBSCALES | | | |
| SOCIAL SCIENCE | 0.6140 | 13 | 0.9244 |
| BIOLOGY | 0.6759 | 14 | 0.9371 |
| PSYCHOLOGY | 0.6842 | 13 | 0.9434 |

* Corrected for attenuation using Guilford.
** Alpha values taken to four decimal places for greater precision in magnitude discrimination powers.

TABLE 10

VARIMAX ROTATED FACTOR SOLUTION OF FINAL 40 ITEM PROTO SCALE.

| FACTOR I | | FACTOR II | | FACTOR III | |
|---|---|---|---|---|---|
| ITEM #* | LOADING | ITEM # | LOADING | ITEM # | LOADING |
| 43 | 0.542 | 23 | 0.600 | 32 | 0.564 |
| 59 | 0.494 | 29 | 0.522 | 20 | 0.451 |
| 45 | 0.477 | 38 | 0.509 | 24 | 0.413 |
| 26 | 0.434 | 16 | 0.494 | 35 | 0.397 |
| 48 | 0.429 | 51 | 0.491 | 8 | 0.349 |
| 53 | 0.424 | 25 | 0.489 | 13 | 0.314 |
| 1 | 0.395 | 10 | 0.405 | 3 | 0.310 |
| 37 | 0.391 | 19 | 0.391 | 54 | 0.289 |
| 56 | 0.371 | 17 | 0.343 | 9 | 0.285 |
| 50 | 0.354 | 30 | 0.317 | 47 | 0.270 |
| 60 | 0.323 | 28 | 0.305 | | |
| 15 | 0.322 | 40 | 0.292 | | |
| 58 | 0.318 | | | | |
| 2 | 0.312 | | | | |
| 42 | 0.284 | | | | |
| 34 | 0.257 | | | | |
| 7 | 0.138 | | | | |
| EIGEN-VALUES | 5.158 | | 1.751 | | 1.340 |
| VARIANCE ACCOUNTED | 12.895** | | 4.377 | | 3.351 |
| OVERALL SAMPLING ADEQUACY = 0.8809 | | | | | |

* See Appendix D for items referred to in Table.

** Factor analysis accounted for 35.295% of the variance for the 40 item scale, with the 3 factor solution accounting for 20.623%.

variance was accounted for in this 3 factor solution.

Tables 11a-11d present results of ANOVAs of the final 40 item Proto scale against the independent variables of participant age (grouped as 17-20, 21-30, 31-40, 41-50, 51-65), years of post-secondary education (grouped as 0, 1-4, and 5-12 years), gender (male, female) and subject area (grouped as biology, education, gerontology, non-academic (general population), psychology, and social work) [refer to Tables 1a, 1e, 1i, 1m for further breakdown of subjects in each category].

Results of an ANOVA against age (Table 11a) indicated that both Proto's total scale and each subscale showed significant F values for the Total Proto scale ($F=8.937$, df.=4, $p= 0.000$), the social science subscale ($F=4.652$, df.=4, $p= 0.001$), the biology subscale ($F=3.023$, df.=4, $p= 0.018$), and the psychology subscale ($F=13.351$, df.=4, $p= 0.000$).

Duncan's Multiple Range test (see SPSS, 1983) results indicated that in the 40 item scale those participants between the ages of 21 to 50 (i.e. the groups of 21-30, 31-40, 41-50) scored significantly better (i.e. correctly answered more items) [$p \leq 0.05$] than those participants aged 17-20.

TABLE 11a

ANALYSIS OF VARIANCE OF 40 ITEM PROTO SCALE BY AGE GROUP.

| SCALE | DF | F. RATIO | F. PROB. |
|---|---|---|---|
| FINAL PROTO SCALE | 4 | 8.937 | 0.000 |
| SUBSCALES | | | |
| SOCIAL SCIENCE | | 4.652 | 0.001 |
| BIOLOGY | | 3.023 | 0.018 |
| PSYCHOLOGY | | 13.351 | 0.000 |

Duncan's Multiple Range tests of the social science subscale against age indicated that participants between the ages of 31 to 50 (31-40, 41-50) scored significantly better ($p \leq 0.05$) on items contained in this subscale than did those participants 17-20 years of age.

With regards to Proto's biology subscale no two age groups scored significantly better at the 0.05 probability level.

With respect to Proto's psychology subscale, those participants between the ages of 21 to 50 (i.e. groups 21-30, 31-40, 41-50) scored significantly better ($p \leq 0.05$) than those in the 17-20 age group.

Results of an ANOVA against years of post-secondary education (Table 11b) indicated that both Proto's total score and each of its three subscales showed significant between group F values for the Total Proto scale ($F=15.793$, df.=2, $p= 0.000$), the social science subscale ($F=8.064$, df.=2, $p= 0.000$), the biology subscale ($F=7.224$, df.=2, $p= 0.000$), and the psychology subscale ($F=18.431$, df.=2, $p= 0.000$).

Duncan's Multiple Range tests of Proto and its three subscales indicated that those participants with 5 to 12 years of post-secondary education scored significantly

TABLE 11b

ANALYSIS OF VARIANCE OF 40 ITEM PROTO SCALE BY YEARS OF POST SECONDARY EDUCATION.

| SCALE | DF | F. RATIO | F. PROB. |
|---|---|---|---|
| FINAL PROTO SCALE | 2 | 15.793 | 0.000 |
| SUBSCALES | | | |
| SOCIAL SCIENCE | | 8.064 | 0.000 |
| BIOLOGY | | 7.224 | 0.000 |
| PSYCHOLOGY | | 18.431 | 0.000 |

better (i.e correctly answered more items) [$p \leq 0.05$] than did participants reporting either 0 or 1 to 4 years of post-secondary education (Table 11b).

Results of the One Way ANOVA against sex (gender) [Table 11c] indicated no significant F values for the total Proto scale ($F=0.687$, df.=1, $p= 0.408$)as well as the three subscales of social science ($F=0.224$, df.=1, $p= 0.636$), biology ($F=0.061$, df.=1, $p= 0.805$), and psycholology ($F=1.734$, df.=1, $p= 0.189$).

As would be expected, analysis of Proto and its three subscales against participant gender indicated no significant difference between male and female responses ($p \leq 0.05$) [Table 11c].

Results of an ANOVA against subject area (Table 11d) indicated that both Proto and its three subscales showed significant F values. Total Proto scale ($F=18.657$, df.=5, $p= 0.000$); social science subscale ($F=10.118$, df.=5, $p= 0.000$); biology subscale ($F=10.519$, df.=5, $p= 0.000$); psychology subscale ($F=24.333$, df.=5, $p= 0.000$).

Duncan's Multiple Range test (DMRt) results indicated that for the Proto scale, those participants with gerontological training scored significantly higher (i.e. correctly answered more items, $p \leq 0.05$) than did

TABLE 11c

ANALYSIS OF VARIANCE OF 40 ITEM PROTO SCALE BY SEX.

| SCALE | DF | F. RATIO | F. PROB. |
|---|---|---|---|
| FINAL PROTO SCALE | 1 | 0.687 | 0.408 |
| SUBSCALES | | | |
| SOCIAL SCIENCE | | 0.224 | 0.636 |
| BIOLOGY | | 0.061 | 0.805 |
| PSYCHOLOGY | | 1.734 | 0.189 |

TABLE 11d

ANALYSIS OF VARIANCE OF 40 ITEM PROTO SCALE BY SUBJECT AREA.

| SCALE | DF | F. RATIO | F. PROB. |
|---|---|---|---|
| FINAL PROTO SCALE | 5 | 18.657 | 0.000 |
| SUBSCALES | | | |
| SOCIAL SCIENCE | | 10.118 | 0.000 |
| BIOLOGY | | 10.519 | 0.000 |
| PSYCHOLOGY | | 24.333 | 0.000 |

participants from each of the following subject areas; biology, education, non-academic (general population) (non-academic), and social work. In turn, those participants with biological training scored better as a group (i.e. correctly answered more items, $p \leq 0.05$) than did participants from the subject areas of non-academic (general population), psychology and social work (see Table 11d).

With regards to Proto's biology subscale, DMRt analysis indicated that participants with gerontological training scored significantly better ($p \leq 0.05$) than did participants from the areas of the non-academic (general population), education, psychology, and social work (see Table 11d). Those with biology training scored significantly better than those participants from non-academic (general population) subject areas ($p \leq 0.05$) [see Table 11d].

With regards to Proto's psychology subscale, DMRt analysis indicated that participants with gerontological training did significantly better ($p \leq 0.05$) than participants from the areas of education, non-academic (general population), psychology and social work. In turn, participants with biological training did significantly better ($p \leq .0.5$) than participants from the non-academic (general population) and psychology.

Likewise, those with education training did significantly better than participants from psychology ($p \leq 0.05$). Lastly, participants with social work training scored significantly higher (i.e. correctly answered more items, $p \leq 0.05$) than those with psychology backgrounds (see Table 11d).

Results of an Analysis of Covariance against age holding the independent variables of years of post secondary education and subject group constant (Table 12-a) revealed no significant main effects ($p \leq 0.05$) on the total Proto scale ($F=1.462$, df.=4, $p= 0.214$) nor its three subscales of social science ($F=1.394$, df.=4, $p= 0.236$), biology ($F=0.987$, df.=4, $p= 0.466$), and psychology ($F=1.263$, df.=4, $p= 0.285$).

Results of an Analysis of Covariance against years of post secondary education holding the independent variables of age and subject group constant (Table 12-b) revealed no significant main effects ($p \leq 0.05$) of education on the total Proto scale ($F=2.366$, df.=2, $p= 0.097$) nor on the three subscales of social science ($F=1.525$, df.=2, $p= 0.221$), biology ($F=1.930$, df.=2, $p= 0.148$), and psychology ($F=1.107$, df.=2, $p= 0.333$).

Results of an Analysis of Covariance against subject group holding the independent variables of age and post secondary education constant (Table 12-c)

TABLE 12a

ANALYSIS OF COVARIANCE OF PROTO TOTAL SCALE AGAINST AGE GROUP WITH YEARS OF POST SECONDARY EDUCATION AND SUBJECT AREA PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| AGE GROUP | 4 | 212.172 | 53.043 | 1.462 | 0.214 |
| EXPLAINED | 6 | 1901.617 | 316.936 | 8.737 | 0.000 |
| RESIDUAL | 288 | 10447.827 | 36.277 | | |
| TOTAL | 294 | 12349.444 | 42.005 | | |

TABLE 12a (CONT.)

ANALYSIS OF COVARIANCE OF PROTO SOCIAL SUBSCALE AGAINST AGE GROUP WITH YEARS OF POST SECONDARY AND SUBJECT AREA PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| AGE GROUP | 4 | 29.768 | 7.442 | 1.394 | 0.236 |
| EXPLAINED | 6 | 129.012 | 21.502 | 4.027 | 0.001 |
| RESIDUAL | 288 | 1537.584 | 5.339 | | |
| TOTAL | 294 | 1666.597 | 5.669 | | |

TABLE 12a (CONT.)

ANALYSIS OF COVARIANCE OF PROTO BIOLOGY SUBSCALE AGAINST AGE GROUP WITH YEARS OF POST SECONDARY EDUCATION AND SUBJECT AREA PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| AGE GROUP | 4 | 22.416 | 5.604 | 0.987 | 0.466 |
| EXPLAINED | 6 | 166.928 | 27.821 | 4.452 | 0.000 |
| RESIDUAL | 288 | 1799.831 | 6.249 | | |
| TOTAL | 294 | 1966.759 | 6.690 | | |

TABLE 12a (CONT.)

ANALYSIS OF COVARIANCE OF PROTO PSYCHOLOGY SUBSCALE AGAINST AGE GROUP WITH YEARS OF POST SECONDARY EDUCATION AND SUBJECT AREA PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| AGE GROUP | 4 | 30.508 | 7.627 | 1.263 | 0.285 |
| EXPLAINED | 6 | 473.591 | 78.932 | 13.070 | 0.000 |
| RESIDUAL | 288 | 1739.311 | 6.039 | | |
| TOTAL | 294 | 2212.902 | 7.527 | | |

TABLE 12b

ANALYSIS OF COVARIANCE OF PROTO TOTAL SCALE AGAINST YEARS OF POST SECONDARY EDUCATION WITH AGE AND SUBJECT AREA PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| EDUCATION | 2 | 135.329 | 67.664 | 2.366 | 0.097 |
| EXPLAINED | 4 | 210.886 | 52.722 | 1.844 | 0.123 |
| RESIDUAL | 171 | 4890.000 | 28.596 | | |
| TOTAL | 175 | 5100.886 | 29.148 | | |

TABLE 12b (CONT.)

ANALYSIS OF COVARIANCE OF PROTO SOCIAL SUBSCALE AGAINST YEARS OF POST SECONDARY WITH AGE AND SUBJECT AREA PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| EDUCATION | 2 | 14.599 | 7.299 | 1.525 | 0.221 |
| EXPLAINED | 4 | 32.238 | 8.060 | 1.684 | 0.156 |
| RESIDUAL | 171 | 818.483 | 4.786 | | |
| TOTAL | 175 | 850.722 | 4.861 | | |

TABLE 12b (CONT.)

ANALYSIS OF COVARIANCE OF PROTO BIOLOGY SUBSCALE AGAINST YEARS OF POST SECONDARY EDUCATION WITH AGE AND SUBJECT AREA PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| EDUCATION | 2 | 19.953 | 9.977 | 1.930 | 0.148 |
| EXPLAINED | 4 | 44.070 | 11.017 | 2.131 | 0.079 |
| RESIDUAL | 171 | 883.970 | 5.169 | | |
| TOTAL | 175 | 928.040 | 5.303 | | |

TABLE 12b (CONT.)

ANALYSIS OF COVARIANCE OF PROTO PSYCHOLOGY SUBSCALE AGAINST YEARS OF POST SECONDARY EDUCATION WITH AGE AND SUBJECT AREA PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| EDUCATION | 2 | 12.219 | 6.110 | 1.107 | 0.333 |
| EXPLAINED | 4 | 51.124 | 12.781 | 2.316 | 0.059 |
| RESIDUAL | 171 | 943.763 | 5.519 | | |
| TOTAL | 175 | 994.886 | 5.685 | | |

TABLE 12c

ANALYSIS OF COVARIANCE OF PROTO TOTAL SCALE AGAINST SUBJECT AREA WITH AGE AND YEARS OF POST SECONDARY EDUCATION PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| SUBJECT AREA | 5 | 1537.237 | 307.447 | 9.808 | 0.000 |
| EXPLAINED | 7 | 3309.325 | 472.761 | 15.082 | 0.000 |
| RESIDUAL | 286 | 8964.733 | 31.345 | | |
| TOTAL | 293 | 12274.058 | 41.891 | | |

TABLE 12c (CONT.)

ANALYSIS OF COVARIANCE OF PROTO SOCIAL SUBSCALE AGAINST SUBJECT AREA WITH AGE AND YEARS OF POST SECONDARY EDUCATION PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| SUBJECT AREA | 5 | 180.955 | 36.191 | 7.572 | 0.000 |
| EXPLAINED | 7 | 286.527 | 40.932 | 8.564 | 0.000 |
| RESIDUAL | 286 | 1367.041 | 4.780 | | |
| TOTAL | 293 | 1653.568 | 5.644 | | |

TABLE 12c (CONT.)

ANALYSIS OF COVARIANCE OF PROTO BIOLOGY SUBSCALE AGAINST SUBJECT AREA WITH AGE AND YEARS OF POST SECONDARY EDUCATION PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| SUBJECT AREA | 5 | 208.710 | 41.742 | 7.320 | 0.000 |
| EXPLAINED | 7 | 334.175 | 47.739 | 8.372 | 0.000 |
| RESIDUAL | 286 | 1630.822 | 5.702 | | |
| TOTAL | 293 | 1964.997 | 6.706 | | |

TABLE 12c (CONT.)

ANALYSIS OF COVARIANCE OF PROTO PSYCHOLOGY SUBSCALE AGAINST SUBJECT AREA WITH AGE AND YEARS OF POST SECONDARY EDUCATION PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| SUBJECT AREA | 5 | 258.821 | 51.764 | 9.837 | 0.000 |
| EXPLAINED | 7 | 693.951 | 99.136 | 18.840 | 0.000 |
| RESIDUAL | 286 | 1504.923 | 5.262 | | |
| TOTAL | 293 | 2198.874 | 7.505 | | |

revealed significant main effects ($p \leq 0.05$) of subject group on the Proto scale ($F=9.808$, df.=5, $p= 0.000$) and its 3 subscales of social science ($F=7.572$, df.=5, $p= 0.000$), biology ($F=7.320$, df.=5, $p= 0.000$), and psychology ($F=9.837$, df.=5, $p= 0.000$).

Psychometric Properties of Palmore's FAQ

Table 13a presents the frequency with which subjects correctly responded to the 25 item FAQ (5 point Likert, Canadian items). Using the arbitrary criterion of an 80 to 100% correct item response as indicating an item of easy difficulty 10 of the 25 items or 40% of items fell into this category. Secondly, using the criterion of a 41 to 70% correct item response rate as representing an item of medium difficulty 8 or 32% of the 25 items fell into this category. Thirdly, using the criterion of a 0 to 40% correct response rate as representing an item of hard difficulty, 7 or 28% of the items fell into this category (see Table 13a).

Table 13b presents the frequency with which subjects correctly responded to the original FAQ (True/False, American items). Using the arbitrary criterion of an 80 to 100% correct item response as indicating an item of easy difficulty 13 of the 25 items or 52% of items fell into this category. Secondly, using

TABLE 13a
CATEGORIZATION OF 25 ITEM FAQ SCALE (5 POINT SCALE, CANADIAN FACTS) AS EASY, MEDIUM AND HARD* BASED ON THE FREQUENCY OF CORRECT PARTICIPANT RESPONSE.

| ITEM DIFFICULTY | PERCENT CORRECT RESPONSE RATE | ITEM NUMBER | N |
|---|---|---|---|
| | > 90% | 6 | 1 |
| EASY * | 81-90 | 7 14 19 21 | 4 |
| | 71-80 | 2 4 10 22 23 | 5 |
| | | | 10 |
| | 61-70% | 12 | 1 |
| MEDIUM * | 51-60 | 17 | 1 |
| | 41-50 | 8 9 11 18 20 25 | 6 |
| | | | 8 |
| | 31-40% | | 0 |
| HARD * | 21-30 | 35 16 14 5 | 4 |
| | 11-20 | 1 3 15 | 3 |
| | 0-10 | | 0 |
| | | | 7 |
| | | ITEM TOTAL | 25 |

* Items of an easy caliber were arbitrarily chosen as items in which 100 to 80% of participants answered correctly. Items of medium difficulty were determined on the basis of a 70 to 41% correct response rate and items of a hard caliber as a 40 to 0% correct response rate.

TABLE 13b
CATEGORIZATION OF 25 ITEM FAQ SCALE (ORIGINAL TRUE/FALSE, AMERICAN ITEM FORMAT) AS EASY, MEDIUM AND HARD* BASED ON THE FREQUENCY OF CORRECT PARTICIPANT RESPONSE.

| ITEM DIFFICULTY | PERCENT CORRECT RESPONSE RATE | ITEM NUMBER | N |
|---|---|---|---|
| | > 90% | 1 3 5 6 10 13 14 15 | 8 |
| EASY * | 81-90 | 22 | 1 |
| | 71-80 | 9 12 20 25 | 4 |
| | | | 13 |
| | 61-70% | 2 4 8 11 18 | 5 |
| MEDIUM * | 51-60 | 17 23 | 2 |
| | 41-50 | | 0 |
| | | | 7 |
| | 31-40% | 7 16 | 2 |
| HARD * | 21-30 | 19 21 24 | 3 |
| | 11-20 | | 0 |
| | 0-10 | | 0 |
| | | | 5 |
| | | ITEM TOTAL | 25 |

* Items of an easy caliber were arbitrarily chosen as items in which 100 to 80% of participants answered correctly. Items of medium difficulty were determined on the basis of a 70 to 41% correct response rate and items of a hard caliber as a 40 to 0% correct response rate.

the criterion of a 41 to 70% correct item response rate as representing an item of medium difficulty 7 or 28% of the 25 items fell into this category. Thirdly, using the criterion of a 0 to 40% correct response rate as representing an item of hard difficulty, 5 or 20% of the items fell into this category (see Table 13b).

Table 14 presents Chronbach's reliability alphas (corrected for attenuation using Guilford's formula) for the 25 item Palmore FAQ. Results indicated an overall scale alpha of 0.6952 and a projected alpha of 0.9012 for a 100 item scale.

Table 15 presents the results of an investigation into the factor analytic properties of Palmore's FAQ. Using the technique of multiple r's a Scree test analysis indicated a 2 factor solution. These factors were interpreted as Factor I representing an Ageism Dimension and Factor II as a Biological Change Dimension. An overall sampling adequacy of 0.794 and a 15.09% cumulative proportion of total variance was accounted for in this 2 factor solution.

Tables 16a-c present the results of ANOVA's of Palmore's FAQ against the independent variables of participant age (grouped as 17-20, 21-30, 31-40, 41-50, 51-65), years of post-secondary education (grouped as 0, 1-4 and 5-12 years), gender (male, female) and subject

TABLE 14

CHRONBACH'S RELIABILITY ALPHAS* OF PALMORE'S FAQ SCALE.

| | ALPHA** | NUMBER OF ITEMS | ALPHA PROJECTED TO 100 ITEMS |
|---|---|---|---|
| FAQ SCALE | 0.6952 | 25 | 0.9012 |

* Corrected for attenuation using Guilford.
** Alpha values taken to four decimal places for greater precision in magnitude discrimination powers.

TABLE 15

VARIMAX ROTATED FACTOR SOLUTION OF PALMORE'S FAQ SCALE.

| FACTOR I | | FACTOR II | |
|---|---|---|---|
| ITEM #* | LOADING | ITEM # | LOADING |
| 9 | 0.508 | 6 | 0.516 |
| 11 | 0.499 | 14 | 0.501 |
| 17 | 0.450 | 4 | 0.426 |
| 5 | 0.447 | 22 | 0.318 |
| 16 | 0.393 | 2 | 0.303 |
| 23 | 0.362 | 24 | 0.239 |
| 20 | 0.356 | | |
| 3 | 0.350 | | |
| 1 | 0.345 | | |
| 10 | 0.333 | | |
| 19 | 0.316 | | |
| 7 | 0.303 | | |
| 18 | 0.291 | | |
| 15 | 0.280 | | |
| 13 | 0.270 | | |
| 8 | 0.242 | | |
| 21 | 0.164 | | |
| 25 | 0.103 | | |
| 12 | 0.181 | | |
| EIGENVALUES | 2.641 | | 1.134 |
| VARIANCE ACCOUNTED | 10.564 | | 4.535 |
| OVERALL SAMPLING ADEQUACY = 0.794 | | | |

* See Appendix G for items referred to.
Factor analysis accounted for 29.306% of the variance for the 25 item scale, with the 2 factor solution accounting for 15.098%.

area (grouped as biology, education, non-academic [general population] [non-academic], gerontology, psychology and social work) [refer to Table 2a to 2d for further breakdown of subjects in each category].

Results of an ANOVA of Palmore's FAQ against age (Table 16a) indicated significant F values, ($F=15.621$, $df.=4,240$, $p= 0.000$). DMRt analysis of this result indicated that participants between the ages of 21 to 65 scored significantly better (i.e. correctly answered more items) than participants 17-20 years ($p \leq 0.05$).

Results of an ANOVA of Palmore's FAQ against years of post-secondary education (Table 16b) indicated significant F values ( $F=26.146$, $df.=2,245$, $p= 0.000$). DMRt analysis of this result indicated that participants with 5 to 12 years of post-secondary education scored significantly better ($p \leq .05$) than those participants reporting either 0 or 1 to 4 years of post-secondary education.

Results of a One Way ANOVA of Palmore's FAQ against sex (gender) [Table 16c] indicated no significant F values between male and female responses ($F=0.723$, $df.=1,244$, $p= 0.396$).

Results of an ANOVA of Palmore's FAQ against subject area (Table 16d) indicated significant F values

TABLE 16a

ANALYSIS OF VARIANCE OF PALMORE SCALE AGAINST AGE GROUP.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| BETWEEN | 4 | 685.363 | 171.340 | 15.621 | 0.000 |
| WITHIN | 240 | 2632.432 | 10.968 | | |
| TOTAL | 244 | 3317.795 | | | |

TABLE 16b

ANALYSIS OF VARIANCE OF PALMORE SCALE BY YEARS OF POST SECONDARY EDUCATION.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| BETWEEN | 2 | 626.347 | 313.174 | 26.146 | 0.000 |
| WITHIN | 245 | 2934.490 | 11.977 | | |
| TOTAL | 247 | 3560.838 | | | |

TABLE 16c

ONE WAY ANALYSIS OF VARIANCE OF PALMORE SCALE BY SEX (GENDER).

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| BETWEEN | 1 | 10.399 | 10.399 | 0.723 | 0.396 |
| WITHIN | 244 | 3508.333 | 14.378 | | |
| TOTAL | 245 | 3518.732 | | | |

TABLE 16d

ANALYSIS OF PROTO SCALE BY SUBJECT AREA.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| BETWEEN | 5 | 891.126 | 178.225 | 17.557 | 0.000 |
| WITHIN | 288 | 2923.430 | 10.150 | | |
| TOTAL | 293 | 3814.557 | | | |

(F=17.557, df.=5,288, p= 0.000). DMRt analysis of this result indicated that those participants with gerontological training scored significantly better (i.e. correctly answered more items, $p \leq 0.05$) than did participants from each of the following subject areas; biology, education, non-academic (general population), psychology and social work. In turn, those participants with biological training scored better as a group ($p \leq 0.05$) than did participants from psychology. Likewise, those paricipants with training in education scored better as a group ($p \leq 0.05$) than participants from psychology.

Results of an Analysis of Covariance against age holding the independent variables of post secondary education and subject group constant revealed significant main effects of age ($p \leq 0.05$) on Palmore's FAQ (Table 17-a). FAQ (F=3.854, df.=4, p= 0.005).

Results of an Analysis of Covariance against years of post secondary education holding the independent variables of age and subject group constant revealed no significant main effects of education ($p \leq 0.05$) on Palmore's FAQ (Table 17-b). FAQ (F=1.548, df.=2, p= 0.216).

Results of an Analysis of Covariance against subject group holding the independent variables of age

TABLE 17a

ANALYSIS OF COVARIANCE OF PALMORE SCALE AGAINST AGE GROUP WITH EDUCATION AND SUBJECT AREA PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| AGE | 4 | 169.218 | 42.304 | 3.854 | 0.005 |
| EXPLAINED | 6 | 700.075 | 116.679 | 10.629 | 0.000 |
| RESIDUAL | 288 | 3161.437 | 10.977 | | |
| TOTAL | 294 | 3861.512 | 13.134 | | |

TABLE 17b

ANALYSIS OF COVARIANCE OF PALMORE SCALE AGAINST YEARS OF POST SECONDARY EDUCATION WITH AGE AND SUBJECT AREA PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| EDUCATION | 2 | 29.765 | 14.882 | 1.548 | 0.216 |
| EXPLAINED | 4 | 92.469 | 23.117 | 2.404 | 0.052 |
| RESIDUAL | 171 | 1644.077 | 9.614 | | |
| TOTAL | 175 | 1736.545 | 9.923 | | |

and post secondary education constant (Table 17-c) revealed significant main effects of subject group ($p < 0.05$) on Palmore's FAQ ($F=6.538$, df.=5, $p= 0.000$).

Table 18 presents point-by-serial correlations (validity coefficients) of Proto, Palmore's FAQ and Kogan's OP scales.

Proto correlated with Palmore's FAQ rxy= 0.701, p= 0.000 or 49.2% of Proto's variance was accounted for by Palmore's FAQ. Proto's social science subscale correlated with Palmore's FAQ rxy= 0.600, p= 0.000 or 36.06% of Proto's variance was accounted for by the FAQ. Proto's biology subscale correlated with Palmore's FAQ rxy= 0.539, p= 0.000 or 29.08% of Proto's variance was accounted for by the FAQ. Proto's psychology subscale correlated with the FAQ rxy= 0.595, p= 0.000 or 35.41% of Proto's variance was accounted for by the FAQ. Proto correlated with Kogan's OP scale rxy= 0.370, p= 0.000 or

TABLE 17c

ANALYSIS OF COVARIANCE OF PALMORE SCALE AGAINST SUBJECT AREA WITH AGE AND YEARS OF POST SECONDARY EDUCATION PARTIALED OUT.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| SUBJECT AREA | 5 | 327.806 | 65.561 | 6.538 | 0.000 |
| EXPLAINED | 7 | 946.726 | 135.247 | 13.488 | 0.000 |
| RESIDUAL | 286 | 2867.831 | 10.027 | | |
| TOTAL | 293 | 3814.558 | 13.019 | | |

TABLE 18

PEARSON CORRELATIONS OF PROTO, PALMORE'S FAQ, AND KOGAN'S OP SCALES.

| SCALE COMPARISON | CORRELATION COEFFICIENT | PERCENT ACCOUNTED | PROB. LEVEL |
|---|---|---|---|
| PROTO BY PALMORE | 0.701 | 49.20% | 0.000 |
| *S.S. BY PALMORE | 0.600 | 36.06% | 0.000 |
| Biol.BY PALMORE | 0.539 | 29.08% | 0.000 |
| Psyc.BY PALMORE | 0.595 | 35.41% | 0.000 |
| PROTO BY KOGAN | 0.370 | 13.69% | 0.000 |
| S.S. BY KOGAN | 0.364 | 13.26% | 0.000 |
| Biol.BY KOGAN | 0.243 | 5.94% | 0.000 |
| Psyc.BY KOGAN | 0.310 | 9.60% | 0.000 |
| PALMORE BY KOGAN | 0.443 | 19.64% | 0.000 |

*S.S. - Social Science Subscale of Proto
*Biol. - Biology Subscale of Proto
*Psyc. - Psychology Subscale of Proto

13.69% of Proto's variance was accounted for by Kogan's OP scale. Proto's social science subscale correlated with Kogan's OP scale rxy= 0.364, p= 0.000 or 13.26% of its variance was accounted for by the OP scale. Proto's biology subscale correlated with Kogan's OP scale rxy= 0.243, p= 0.000 or 5.94% of its variance was accounted for by the OP scale. Proto's psychology subscale correlated with Kogan's OP scale rxy= 0.310, p= 0.000 or 9.6% of its variance was accounted for by the OP scale. Palmore's FAQ correlated with Kogan's OP scale rxy= 0.4432, p= 0.000, or 19.64% of Palmore's variance was accounted for by Kogan's OP scale.

# CHAPTER V

# DISCUSSION

This investigation set out to develop a psychometrically reliable scale capable of measuring "only" [pure] knowledge about aging. By following an item selection procedure similar to that used universally in scale development, forty of sixty original items were selected for inclusion in the final Proto scale. Of primary importance, however, is not how Proto was developed, but whether it possesses more rigorous scale construction and psychometric characteristics than Palmore's FAQ. The following discussion will therefore focus on Proto's construction and psychometric properties as compared with the FAQ's.

With respect to scale and item construction, whereas the FAQ is noted for its two part (double-barrelled) items Proto items are limited to single concept statements. This is considered by this author to be an important aspect of Proto's construction since it ensures greater item reliability i.e. one can be certain what part of the item the subject is responding to. A second asset of Proto's item construction is the avoidance of ambiguous wording (i.e. 'pretty much alike') and generalities ('most old people') that are

present in the FAQ. This is an important characteristic since it helps to ensure consistency in item interpretation.

Since Proto's items were initially selected so that a scale representative of the three main subject domains of gerontology (namely social sciences, biology and psychology) would be developed, it is important to note that factor interpretations confirm these dimensions. However, although Palmore (1977) has said that he chose FAQ items from the areas of physical, mental and social aspects of aging, this is not confirmed in factor interpretations (to be discussed further in the section dealing with psychometric considerations). These results imply that Proto is better at testing knowledge from the subject areas it purports to than is the FAQ.

And finally, with respect to scale construction, the five-point response format present in Proto adds to the rigor of this scale, since it eliminates the fifty percent chance of guessing present in the original true/false format of the FAQ (it should be noted that in order to maintain comparability of results, the FAQ response format used in test batteries were identical to Proto's five-point scale). Collapsing the five-point scales into a true/false format for analysis allowed interpretation of whether the item was correctly

answered. Any significant changes this may have had on statistical results revolve primarily around the lowering of reliability values, since reliability increases with number of response categories. No other changes, other than loss of response frequencies to each scale category, was of any significance in this investigations results.

With respect to the psychometric properties of Proto and Palmore scales, in particular, item difficulty levels, ideally desire a scale that can pick out those with specialized versus general information about what the scale purports to measure (i.e. want a scale with distinguishing powers). Proto appears to possess this quality as exemplified in the frequency of correct item responses obtained by subjects in this investigation. FAQ (revised format) results produced a similar item difficulty breakdown, but whereas Proto was stacked on the medium difficulty side, (11 out of 40 or 27.5% of items were of hard difficulty [i.e. items had a 0-40% correct response rate], 17 of 40 or 42.5% of items were of medium difficulty [i.e. items which had a 41-70% correct response rate], 12 of 40 or 30% of items were of an easy difficulty level [i.e. items which had a 71-100% correct response rate]), Palmore's FAQ was found to be stacked on the easy side (7 of 25 or 28% of items were of hard difficulty, 8 or 32% were of medium difficulty,

and 10 or 40% were of easy difficulty level. Interestingly, a similar item difficulty breakdown conducted on pilot results using the original FAQ format (i.e. true/false and American items) indicated a noticeable change in correct item responses (5 of 25 items or 20% of items were of a hard difficulty level, 7 or 28% of items were of medium difficulty and 13 or 52% were of easy difficulty).

The results of the original FAQ format as compared to Proto, suggest that Proto, with a relatively equal breakdown of easy/medium and hard difficultly items, might possess stronger abilities for distinguishing information of different difficulty levels (as based on subject response in this investigation). Not only does Proto possess good item discriminatory powers, but items sample equally from its three purported subject domains of social science (13 items), biology (14 items), and psychology (13 items).

In consideration of scale reliability, or error due to chance factors, Proto at 0.8391 possesses less likelihood of measurement fluctuation than the FAQ with a Chronbach's reliability alpha of 0.6952. However, comparison of the two scales as such is inappropriate since reliabilty is influenced by the number of items in a scale (i.e. the greater the number of items the higher

the reliability). More definite proof of Proto's superior reliability is exemplified in value projections for 100 items which indicate that Proto still possesses greater reliability than the FAQ (0.9287 versus 0.9012). Consideration of Proto's three subscales also indicate that projected to 100 items each subscale possesses less measurement error than the FAQ (social science 0.9244; biology 0.9371; psychology 0.9434 versus FAQ 0.9012).

Investigation into the factor analytic dimensions of Proto and FAQ scales reveals that 20.623 percent of Proto and 15.098 percent of FAQ's variance is accounted for in their respective three and two factor solutions (indicated by Scree test analysis). As alluded to previously, factor interpretations of the Proto scale corresponded to the three subject domains from which items were sampled from. Namely, the social science subject domain corresponds to the split Factor III interpretation of Social Lifestyle/Histological changes, the biology subject domain corresponds to the Factor II interpretation of a Biological Change Factor, and the psychology subject domain to the Factor I interpretation of a Psychological Dimension. The FAQ's purported item sampling from the areas of physical, mental, and social aspects of aging were not separately distinguishable in the factor interpretations of Factor I, an Ageism Factor, and Factor II, a Biological Change Factor.

Investigation into ANOVA results of Proto, its three subscales and the FAQ against age, years of post secondary education, sex (gender) and subject area of participants indicated somewhat similar trends. These trends were for significant differences to occur between age, education and subject area groupings of participants.

Because it was possible that participant age and educational attainment might be exerting interactive effects on scale results, Analyses of Covariance were conducted. Interaction was plausible since it is known that individuals born between 1943-61 [baby boom years] have typicallly reached higher levels of educational attainment than previous age groups (Cross, 1982). Results indicated that when possible age differences were considered holding years of post secondary education and subject area constant, Proto and its three subscales showed no significant differences ($p \leq 0.05$) although analysis of the FAQ indicated that significant age differences occurred. These results imply that participant age is a confounding influence in FAQ scale results. When years of post secondary education attainment was considered holding participant age and subject area constant, no significant differences ($p \leq 0.05$) were found for Proto and FAQ scale responses.

As a cautionary measure, Analyses of Covariance were conducted on Proto, its three subscales, and the FAQ, considering subject area effects holding participant age and years of post secondary education constant. Results indicated no significant subject area effects ($p \leq 0.05$). These results, taken together with ANOVA results which indicated that participants with gerontological training scored significantly higher than participants from other subject areas, indicated that the effects due to subject area were not confounded by age or post secondary education considerations. In summary, individuals with gerontological training were doing significantly better on Proto as a result of their specialized training and not due to age or educational attainment effects. However, in the FAQ's case, participant age was a confounding influence in subject area results. As such, this implies that the FAQ confounds subject area and age effects in its scale results (i.e. is not capable of measuring pure gerontological education effects).

Correlations of the FAQ with Kogan's OP (an attitude scale) indicated that more of FAQ's variance was accounted for by this attitude scale than was Proto's. Coupled with the fact that factor interpretations of the FAQ indicated that an attitude

dimension was present (Ageism Factor), and that age, which has been linked to attitudes about aging, is a confounding influence, affirms Klemmack's (1979) and Palmore's (1981) statements that the FAQ measures attitudes and/or stereotypes about aging.

However, more important is the fact that results from this investigation indicate that researchers in the field of gerontological education now have a rigorous scale which can be used to measure knowledge about aging. Implications for Proto's usage include the ability to measure before/after levels of gerontological knowledge, sampling items of easy, medium and hard difficulty levels from the three subject areas representative of gerontology. Using Proto, it will now be possible to investigate effects that gerontological knowledge might have on attitudes about aging. This was not possible before, since the FAQ measures from knowledge and attitude dimensions, so investigation of pure knowledge effects on attitudes was not possible.

In summary, results from this investigation indicate that Proto is a highly reliable and valid scale which measures easy, medium and hard items from the three subject domains of gerontology. Its stringent scale construction and psychometric characteristics allow detection of gerontological training effects

devoid of age or educational level attainment of participants. Initial results from this investigation suggest that Proto is also able to distinguish participants with specialized knowledge of biological aspects of aging. However, further investigation into Proto's ability to distinguish participants from subject areas representative of its three subscales will be necessary before any conclusions can be reached.

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# APPENDIX A

## Palmore's Facts on Aging Quiz

Instructions: Please circle whether the item is true or false.

1) The majority of old people (past 65) are senile (i.e. defective memory, disoriented, or demented).

True False

2) All five senses tend to decline in old age.

True False

3) Most old people have no interest in, or capacity for, sexual relations.

True False

4) Lung capacity tends to decline in old age.

True False

5) The majority of old people feel miserable most of the time.

True False

6) Physical strength tends to decline in old age.

True False

7) At least one-tenth of the aged are living in long-stay institutions (i.e. nursing homes, mental hospitals, homes for the aged, etc.).

True False

8) Aged drivers have fewer accidents per person than drivers under age 65.

True False

9) Most older workers cannot work as effectively as younger workers.

True False

10) About 80% of the aged are healthy enough to carry out their normal activities.

True False

11) Most old people are set in their ways and unable to change.

True False

12) Old people usually take longer to learn something new.

True False

13) It is impossible for most old people to learn new things.

True False

14) The reaction time of most old people tends to be slower than reaction time of younger people.

True False

15) In general, most old people are pretty much alike.

True False

16) The majority of old people are seldom bored.

True False

17) The majority of old people are socially isolated and lonely.

True False

18) Older workers have fewer accidents than younger workers.

True False

19) Over 15% of the U.S. population are now age 65 or over.

True False

20) Most medical practitioners tend to give low priority to the aged.

True False

21) The majority of older people have incomes below the poverty line (as defined by the Federal Government).

True False

22) The majority of old people are working or would like to have some kind of work to do (including housework and volunteer work).

True False

23) Older people tend to become more religious as they age.

True False

24) The majority of old people are seldom irritated or angry.

True False

25) The health and socioeconomic status of older people (compared to younger people) in the year 2000 will probably be about the same as now.

True False

# APPENDIX B

PILOT RESULTS OF THE FAQ RELIABILITY VALUE.

| N | MEAN | VARIANCE | STANDARD DEVIATION | CHRONBACH'S ALPHA |
|---|---|---|---|---|
| 136 | 21.245 | 8.533 | 2.921 | 0.579 |

# APPENDIX C

Results of an investigation into the factor analytic properties of Palmore's FAQ.

VARIMAX ROTATED FACTOR SOLUTION OF PALMORE'S FAQ SCALE.

| FACTOR I | | FACTOR II | | FACTOR III | |
|---|---|---|---|---|---|
| ITEM* | LOADING | ITEM | LOADING | ITEM | LOADING |
| 1 | 0.838 | 17 | 0.708 | 2 | 0.602 |
| 13 | 0.802 | 21 | 0.645 | 14 | 0.560 |
| 3 | 0.620 | 16 | 0.577 | 12 | 0.517 |
| 5 | 0.581 | 24 | 0.548 | 25 | 0.488 |
| 15 | 0.462 | 19 | 0.419 | 20 | 0.426 |
| | | 23 | 0.345 | 4 | 0.375 |
| EIGEN-VALUES | 2.900 | | 2.315 | | 2.091 |
| VARIANCE ACCOUNTED | 11.598 | | 9.260 | | 8.364 |

| FACTOR IV | |
|---|---|
| ITEM | LOADING |
| 11 | 0.576 |
| 8 | 0.480 |
| 9 | 0.448 |
| 18 | 0.427 |
| 10 | 0.412 |
| 22 | 0.380 |
| 6 | 0.361 |
| 7 | 0.235 |
| EIGENVALUE | 1.601 |
| VARIANCE ACCOUNTED | 6.403 |

* See Appendix B for item refered to.

# APPENDIX D

## Proto Knowledge on Aging Scale

Instructions: The following questions are designed to assess your knowledge about aging. Please answer each statement by circling the degree to which you think the item is true or false. Please answer these questions carefully and be sure to provide a response for every item.

1) According to Statistics Canada, over 50% of unattached individuals aged 65 and older have incomes below the poverty line (less than $7,000 per year).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

2) According to demographic studies, the Canadian group which is increasing in greatest proportion is the 65 and older age group, (as compared to the 64 and younger age group).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

3) According to Canadian Law it is illegal for an individual to work past 65 years of age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

4) According to Statistics Canada the average life expectancy for Canadian women at age 65 is 83 years.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

5) According to Statistics Canada the average life expectancy for a Canadian male at birth is 79 years.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

6) Women ( aged 65+) are more likely to have adequate nutrient intakes than their male counterparts.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

7) Old Age Security and Guaranteed Income Supplements are the greatest source of financial income for people aged 66 and older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

8) Workers 55 and older (male and female) who lose their jobs generally remain unemployed for shorter durations than workers under 55 years of age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

9) People over 65 are more than twice as likely than individuals under 65 to be the victims of robbery.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

10) More men (65+) than women (65+) have lost their spouse through death.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

11) Respiratory diseases are the leading cause of hospitalization among those 65 and older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

12) Individuals under 65 are more likely to make yearly visits to the dentist than those 65 years and older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

13) More than 50% of individuals 65 years of age and older live in institutions.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

14) Canadians under 65 are as likely as those over 65 to be homeowners according to Statistics Canada.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

15) Health, education and individual differences are more important than age when it comes to interest in continued learning.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

16) Not everyone experiences memory impairment with advancing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

17) Drivers over 65 are involved in a higher percentage of accidents than teenage drivers.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

18) One of the primary reasons for the changes in social attitudes toward older people has been the rapid growth of the older population.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

19) Loneliness is seldom reported as the greatest difficulty faced by widows.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

20) Chronological age can be regarded as an accurate measure of the rate of human aging processes.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

21) Maximal breathing capacity declines as one grows older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

22) All five senses (hearing, smell, taste, touch, and vision) decline during the aging process.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

23) Bones become more brittle with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

24) The capacity for drug metabolism increases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

25) The rate of human development (physical growth) remains constant throughout an individual's lifespan.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

26) The human aging process is considered to be solely pathological in nature.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

27) Physical strength declines with advancing age (over 70 years of age).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

28) Developing presbyopia (farsightedness) in your 4th decade (40 years) is currently considered to be part of the "normal" aging process.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

29) From conception to birth, the human organism undergoes its most rapid rate of physical growth.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

30) As an individual ages, his/her capacity to hear noises of high frequency (above 16,000 Hz.) increases.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

31) An individual at age 60 typically requires less food intake than a 20 year old in order to maintain his/her body's energy requirements.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

32) In the majority of tissue types found in the body, the percentage of cells in division at any time increases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

33) The most striking change observed in cells with increasing age is the disappearance of a pigment called lipofuscin.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

34) Postural sway decreases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

35) The capacity to digest and absorb food is seriously impaired with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

36) Studies have been able to document the fact that exercise does not prolong retention of physiological capacities in aging organisms.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

37) The absence of exercise can exacerbate aging related processes.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

38) It is not unusual to experience a slight decrease in physical height as one reaches their 5th decade (50 years).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

39) It is usual for humans to experience weight increases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

40) The pumping ability of the heart and cardiovascular system generally increases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

41) Depression constitutes a serious mental health problem for persons 65 years of age and older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

42) Typical physical symptoms of depression (eg. sleep and appetite disturbances) may result from a variety of diseases and medications frequently prescribed to older people (65 +).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

43) Most of the neuropsychological tests currently available are not appropriate to use with individuals over the age of 60 since they do not have adequate norms associated with them.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

44) Clinical EEG's show significantly large changes with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

45) Senile patients show significantly reduced cerebral vascular flow as compared with non-senile age counterparts.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

46) Sleep patterns (as measured by EEG's) in young adults differ greatly from those found in the elderly (those 65+).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

47) Chronological age is a good indicator of the way people live.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

48) The notion of inevitable decline, known as the "decrement model of old age", has not been confirmed in research with the elderly.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

49) Awareness of death tends to increase as people grow older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

50) Psychologists believe that great potential for personal development occurs in old age (65+).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

51) Humans reach the peak of their strength, health, and endurance during young to middle adulthood (ages 20-40).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

52) Young people are more susceptible to social pressure than the aged (65+).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

53) Psychological research indicates that adaptive, goal directed and purposeful qualities of personality, do not appreciably change with age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

54) Incidences of neuroses and psychosis increases with age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

55) People become more introverted as they age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

56) A strong link exists between chronological age and human behavior.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

57) Investigators are finding evidence that suggests that lifestyle and personality plays an important role in longevity.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

58) There is evidence to suggest that sex role reversals may occur in middle or old age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

59) The term ageism refers to the glorification of growing old.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

60) The ability to learn drastically decreases after the age of 20.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

# APPENDIX E

DOCUMENTATION SOURCES FOR PROTO SCALE ITEMS.

| ITEM NUMBER | SOURCE OF DOCUMENTATION |
|---|---|
| 1 | Fact Book on Aging in Canada (1983), p.42. |
| 2 | Fact Book on Aging in Canada (1983), p.14. |
| 3 | Fact Book on Aging in Canada (1983), p.36-40. |
| 4 | Fact Book on Aging in Canada (1983), p.51. |
| 5 | Fact Book on Aging in Canada (1983), p.48. |
| 6 | Fact Book on Aging in Canada (1983), p.52. |
| 7 | Fact Book on Aging in Canada (1983), p.46. |
| 8 | Fact Book on Aging in Canada (1983), p.40. |
| 9 | Fact Book on Aging in Canada (1983), p.82. |
| 10 | Fact Book on Aging in Canada (1983), p.66. |
| 11 | Fact Book on Aging in Canada (1983), p.62-63. |
| 12 | Fact Book on Aging in Canada (1983), p.60. |
| 13 | Fact Book on Aging in Canada (1983), p.68. |
| 14 | Fact Book on Aging in Canada (1983), p.78. |
| 15 | Kimmel, D.C. (1980), p.359. |
| 16 | Kimmel, D.C. (1980), p.365. |
| 17 | Kimmel, D.C. (1980), p.352. |
| 18 | Kimmel, D.C. (1980), p.448. |
| 19 | Woodruff, D.S. & Birren, J.E. (1983), p.105. |
| 20 | Woodruff, D.S. & Birren, J.E. (1983), p.73. |
| 21 | Woodruff, D.S. & Birren, J.E. (1983), p.252. |
| 21 | Shock, N.W. (1962), p.100-110. |
| 22 | Woodruff, D.S. & Birren, J.E. (1983), p.256. |
| 22 | Kimmel, D.C. (1980), p.349-351. |
| 23 | Woodruff, D.S. & Birren, J.E. (1983), p.254. |
| 24 | Woodruff, D.S. & Birren, J.E. (1983), p.271. |
| 25 | Moore, K.L. (1977), p.2-6. |
| 26 | Woodruff, D.S. & Birren, J.E. (1983), p.252. |
| 27 | Woodruff, D.S. & Birren, J.E. (1983), p.288. |
| 27 | Petrofsky, J.S. (1975), p.91-95. |
| 27 | Shock, N.W., (1962), p.100-110. |
| 28 | Kimmel, D.C. (1980), p.350. |
| 29 | Moore, K.L. (1977), p.2-6. |
| 30 | Kimmel, D.C. (1980), p.350. |
| 31 | Kimmel, D.C. (1980), p.348. |
| 32 | Woodruff, D.S. & Birren, J.E. (1983), p.232. |
| 33 | Junqueira, L.C., Carneiro, J. & Contopoulos, A. (1977), p.40. |
| 33 | Woodruff, D.S. & Birren, J.E. (1983), p.228. |
| 34 | Beattie, B.L. Personal communications, (1984). |
| 35 | Woodruff, D.S. & Birren, J.E. (1983), p.256. |
| 36 | Woodruff, D.S. & Birren, J.E. (1983), p.273. |
| 37 | Woodruff, D.S. & Birren, J.E. (1983), p.273. |

| ITEM NUMBER | SOURCE OF DOCUMENTATION |
|---|---|
| 38 | Woodruff, D.S. & Birren, J.E. (1983), p.254. |
| 39 | Woodruff, D.S. & Birren, J.E. (1983), p.290. |
| 40 | Kimmel, D.C. (1980), p.287. |
| 41 | Poon, L.W. (1980), p.11. |
| 42 | Poon, L.W. (1980), p.23. |
| 43 | Poon, L.W. (1980), p.69. |
| 44 | Poon, L.W. (1980), p.71. |
| 45 | Poon, L.W. (1980), p.71. |
| 46 | Poon, L.W. (1980), p.72. |
| 47 | Woodruff, D.S. & Birren, J.E. (1983), p.417. |
| 48 | Woodruff, D.S. & Birren, J.E. (1983), p.181-197. |
| 49 | Kimmel, D.C. (1980), p.496-497. |
| 50 | Poon, L.W. (1980). |
| 51 | Kimmel, D.C. (1980), p.382. |
| 52 | Kimmel, D.C. (1980), p.404. |
| 53 | Kimmel, D.C. (1980), p.405. |
| 54 | Kimmel, D.C. (1980), p.409. |
| 55 | Kimmel, D.C. (1980), p.404. |
| 56 | Kimmel, D.C. (1980), p.30-31. |
| 57 | Woodruff, D.S. & Birren, J.E. (1983), p.124. |
| 58 | Woodruff, D.S. & Birren, J.E. (1983), p.123. |
| 59 | Butler, (1975). |
| 60 | Cross, K.P. (1982), p.152-157. |
| 60 | Woodruff & Birren, J.E. (1983), p.149-177. |

# APPENDIX F

## Kogan Attitude Toward Old People Scale

Instructions: Please answer each statement by circling the degree to which you either agree or disagree with the statement.

1) It would probably be better if most old people lived in residential units with people of their own age.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

2) It would probably be better if most old people lived in residential units that also housed younger people.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

3) There is something different about most old people; it's hard to figure out what makes them tick.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

4) Most old people are really no different from anybody else; they're as easy to understand as younger people.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

5) Most old people get set in their ways and are unable to change.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

6) Most old people are capable of new adjustments when the situation demands it.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

7) Most old people would prefer to quit work as soon as pensions or their children can support them.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

8) Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

9) Most old people tend to let their homes become shabby and unattractive.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

10) Most old people can generally be counted on to maintain a clean, attractive home.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

11) It is foolish to claim that wisdom comes with old age.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

12) People grow wiser with the coming of old age.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

13) Old people have too little power in business and politics.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

14) Old people should have more power in business and politics.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

15) Most old people make one feel ill at ease.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

16) Most old people are very relaxing to be with.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

17) Most old people bore others by their insistence on talking about the "good old days".

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

18) One of the more interesting qualities of most old people is their accounts of their past experiences.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

19) Most old people spend too much time prying into the affairs of others and giving unsought advice.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

20) Most old people respect others privacy and give advice only when asked.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

21) If old people expect to be liked, their first step is to try to get rid of their irritating faults.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

22) When you think about it, old people have the same faults as anybody else.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

23) In order to maintain a nice residential neighborhood, it would be best if too many old people did not live in it.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

24) You can count on finding a nice residential neighborhood when there is a sizeable number of old people living in it.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

25) There are a few exceptions, but in general most old people are pretty much alike.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

26) It is evident that most old people are very different from one another.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

27) Most old people should be more concerned with their personal appearance; they're too untidy.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

28) Most old people seem to be quite clean and neat in their personal appearance.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

29) Most old people are irritable, grouchy and unpleasant.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

30) Most old people are cheerful, agreeable and good humored.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

31) Most old people are constantly complaining about the behavior of the younger generation.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

32) One seldom hears old people complaining about the behavior of the younger generation.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

33) Most old people make excessive demands for love and reassurance.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

34) Most old people need no more love and reassurance than anyone else.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

# APPENDIX G

# Palmore's Facts on Aging Quiz

Instructions: Please answer each statement by circling the degree to which you think the item is true or false.

1) The majority of old people are senile (i.e. defective memory, disoriented, or demented).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

2) All five senses tend to decline in old age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

3) Most old people have no interest in, or capacity for, sexual relations.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

4) Lung vital capacity tends to decline in old age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

5) The majority of old people feel miserable most of the time.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

6) Physical strength tends to decline in old age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

7) At least 10% of the aged are living in long-stay institutions (i.e. nursing homes, mental hospitals, homes for the aged, etc.).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

8) Aged drivers have fewer accidents per person than drivers under age 65.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

9) The majority of older workers cannot work as effectively as younger workers.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

10) About 80% of the aged are healthy enough to carry out their normal activities.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

11) Most old people are set in their ways and unable to change.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

12) Old people usually take longer to learn something new.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

13) It is impossible for most old people to learn new things.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

14) The reaction time of most old people tends to be slower than the reaction time of younger people.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

15) In general, most old people are alike.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

16) The majority of old people report that they are seldom bored.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

17) The majority of old people are socially isolated and lonely.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

18) Older workers have fewer accidents than younger workers.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

19) Over 15% of the Canadian population are now age 65 or over.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

20) Most medical practitioners tend to give low priority to the aged.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

21) The majority of older people have incomes below the poverty line (as defined by the National Council of Welfare).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

22) The majority of old people are working or would like to have some kind of work to do (including housework and volunteer work).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

23) Older people tend to become more religious as they age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

24) The majority of old people report that they are seldom irritated or angry.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

25) The health and socioeconomic status of older people (compared to younger people) in the year 2030 will probably be about the same as now.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

# APPENDIX H

ONE WAY ANALYSIS OF VARIANCE OF CANADIAN VERSUS AMERICAN ITEMS ON PALMORE'S FAQ.

| SOURCE | D.F. | SUM OF SQUARES | MEAN SQUARES | F RATIO | F PROB. |
|---|---|---|---|---|---|
| BETWEEN | 1 | 0.0650 | 0.0650 | 0.0154 | 0.9012 |
| WITHIN | 217 | 914.3824 | 4.2137 | | |
| TOTAL | 218 | 914.4475 | | | |

# APPENDIX I

Please follow the directions found at the beginning of each scale and read each statement carefully. It is important that you include your

1) Age
2) Sex
3) Number of years of Post-Secondary Education

All responses are strictly anonymous and you may withdraw your participation at any time. However, should you agree to participate you will receive a debriefing and a copy of the answers to knowledge-related items. You will also be given the opportunity to find out the results of this investigation.

Completion of this questionnaire indicates your consent to participate.

THANK YOU

## Proto Knowledge on Aging Scale

Instructions: The following questions are designed to assess your knowledge about aging. Please answer each statement by circling the degree to which you think the item is true or false. Please answer these questions carefully and be sure to provide a response for every item.

1) According to Statistics Canada, over 50% of unattached individuals aged 65 and older have incomes below the poverty line (less than $7,000 per year).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

2) According to demographic studies, the Canadian group which is increasing in greatest proportion is the 65 and older age group, (as compared to the 64 and younger age group).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

3) According to Canadian Law it is illegal for an individual to work past 65 years of age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

4) According to Statistics Canada the average life expectancy for Canadian women at age 65 is 83 years.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

5) According to Statistics Canada the average life expectancy for a Canadian male at birth is 79 years.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

6) Women ( aged 65+) are more likely to have adequate nutrient intakes than their male counterparts.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

7) Old Age Security and Guaranteed Income Supplements are the greatest source of financial income for people aged 66 and older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

8) Workers 55 and older (male and female) who lose their jobs generally remain unemployed for shorter durations than workers under 55 years of age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

9) People over 65 are more than twice as likely than individuals under 65 to be the victims of robbery.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

10) More men (65+) than women (65+) have lost their spouse through death.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

11) Respiratory diseases are the leading cause of hospitalization among those 65 and older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

12) Individuals under 65 are more likely to make yearly visits to the dentist than those 65 years and older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

13) More than 50% of individuals 65 years of age and older live in institutions.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

14) Canadians under 65 are as likely as those over 65 to be homeowners according to Statistics Canada.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

15) Health, education and individual differences are more important than age when it comes to interest in continued learning.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

16) Not everyone experiences memory impairment with advancing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

17) Drivers over 65 are involved in a higher percentage of accidents than teenage drivers.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

18) One of the primary reasons for the changes in social attitudes toward older people has been the rapid growth of the older population.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

19) Loneliness is seldom reported as the greatest difficulty faced by widows.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

20) Chronological age can be regarded as an accurate measure of the rate of human aging processes.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

21) Maximal breathing capacity declines as one grows older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

22) All five senses (hearing, smell, taste, touch, and vision) decline during the aging process.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

23) Bones become more brittle with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

24) The capacity for drug metabolism increases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

25) The rate of human development (physical growth) remains constant throughout an individual's lifespan.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

26) The human aging process is considered to be solely pathological in nature.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

27) Physical strength declines with advancing age (over 70 years of age).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

28) Developing presbyopia (farsightedness) in your 4th decade (40 years) is currently considered to be part of the "normal" aging process.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

29) From conception to birth, the human organism undergoes its most rapid rate of physical growth.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

30) As an individual ages, his/her capacity to hear noises of high frequency (above 16,000 Hz.) increases.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

31) An individual at age 60 typically requires less food intake than a 20 year old in order to maintain his/her body's energy requirements.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

32) In the majority of tissue types found in the body, the percentage of cells in division at any time increases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

33) The most striking change observed in cells with increasing age is the disappearance of a pigment called lipofuscin.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

34) Postural sway decreases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

35) The capacity to digest and absorb food is seriously impaired with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

36) Studies have been able to document the fact that exercise does not prolong retention of physiological capacities in aging organisms.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

37) The absence of exercise can exacerbate aging-related processes.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

38) It is not unusual to experience a slight decrease in physical height as one reaches their 5th decade (50 years).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

39) It is usual for humans to experience weight increases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

40) The pumping ability of the heart and cardiovascular system generally increases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

41) Depression constitutes a serious mental health problem for persons 65 years of age and older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

42) Typical physical symptoms of depression (eg. sleep and appetite disturbances) may result from a variety of diseases and medications frequently prescribed to older people (65 +).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

43) Most of the neuropsychological tests currently available are not appropriate to use with individuals over the age of 60 since they do not have adequate norms associated with them.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

44) Clinical EEG's show significantly large changes with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

45) Senile patients show significantly reduced cerebral vascular flow as compared with non-senile age counterparts.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

46) Sleep patterns (as measured by EEG) in young adults differ greatly from those found in the elderly (those 65+).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

47) Chronological age is a good indicator of the way people live.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

48) The notion of inevitable decline, known as the "decrement model of old age", has not been confirmed in research with the elderly.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

49) Awareness of death tends to increase as people grow older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

50) Psychologists believe that great potential for personal development occurs in old age (65+).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

51) Humans reach the peak of their strength, health, and endurance during young and middle adulthood (ages 20-40).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

52) Young people are more susceptible to social pressure than the aged (65+).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

53) Psychological research indicates that adaptive, goal directed and purposeful qualities of personality, do not appreciably change with age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

54) Incidences of neuroses and psychosis increases with age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

55) People become more introverted as they age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

56) A strong link exists between chronological age and human behavior.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

57) Investigators are finding evidence that suggests that lifestyle and personality plays an important role in longevity.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

58) There is evidence to suggest that sex role reversals may occur in middle or old age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

59) The term ageism refers to the glorification of growing old.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

60) The ability to learn drastically decreases after the age of 20.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

# Kogan Attitude Toward Old People Scale

Instructions: Please answer each statement by circling the degree to which you either agree or disagree with the statement.

1) It would probably be better if most old people lived in residential units with people of their own age.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

2) It would probably be better if most old people lived in residential units that also housed younger people.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

3) There is something different about most old people; it's hard to figure out what makes them tick.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

4) Most old people are really no different from anybody else; they're as easy to understand as younger people.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

5) Most old people get set in their ways and are unable to change.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

6) Most old people are capable of new adjustments when the situation demands it.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

7) Most old people would prefer to quit work as soon as pensions or their children can support them.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

8) Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

9) Most old people tend to let their homes become shabby and unattractive.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

10) Most old people can generally be counted on to maintain a clean, attractive home.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

11) It is foolish to claim that wisdom comes with old age.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

12) People grow wiser with the coming of old age.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

13) Old people have too little power in business and politics.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

14) Old people should have more power in business and politics.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

15) Most old people make one feel ill at ease.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

16) Most old people are very relaxing to be with.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

17) Most old people bore others by their insistence on talking about the "good old days".

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

18) One of the more interesting qualities of most old people is their accounts of their past experiences.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

19) Most old people spend too much time prying into the affairs of others and giving unsought advice.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

20) Most old people respect others privacy and give advice only when asked.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

21) If old people expect to be liked, their first step is to try to get rid of their irritating faults.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

22) When you think about it, old people have the same faults as anybody else.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

23) In order to maintain a nice residential neighborhood, it would be best if too many old people did not live in it.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

24) You can count on finding a nice residential neighborhood when there is a sizeable number of old people living in it.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

25) There are a few exceptions, but in general most old people are pretty much alike.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

26) It is evident that most old people are very different from one another.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

27) Most old people should be more concerned with their personal appearance; they're too untidy.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

28) Most old people seem to be quite clean and neat in their personal appearance.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

29) Most old people are irritable, grouchy and unpleasant.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

30) Most old people are cheerful, agreeable and good humored.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

31) Most old people are constantly complaining about the behavior of the younger generation.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

32) One seldom hears old people complaining about the behavior of the younger generation.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

33) Most old people make excessive demands for love and reassurance.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

34) Most old people need no more love and reassurance than anyone else.

| Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

# Palmore's Facts on Aging Quiz

Instructions: Please answer each statement by circling the degree to which you think the item is true or false.

1) The majority of old people are senile (i.e. defective memory, disoriented, or demented).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

2) All five senses tend to decline in old age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

3) Most old people have no interest in, or capacity for, sexual relations.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

4) Lung vital capacity tends to decline in old age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

5) The majority of old people feel miserable most of the time.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

6) Physical strength tends to decline in old age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

7) At least 10% of the aged are living in long-stay institutions (i.e. nursing homes, mental hospitals, homes for the aged, etc.).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

8) Aged drivers have fewer accidents per person than drivers under age 65.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

9) The majority of older workers cannot work as effectively as younger workers.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

10) About 80% of the aged are healthy enough to carry out their normal activities.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

11) Most old people are set in their ways and unable to change.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

12) Old people usually take longer to learn something new.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

13) It is impossible for most old people to learn new things.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

14) The reaction time of most old people tends to be slower than the reaction time of younger people.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

15) In general, most old people are alike.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

16) The majority of old people report that they are seldom bored.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

17) The majority of old people are socially isolated and lonely.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

18) Older workers have fewer accidents than younger workers.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

19) Over 15% of the Canadian population are now age 65 or over.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

20) Most medical practitioners tend to give low priority to the aged.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

21) The majority of older people have incomes below the poverty line (as defined by the National Council of Welfare).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

22) The majority of old people are working or would like to have some kind of work to do (including housework and volunteer work).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

23) Older people tend to become more religious as they age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

24) The majority of old people report that they are seldom irritated or angry.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

25) The health and socioeconomic status of older people (compared to younger people) in the year 2030 will probably be about the same as now.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

# APPENDIX J

## Answers to the Proto Knowledge on Aging Scale

1) According to Statistics Canada, over 50% of unattached individuals aged 65 and older have incomes below the poverty line (less than $7,000 per year).
(True)

2) According to demographic studies, the Canadian group which is increasing in greatest proportion is the 65 and older age group, (as compared to the 64 and younger age group).
(True)

3) According to Canadian Law it is illegal for an individual to work past 65 years of age.
(False)

4) According to Statistics Canada the average life expectancy for Canadian women at age 65 is 83 years.
(True)

5) According to Statistics Canada the average life expectancy for a Canadian male at birth is 79 years.
(True)

6) Women ( aged 65+) are more likely to have adequate nutrient intakes than their male counterparts.
(False)

7) Old Age Security and Guaranteed Income Supplements are the greatest source of financial income for people aged 66 and older.
(True)

8) Workers 55 and older (male and female) who lose their jobs generally remain unemployed for shorter durations than workers under 55 years of age.
(False)

9) People over 65 are more than twice as likely than individuals under 65 to be the victims of robbery.
(False)

10) More men (65+) than women (65+) have lost their spouse through death.
(False)

11) Respiratory diseases are the leading cause of hospitalization among those 65 and older.
(False)

12) Individuals under 65 are more likely to make yearly visits to the dentist than those 65 years and older.
(True)

13) More than 50% of individuals 65 years of age and older live in institutions.
(False)

14) Canadians under 65 are as likely as those over 65 to be homeowners according to Statistics Canada.
(True)

15) Health, education and individual differences are more important than age when it comes to interest in continued learning.
(True)

16) Not everyone experiences memory impairment with advancing age.
(True)

17) Drivers over 65 are involved in a higher percentage of accidents than teenage drivers.
(False)

18) One of the primary reasons for the changes in social attitudes toward older people has been the rapid growth of the older population.
(True)

19) Loneliness is seldom reported as the greatest difficulty faced by widows.
(False)

20) Chronological age can be regarded as an accurate measure of the rate of human aging processes.
(False)

21) Maximal breathing capacity declines as one grows older.
(True)

22) All five senses (hearing, smell, taste, touch, and vision) decline during the aging process.
(True)

23) Bones become more brittle with increasing age.
(True)

24) The capacity for drug metabolism increases with increasing age.
(False)

25) The rate of human development (physical growth) remains constant throughout an individual's lifespan.
(False)

26) The human aging process is considered to be solely pathological in nature.
(False)

27) Physical strength declines with advancing age (over 70 years of age).
(True)

28) Developing presbyopia (farsightedness) in your 4th decade (40 years) is currently considered to be part of the "normal" aging process.
(True)

29) From conception to birth, the human organism undergoes its most rapid rate of physical growth.
(True)

30) As an individual ages, his/her capacity to hear noises of high frequency (above 16,000 Hz.) increases.
(False)

31) An individual at age 60 typically requires less food intake than a 20 year old in order to maintain his/her body's energy requirements.
(True)

32) In the majority of tissue types found in the body, the percentage of cells in division at any time increases with increasing age.
(False)

33) The most striking change observed in cells with increasing age is the disappearance of a pigment called lipofuscin.
(False)

34) Postural sway decreases with increasing age.
(False)

35) The capacity to digest and absorb food is seriously impaired with increasing age.
(False)

36) Studies have been able to document the fact that exercise does not prolong retention of physiological capacities in aging organisms.
(False)

37) The absence of exercise can exacerbate aging related processes.
(True)

38) It is not unusual to experience a slight decrease in physical height as one reaches their 5th decade (50 years).
(True)

39) It is usual for humans to experience weight increases with increasing age.
(True)

40) The pumping ability of the heart and cardiovascular system generally increases with increasing age.
(False)

41) Depression constitutes a serious mental health problem for persons 65 years of age and older.
(True)

42) Typical physical symptoms of depression (eg. sleep and appetite disturbances) may result from a variety of diseases and medications frequently prescribed to older people (65 +).
(True)

43) Most of the neuropsychological tests currently available are not appropriate to use with individuals over the age of 60 since they do not have adequate norms associated with them.
(True)

44) Clinical EEG's show significantly large changes with increasing age.
(False)

45) Senile patients show significantly reduced cerebral vascular flow as compared with non-senile age counterparts.
(True)

46) Sleep patterns (as measured by EEG) in young adults differ greatly from those found in the elderly (those 65+).
(True)

47) Chronological age is a good indicator of the way people live.
(False)

48) The notion of inevitable decline, known as the "decrement model of old age", has not been confirmed in research with the elderly.
(True)

49) Awareness of death tends to increase as people grow older.
(True)

50) Psychologists believe that great potential for personal development occurs in old age (65+).
(True)

51) Humans reach the peak of their strength, health, and endurance during young and middle adulthood (ages 20-40).
(True)

52) Young people are more susceptible to social pressure than the aged (65+).
(True)

53) Psychological research indicates that adaptive, goal directed and purposeful qualities of personality, do not appreciably change with age.
(True)

54) Incidences of neuroses and psychosis increases with age.
(False)

55) People become more introverted as they age.
(True)

56) A strong link exists between chronological age and human behavior.
(False)

57) Investigators are finding evidence that suggests that lifestyle and personality plays an important role in longevity.
(True)

58) There is evidence to suggest that sex role reversals may occur in middle or old age.
(True)

59) The term ageism refers to the glorification of growing old.
(False)

60) The ability to learn drastically decreases after the age of 20.
(False)

## Information Supplied to Participants Regarding Study Results

Thank you for participating in the investigation regarding the questionnaire containing items on knowledge and attitudes towards aging. The following are the summarized results of the questionnaire responses of 128 males and 170 females (total= 298) ranging from 17 to 64 years of age, 0 to 12 years of post-secondary education and representing the general subject areas of biology, education, general population (non-academic), gerontology, psychology and social work.

1/ With Respect to Age the general trend which emerged in this investigation was that knowledge and attitude scores (+ve) increased with age, i.e. the older the subject, the greater their knowledge and the more positive their attitudes were towards aging.

2/ With Respect to Post-Secondary Education the general trend which emerged was that knowledge and attitude scores (+ve) increased with level of post-secondary education. i.e. the more post-secondary education a subject had, the better they were likely to do on knowledge and attitude scales.

3/ With Respect to Sex (Gender of Participants) no significant differences were found between male and female responses on both knowledge and attitude scales.

4/ With Respect To Subject Areas
a) Subjects from gerontology scored significantly better (probability level of 0.05) on scales which measured knowledge on aging than did subjects from the areas of biology, education, general population (non-academic), psychology, and social work.
b) Subjects from biology scored significantly higher (probabilty level of 0.05) than subjects from the general population and psychology on knowledge on aging scales.
c) Subjects from gerontology scored significantly higher (probability level of 0.05) than subjects from psychology on positive attitude scores.

The results of this investigation were also used to develop a knowledge on aging scale with a reliability value of 0.80 and a validity coefficient of 0.70.

Again, thank you for your participation in this study.

# APPENDIX K

Scoring Key for the:
1) Kogan
2) Palmore
3) Proto scales

A. The seven point Likert scale for Kogan was collapsed into a true/false format and the items were scored as follows:

Odd numbered items reflect negative attitude statements. As such any response made as "Slightly Agree", "Agree", and "Strongly Agree" were scored as 0. Likewise a resonse of "Strongly Disagree", "Disagree", "Slightly Disagree" or "Neutral" were scored as 1.

Even numbered items reflect positive attitude statements. As such any response made as "Strongly Disagree", "Disagree", "Slightly Disagree", or "Neutral" were scored as 0. Likewise a response of "Slightly Agree", "Agree" or "Strongly Agree" were scored as 1.

The total score was obtained by adding the summed scores of odd and even numbered items.

B. The five point response scale for Palmore was collapsed into a true/false format and the items were scored as follows: Responses of "Definitely False" or "Might Be False" to odd numbered questions were scored as 1 whereas responses of "Definitely True", "Might Be True" or "Don't Know" of the same items were scored as 0.

Responses of "Definitely False", "Might Be False" or "Don't Know" to even numbered questions were scored as 0. Similarily, responses of "Might Be True" or "Definitely True" to the same items were scores as 1.

The total score was obtained by adding the summed scores of odd and even numbered items.

C. The five point response scale for Proto was collapsed into a true/false format and the items were scored as follows: Responses of "Definitely False", "Might Be False" or "Don't Know" to items #1, 2, 4, 5, 7, 12, 14, 15, 16, 18, 21, 22, 23, 27, 28, 29, 31, 37, 38, 39, 41, 42, 43, 45, 46, 48, 49, 50, 51, 52, 53, 55, 57, and 58 were scored as 0. Likewise responses of "Might Be True" and "Definitely True" to the same items were scored as 1.

Responses of "Don't Know", "Might Be True" or "Definitely True" to items #3, 6, 8, 9, 10, 11, 13, 17, 19, 20, 24, 25, 26, 30, 32, 33, 34, 35, 36, 40, 44, 47, 54, 56, 59, and 60 were scored as 0. Likewise responses of "Definitely False" or "Might Be False" to the same items were scored as 1.

The total Proto score was the sum of the transformed answers to the entire 60 items. The score for the Social Science Subscale was the sum of the transformed responses to items 1 to 20, 21 to 40 for the Biology Subscale, and 41 to 60 for the Psychology Subscale.

# APPENDIX L

## Types of Analyses

An integral part of any tests' selection concerns the inspection of its associated reliability and validity values. Reliability refers to the consistency of scores obtained using the scale on different occasions or using different sets of equivalent scale items. The underlying concept of reliabilty is that of attributing a value to the "error of measurement" or "range of fluctuation" likely to occur due to chance factors. Different types of reliability exist, but for the purpose of this investigation four types will be discussed.

Test-retest reliability or coefficient of stability represents the reliability value of a test by means of retest or repetition of the same test on a different occasion. This type of reliability can provide an indication of temporal, scorer, and examiner reliability.

Equivalent Form reliabilty or Coefficient of Equivalence
This type of reliability avoids the difficulties of using a test-retest format by using two parallel forms of the same test simultaneosly. This type of reliabilty provides an indication of both temporal stability and consistency of response to different items of the test.

Split-half reliability or Coefficient of Internal Consistency
Provides a measure of equivalency or adequacy of item sampling by splitting one test into two equivalent parts and correlating the scores obtained.

Interitem reliability or Method of Rational Equivalence measures test reliability based on the consistency of responses to all items in a single administration of the test. Various formulas can be used to determine interitem reliability which provides one with an indication of equivalency and homogeneity of test items. The difference between split-half and interitem values indicate homogeneity of test items.

Another important aspect of a scale is its associated validity characteristics. Validity concerns the question of whether a test measures what it purports to measure. As with reliabilty four types of validity can be discussed.

Content validity investigates the scales' content to determine whether it samples the behavior domain it purports to measure. Content validity can only be assessed by objectively comparing test items with the

characteristic (behavior, skills etc.) it purports to measure.

Predictive validity indicates a tests' effectiveness in predicting some future outcome. This is done by checking the test score of an individual against their subsequent performance criteria.

Concurrent validity investigates the relationship between an individuals' test score and a specific criterion measured at the same time.

Construct validity of a test indicates the extent to which the test measures non-observable theoretical constructs such as intelligence and anxiety.

The second major type of statistical analysis utilized in this investigation is that of correlational techniques. Correlations are concerned with describing the degree of relation between variables. The purpose of the correlation coefficient is to express in mathematical terms the degree of relationship between two variables. If a relationship is strong, the maximum correlation coefficient will be 1.00, if it is weak it will be close to 0. Likewise, if the two variables increase in value at the same time, then they represent a positive relationship. Similarly, if one variable increases in value when the other decreases, they have a negative relationship or coefficient. Therefore, the correlation is a way of statistically indicating the extent to which one variable is related to another.

A principal advantage of using correlational techniques is that it allows the measure of a large number of variables and their relationships at the same time, as well as the degree or amount of relationship. Disadvantages of correlational techniques is that they do not measure cause and effect relationships. It is therefore not possible to infer that variable a causes variable b or vise versa. Additionally, it is possible for a correlational relationship to be an artifact.

Correlational statistics are used for two main reasons. To explore relationships between variables and to predict subjects' scores on other variables. Two basic categories for handling data exist. Product moment correlations are used when variables represent continuous scores. Rank difference correlations are used when variables are in rank form. Press is a term used in correlational techniques to designate one of two possible situations. Alpha press is used to designate objective aspects of a subject's physical or social

environment which could affect the subjects' responses. Lee Cronbach (1949) is the well noted statistician who developed the formula for determining alpha. Beta press is the term used to represent subjective aspects of the environment which could affect responses.

In this study Product Moment Correlations (P.M.C.) will be used since the variables under study will represent continuous scores. Pearson's Product Moment formula (P.P.M.C.) will be utilized since it minimizes standard error.

Factor analysis is the third major type of statistical method utilized in this investigation. It is a type of correlational method that performs the function of data reduction by grouping variables that are moderately or highly correlated with each other. Factor scores (weights assigned to either items or subjects) can be used in subsequent analyses (for example, a t-test can be used to determine whether male and female students differ significantly on one or all of the factored dimensions).

A problem in using factor analysis is that "several variations of factor analysis rest on subtle mathematical distinctions" (Borg & Gall, 1979, p.507). Principal component analysis is considered to be the first stage solution to factor analysis techniques (Gorsuch,1974), and as such was selected over other available techniques. Because modern factor analysts do not consider a factor analysis complete until further rotations are performed (Gorsuch,1974), varimax rotation was selected over equimax and quartimax. Equimax rotations are seldom available as a computer program and are therefore seldom used (Gorsuch,1974). Quartimax rotations are not widely accepted because its solution tends to include one factor with all major loadings and no other major loadings in the rest of the matrix. Since varimax does not possess the inherent difficulties found in quartimax and equimax it was chosen as the more appropriate technique to use. However, varimax rotation is inappropriate when test items have a high internal consistency.

# APPENDIX M

# Proto Knowledge on Aging Scale

Instructions: The following questions are designed to assess your knowledge about aging. Please answer each statement by circling the degree to which you think the item is true or false. Please answer these questions carefully and be sure to provide a response for every item.

1) According to Statistics Canada, over 50% of unattached individuals aged 65 and older have incomes below the poverty line (less than $7,000 per year).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

2) According to demographic studies, the Canadian group which is increasing in greatest proportion is the 65 and older age group, (as compared to the 64 and younger age group).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

3) According to Canadian Law it is illegal for an individual to work past 65 years of age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

4) Workers 55 and older (male and female) who lose their jobs generally remain unemployed for shorter durations than workers under 55 years of age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

5) People over 65 are more than twice as likely than individuals under 65 to be the victims of robbery.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

6) More men (65+) than women (65+) are widows.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

7) Individuals under 65 are more likely to make yearly visits to the dentist than those 65 years and older.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

8) More than 50% of individuals 65 years of age and older live in institutions.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

9) Health, education and individual differences are more important than age when it comes to interest in continued learning.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

10) Not everyone experiences memory impairment with advancing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

11) Drivers over 65 are involved in a higher percentage of accidents than teenage drivers.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

12) Loneliness is seldom reported as the greatest difficulty faced by widows.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

13) Chronological age can be regarded as an accurate measure of the rate of human aging processes.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

14) Bones become more brittle with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

15) The capacity for drug metabolism increases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

16) The rate of human development (physical growth) remains constant throughout an individual's lifespan.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

17) The human aging process is considered to be solely pathological in nature.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

18) Developing presbyopia (farsightedness) in your 4th decade (40 years) is currently considered to be part of the "normal" aging process.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

19) From conception to birth, the human organism undergoes its most rapid rate of physical growth.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

20) As an individual ages, his/her capacity to hear noises of high frequency (above 16,000 Hz.) increases.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

21) In the majority of tissue types found in the body, the percentage of cells in division at any time increases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

22) The most striking change observed in cells with increasing age is the disappearance of a pigment called lipofuscin.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

23) Postural sway decreases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

24) The capacity to digest and absorb food is seriously impaired with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

25) The absence of exercise can exacerbate aging-related processes.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

26) It is not unusual to experience a slight decrease in physical height as one ages.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

27) The pumping ability of the heart an cardiovascular system generally increases with increasing age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

28) Typical physical symptoms of depression (eg. sleep and appetite disturbances) may result from a variety of diseases and medications frequently prescribed to older people (65 +).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

29) Most of the neuropsychological tests currently available are not appropriate to use with individuals over the age of 60 since they do not have adequate norms associated with them.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

30) Senile patients show significantly reduced cerebral vascular flow as compared with non-senile age counterparts.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

31) Chronological age is a good indicator of the way people live.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

32) The notion of inevitable decline known as the "decrement model of old age" has not been confirmed in research with the elderly.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

33) Psychologists believe that great potential for personal development occurs in old age (65+).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

34) Humans reach the peak of their strength, health, and endurance during young adulthood (ages 20-40).

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

35) Psychological research indicates that adaptive, goal directed and purposeful qualities of personality do not appreciably change with age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

36) Incidences of neuroses and psychosis increases with age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

37) A strong link exists between chronological age and human behavior.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

38) There is evidence to suggest that sex role reversals may occur in middle or old age.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

39) The term ageism refers to the glorification of growing old.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

40) The ability to learn drastically decreases after the age of 20.

| Definitely False | Might Be False | Don't Know | Might Be True | Definitely True |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

## Papers Submitted for Publication

Gallie, K.A. and Kozak, J.F. Factor Analytic Study of Canadian Responses to the Wilson Conservatism Scale. Manuscript submitted to the British Journal of Social Psychology.

Kozak, J.F. and Gallie, K.A. Jungian Typology and Perceived Personality. Manuscript submitted to the Canadian Journal on Aging.

## Papers Presented

Lakowski, R.L., Gallie, K.A. & MacEntee, M. Assessment of Colour Vision Aptitudes in Dental Personnel. Report presented to the Visual Laboratory and Faculty of Dentistry, U.B.C., Vancouver, B.C., Oct. 1982.

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Kozak, J.F. and Gallie, K.A. Jungian Typology and Perceived Personality. Paper presented at the Canadian Association on Gerontology, Vancouver, B.C., Nov. 1984.

## Papers to be Presented

Gallie, K.A. A Knowledge About Aging Scale Which Measures Biological, Psychological and Social Aspects of Aging. To be presented at the Canadian Association on Gerontology, Hamilton Ontario, Oct. 1985.

Gallie, K.A. and Kozak, J.F. Investigation Into a Possible Relationship Between Knowledge About Aging and Attitudes Toward Old People. To be presented at the Canadian Association on Gerontology, Hamilton Ontario, Oct. 1985.