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City University of New York PH.D. 1979

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COGNITIVE REFERENCE AGE AMONG THE ELDERLY: A NEW CONCEPT FOR MARKETING

by

BENNY BARAK

A dissertation submitted to the
Graduate Faculty in Business in
partial fulfillment of the
requirements for the degree of
Doctor of Philosophy,
The City University of New York

1979

This manuscript has been read and accepted for the Graduate Faculty in Business in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

8/9/79
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Leon Schiffman
Chairman of Examining Committee

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Abstract

COGNITIVE REFERENCE AGE AMONG THE ELDERLY:
A NEW CONCEPT FOR MARKETING

by

Benny Barak

Adviser: Professor Leon G. Schiffman

The object of the research was to develop a psychologically based age variable of a self-perceived nature that might potentially be more useful than the traditional chronological age measure in the study of the behavior of elderly consumers. The study specifically examines a new self-perceived age variable, "cognitive reference age," and considers it as an alternative or supplemental variable to chronological age. The evaluation was made on the basis of an exploratory study of female consumers 55 years and older in a major Northeastern metropolitan area. The research examined the relationship of both age variables (cognitive reference age and chronological age) and a number of personality, attitudinal and behavioral variables.

While several gerontologists have considered self-perceived age measures, such measures have not been applied to issues related to consumer behavior. In addition, the major self-perceived age variable reported upon is "subjective age," and these reports are very broad and general

in nature. Therefore, a self-perceived age measure such as cognitive reference age that lends itself well to surveys was not yet developed and/or available.

The field study was based on a paradigm consisting of four groups of independent variables and their relationship with two kinds of age groups; that is (1) two cognitive reference age groups (the early cognitive reference age group, with members who perceive themselves to be 54 years old or less, and the late cognitive reference age group, with those perceiving themselves to be 55 years of age or older), and (2) two chronological age groups (the early chronological age group whose members ranged chronologically from 55 to 64 years of age, and the late chronological age group whose members were chronologically 65 years of age and older).

The independent variables used in the study were: (1) psychological and social traits (error-tolerance, venturesomeness, self-confidence, dogmatism, traditionality, opinion-leadership, life-satisfaction, and morale), (2) social interaction and integration variables (club-membership, telephone usage, television viewing, radio listening, and reading), (3) demographic characteristics (education, employment status, and progeny), and (4) product (shampoo) related variables (product importance, product liking, and frequency of product usage, brandswitching and evoked-set size).

Cross-tabulations (chi-square), discriminant, and reliability analyses were performed. The reliability analyses

assessed the variables used in the study for their reliability and found the new self-perceived age measure (cognitive reference age) to be a highly reliable scale (test-retest = .88); internal consistency = .86). It was also determined that the new measure had satisfactory validity (both content and criterion).

Discriminant analysis provided the following profile of the early cognitive reference age group respondent: she is chronologically younger, is non-traditional in outlook, is characterized as an opinion leader, has a higher morale, and is likely to have more formal education. Discriminant analysis revealed that early chronological age respondents are younger in terms of cognitive reference age, are not likely to be a member of a club, watch less television, and have acquired more formal education. They also tend to use the product (shampoo) more frequently and are more likely to switch brands.

The study also lends empirical support for the common folk belief that "you are as young as you feel." Specifically, when those "young at heart" consumers (those with a cognitive reference age less than 55 years of age) were divided into the two chronological age groups (i.e., 55-64 and 65+), a comparison indicated no significant difference between the two groups in terms of the overwhelming majority of psychological, social and behavioral variables examined in the study.

ACKNOWLEDGEMENTS

I could not hope to list all of the people who have supported me in the process of conducting this research and in the preparation of this dissertation.

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Mrs. Margaret Martin who, in her usual excellent manner, did an outstanding secretarial job in getting the dissertation finished.

Lastly, I would like to restate that, while the title page of this dissertation bears only my name, it reflects the inputs and assistance of many friends, and there is no way for me to express my thanks adequately to all.

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CHAPTER I

INTRODUCTION

The primary objective of this dissertation was to develop a psychologically based age variable that might potentially be more accurate and revealing than a traditional chronological measurement of age in the exploration of the consumer behavior of the elderly. This dissertation specifically examines the value of "cognitive reference age," which is a self-perceived age variable to be used as a new alternative or supplemental variable to chronological age, which is the traditional age demographic. The assessment of the value of this new age variable was made on the basis of a study of a sample of consumers 55 years of age and older.

The research, which was exploratory in nature, examined the relationship of age variables (both the traditional chronological age variable, and the new self-perceived age variable--cognitive reference age) and a number of behavioral and attitudinal variables.

Purpose of the Study

This dissertation focused on the consumer behavior of the elderly. The research literature on the elderly in several social sciences (especially gerontology, consumer

behavior, and sociology) served as the theoretical or conceptual foundation of this study.

The use of chronological age as a variable has many disadvantages for researchers interested in the elderly. For example, chronological age does not lend itself well as a dependent variable. In addition, survey respondents are not always willing to state their chronological age, and the literature on the aged indicates disagreements about the viability of chronological age (Birren and Schaie, 1977).

An extensive review of published sources indicates that only chronological age is reported as an age variable in the marketing literature. In gerontology and other social sciences several other age variables have been considered. These include "self" and "other" perceived age constructs (Peters, 1971; Bell, 1972), but these age variables have not yet been fully developed as alternatives to chronological age.

This study was designed to develop and evaluate cognitive reference age as a new alternative age variable that is self-perceived in nature and that lends itself to survey research. Such characteristics would make cognitive reference age a relevant measure in marketing as a new demographic variable that could be used in segmentation analysis. This study also reevaluated an old established age construct, namely, chronological age.

In the study for this dissertation a population of women 55 to 90 years of age was considered and two age

variables (the newly developed cognitive reference age as well as the old established chronological age) are evaluated.

To do this evaluation a survey was conducted and the respondents to this survey were placed in early (young) or late (old) age groups on the basis of their cognitive reference and chronological ages. In this way it became possible to evaluate a younger self-perceived-age group, the "early - cognitive reference age group" (those who perceive themselves to be less than 55 years old), and an older self-perceived-age group, the "late - chronological age group" (those who see themselves as 55 years of age and older).

In a similar manner, the respondents to the survey were separated into two chronological age groups, the younger "early - chronological age group" (respondents ranging chronologically from age 55 to 64) and the older "late - chronological age group" (respondents chronologically 65 years of age and older). Both kinds of age groups could now be evaluated to test for similarities and differences between the early and late age groups.

No prior research of this kind is reported in marketing or in any of the other social sciences. This indicates how this dissertation might provide new insights and avenues for further research. The cognitive reference age variable could be of great value as a variable that

can provide insights into the behavior and the social structure of the elderly in our society. In addition, it could be of great value to marketers of age-sensitive products (e.g., cosmetics and fashions) as a segmentation variable.

An entirely different aspect of this study was the testing of the assumption that age always has to be considered primarily on a chronological basis in marketing or in other social sciences. In other words, the study questions whether a person's characteristics and behavior, as far as age is concerned, are always primarily determined by chronological age, and whether self-perceived age could be of greater importance.

Another aspect of the study was the consideration of the traditional stereotypical portrait of the aged consumer being chronologically over 65 years old. Most consumer studies of the elderly have taken it for granted that this is so, yet this might be one of the major reasons for the ambiguity of the various findings. This study considered this stereotypical portrait and evaluated it in terms of comparing the chronologically younger and older groups.

The new cognitive reference age variable also made possible an evaluation of the influence that age perception has on consumer research variables.

In summary, the purposes of the study were:

1. To develop and test a new alternative age variable, namely, cognitive reference age;

2. To evaluate how the two age variables considered in the study could be used in future research;

3. To assess how much the two age variables differ from each other;

4. To test if and how age variables influence human characteristics and behavior, and thereby provide insight into the consumer behavior of the elderly;

5. To evaluate and compare younger and older age groups of cognitive reference age and chronological age in relation to various consumer research variables; and

6. To develop a model and profile of members of early and late cognitive reference age and chronological age groups within an elderly population.

Study Rationale

There is a dearth of insight into the buying behavior of the elderly. Existing studies tend to deal with consumers 65 and over in terms of their economic conditions.

There is little in the literature of significance before Schiffman's work (1971a and b; 1972a and b) on diffusion of innovation, opinion leadership, perceived risk, and sources of information among the aged. After his

publications not much appeared in the marketing literature until Phillips and Sternthal's excellent article on information processing among the aged (1977). This article stressed the need for more research and pointed out the paucity of this type of research.

A new interest among marketers is noted by Bettman et al. (1978) in their classification of the study of the elderly consumer as being in the introductory stage of consumer behavior research.

Recent areas of investigation on aged consumers have been the following: (1) information processing (Phillips and Sternthal, 1977), (2) segmentation (Gelb, 1978; Fela, 1977; Towle and Martin, 1976), (3) social integration (Lawther, 1978), (4) purchase criteria (Mason and Beardon, 1978), and (5) media habits (French and Crask, 1977; Bernhardt and Kinnear, 1976).

When it is considered that the few articles mentioned here form the "body" of published studies in marketing dealing with elderly consumers, it is clear that much more remains to be done.

Demographic variables (population, ecological and socioeconomic characteristics) are often used as interactive descriptors of consumers by marketers. As was pointed out by Roscoe et al. (1977), they are interactive in nature because even though consuming units may seem to be matched along several demographic variables, their behavior may be quite different when actually observed.

In marketing there has been a general neglect of the demographic variables; that is, although demographics are constantly and extensively used, they are used without much imagination and are seldom considered in terms of their specific dimensions in relation to the products and consumers studied. This is also true for psychographics which are quantitatively measured psychological descriptors of consumers. Roscoe et al. (1977) brought this to the attention of the marketing community and suggested the development of alternatives to the established demographic variables; among the alternatives was a self-perceived age variable to be named "youthfulness."

Others in marketing have indicated that the traditional age variable, chronological age, does not take into account that people frequently perceive themselves to be at an age other than their birth age, and that this self-perceived age affects their buying behavior (Kotler, 1976; Howard in The Power of Aging, 1971). Their comments did not cause a follow-up of research.

In sociology, the concept of subjective age (age from the subjective view of the individual) is not so new. Since the Fifties studies have considered this alternative age variable. One of the most consistent findings in surveys among the aged seems to be that old people refuse to acknowledge that they are old (Rosow, 1974; Peters, 1974).

A major problem of the subjective age construct is its ambiguity. Subjective age is determined through a self

rating by respondents in terms of age-reference groups (i.e., young, middle-aged, elderly, old). This kind of rating is problematic since one cannot be sure what these age-reference groups mean to respondents in terms of commonly known units such as years. On the other hand, the evidence from the subjective-age studies indicates this self-perceived age variable to be a powerful and important perceptual dimension (Peters, 1971; McTavish, 1971).

According to the cognitive theory of aging developed by Thomae and his associates (1970, 1976a), there are different patterns of aging among the elderly. These patterns cause different personality developments and life styles in the last stages of the life span as the result of personal subjective perception of the aging processes of the elderly. Following this line of thinking, consumers would be different in terms of their personal subjective ages and would tend to consume age related products according to their self-perceived age, and not according to their chronological age. This would mean that a person's identity depends more on his or her self-perceived age than upon his or her chronological age. Therefore, if an alternative self-perceived age measure is developed, that measure should have the capacity to classify consumers according to this alternative age. This would provide marketers with the possibility of not having to rely on the chronological age measure (which elderly women do not like to admit) and

additionally and more importantly, would mean greater insight into the patterns of aging of the elderly consumer.

The exploratory research by Kastenbaum (1972) and his associates indicated an approach to the development of an alternative age variable. Kastenbaum found four major dimensions in self-perceived age (feel-age, look-age, do-age and interests-age) and had conceptualized a self-rating scale in units of years. While Kastenbaum's personal age measure is elaborate, lengthy, and difficult to administer, it was very helpful in providing clues for the development of the new self-perceived age measure called "cognitive reference age" (that is based on Kastenbaum's four self-perceived age dimensions).

Questions to Be Examined

The following issues relating to age groups (cognitive reference age and chronological age) among elderly consumers have been explored in the study:

1. Do consumers in an "early" age group differ from those in a "late" age group in terms of personality and/or social traits?

2. Do consumers in an "early" age group differ from those in a "late" age group in terms of their social interaction and/or media behavior?

3. Do consumers in an "early" age group differ from those in a "late" age group in terms of their product and brand perceptions and/or behavior?

4. Are there differences to be found in terms of traits, interaction, media behavior and consumer behavior variables between consumers who are in an early - cognitive reference age group (perceive themselves to be young) and who also belong to an early - chronological group when they are compared with consumers who are also in an early - cognitive reference age group (perceive themselves to be young) and who are members of a late - chronological age group?

5. Is it possible to develop models (or profiles) that allow classification of consumers into an early or late age group (either of a cognitive reference age or chronological age type)?

Organization of the Dissertation

A review of the general literature relating to the aged, including age categorization, population trends, economics of the aged, and consumer behavior of the aged, is presented in Chapter II. Chapter III presents a review of the topics and variables specifically considered in this study: age variables, personality traits, social traits, social interaction, and selected demographics of the aged. Chapter IV provides a description of the research chart flow employed in the survey study. This chapter also encompasses a description of the sample population studied; the research hypotheses; as well as the definition and measurement of the variables. Chapter V presents the

findings and analysis of the survey as it relates to the testing of the hypotheses and the estimation of reliability and validity. Chapter VI is concerned with the development and testing of discriminant models for both types of age groups, as well as the assessment of the profiles based on these discriminant models. Chapter VII presents the summary, conclusions and recommendations evolving from the preceding chapters.

CHAPTER II

LITERATURE REVIEW: THE ELDERLY

This chapter is devoted to a review of the literature on the elderly. The review is organized into the following four broad areas: (1) categorization of age, (2) population trends of the aged, (3) economics of the aged, and (4) consumer behavior of the aged.

When one considers the literature dealing with human aging it soon becomes clear that the description and nomenclature of the stages of human aging vary from researcher to researcher. This can be seen, for example, when one contrasts the stages of human development and aging shown in Table II-1. Moreover, Borland's (1978) evaluation of the status of research on middle age shows that the lack of clarity in defining the different stages of aging has had an impact on all age-related research. Nonetheless, certain aspects of the process of aging occur no matter what we call them.

From the very real changes that generally occur among humans when they grow older, an incorrect conclusion might be drawn, namely, that they all age biologically at the same rate as they age chronologically. Indeed, it is

TABLE II-1

STAGES IN HUMAN AGING

Hurlock

I.	Infancy	birth	end of 2nd week
II.	Babyhood	2nd week	" " 2nd year
III.	Early Childhood	2nd year	age 6
IV.	Late "	6	appr. 13 (girls)
		6	" 14 (boys)
V.	Adolescence	appr. 13	18 (girls)
		" 14	18 (boys)
VI.	Adulthood	18	40
VII.	Middle Adulthood (Middle Age)	40	60
VIII.	Late Adulthood (Old Age)	60	and older

Bromley

I.	Juvenile	birth	age 11
II.	Early Adolescence	11	16
III.	Late "	16	20
IV.	Early Adulthood	20	25
V.	Middle "	25	40
VI.	Late "	40	60
VII.	Pre-retirement	60	75
VIII.	Old Age	70	and older

Source: Hurlock (1975) and Bromley (1974)

the reliance on chronological age as the singular characterization of a person's age which has probably produced the greatest amount of misunderstanding in aging research.

Chronological age is defined as the number of years since birth (Jarvik, 1975). The idea that biological age is the same as chronological age is a misconception. Bromley (1974, p. 28) points out that "the different organs of the body are composed of various kinds of cells, so that the problem of calculating the 'biological age' of an organ is difficult, to say the least." In addition, the overall effectiveness of a human body is determined by the least efficient part of the system required to keep the body functioning, and this varies among humans.

Age Categorizations

When the question is raised about when (in terms of chronological age) old age occurs, there is no clear answer. As Shanas (1970) mentions, old people are to be found in all societies, and the age at which humans are said to be old varies from country to country. Officially, old age starts at 55 in India, while for many practical purposes 65 is the official age in the United States. Yet Shanas (1970) also reminds us that the American young talk about "not trusting anyone over 30," and thereby consider over 50 percent of the American population as "old." In contrast to this, most Americans at age 70 continue to describe themselves as "middle aged." Drevenstedt (1976) reports that

studies dealing with this question indicate that old people tend to judge old age as occurring later than do young people. In general, the term "elderly" seems to be associated with those 65 years and over (Lawther, 1978 and Fela, 1977).

The perception that the over 65 segment forms the population grouping known as the "elderly" can probably be attributed to the use by the United States Government of the chronological 65 year age demographic. The Government provides those 65 years and over with specific rights and benefits such as Medicare, double tax exemption, tax-free Social Security, and untaxed pension benefits up to $1,200. In addition, in the past, 65 years have often been used as the age indicator for enforced retirement by many employers.

Gerontologists, who are especially interested in human aging and the aged, do not limit themselves to studies of those 65 years and older. For instance, Birren (1964) and Neugarten and Hagestad (1976), in their discussions of chronological age, indicate the need for a multidimensional approach in the study of aging and the aged. Specifically, Neugarten and Hagestad suggest that social, biological and psychological age should be separately considered because aging is a process which has been influenced by environmental, biological, and psychological factors, and chronological age is at most a poor index of the three.

This perception of chronological age is consistent with Bengston and Cutler's (1976) view that the elderly can

be considered a heterogeneous grouping consisting of individuals who have aged at different rates in a multidimensional way. Moreover, Bengston and Cutler (1976) propose that the identification of age groups should concentrate on the intersection of particular birth cohorts which are at a particular chronological or social age with the events and nature of society at that point in time and the unique psychological, biological and social developments associated with this intersection.

Borland (1978), in her review of research dealing with the middle-aged, shows that while there seems to be a consensus that "middle age" precedes the "elderly" as an age grouping, it is not clear when this shift from middle age to the elderly takes place. She even goes so far as to suggest that chronological definitions of middle age are arbitrarily set and range from 30 to 70 years of age.

Finally, Brotman (1977) and Reynolds and Wells (1977) consider the older population (the elderly) to be those over 55. Since there is a lack of a clear demarcation age for the elderly population, this is as good a group parameter as any other.

Population Trends of the Aged

To understand the demographics of the elderly, a dynamic approach to the study of demographics is required. One perspective which promises to do this involves viewing

the elderly as the survivors (those still alive) of a cohort group that had started life together many years earlier. Cohort analysis is an especially rich research approach because it uniquely accounts for the fact that people who were born in the same year upon entering a life stage are different in terms of numbers, characteristics, and life experiences from those who are moving out of that stage.

Employing cohort analysis, Uhlenberg's (1977) research reveals that a 60 percent change occurred in the composition and size of the older population as the result of successive cohorts entering the last stage of the life course thereby replacing those leaving due to death. This change occurs to the extent that those entering old age differ in numbers and characteristics from members of the preceding cohorts who are dying. These differences may be found because cohorts entering this old-age life stage experienced different historical conditions as they moved through the various stages of the life course (Uhlenberg, 1977).

Brotman (1977) in his cohort analysis evaluated population trends among the elderly. Table II-2 shows cohort growth for over-55 age groupings from 1975 to 2000. It reveals large increases in the numbers of people in the various elderly cohorts, i.e., women in the age category 75-79 years are projected to increase in number for the period between 1975 and 2000 by some 58.5 percent. Such

TABLE II-2

Analysis of Older Population Projections by Sex and Race, 1975 and 2000.
(Numbers in Thousands)
All Races

Age	Total			Men			Women			
	#	%		#	%		#	%		Per 100 men
1975										
55+	42,099	100 0	—	18,483	100 0	—	23,616	100 0	—	128
65+	22,330	53 0	100 0	9,147	49 5	100 0	13,182	55 8	100 0	144
55-59	10,531	25 0	—	5,020	27 2	—	5,511	23 3	—	110
60-64	9,238	21 9	—	4,316	23 4	—	4,923	20 9	—	114
65-69	8,097	19 2	36 3	3,581	19 4	39 2	4,515	19 1	34.3	126
70-74	5,784	13.7	25 9	2,446	13 2	26 7	3,337	14.1	25.3	136
75-79	3,998	9 5	17.9	1,570	8 5	17 2	2,428	10.3	18 4	155
80-84	2,629	6 2	11 8	953	5.2	10 4	1,675	7.1	12.7	176
85+	1,822	4 3	8 2	596	3 2	6 5	1,226	5 2	9.3	206
55-64	19,769	47 0	—	9,336	50 5	—	10,434	44.2	—	112
65-74	13,881	33 0	62.2	6,027	32 6	65.9	7,852	33 2	59.6	130
75+	8,449	20 0	37.8	3,119	16 9	34.1	5,329	22 6	40 4	171
2000										
55+	53,537	100 0	—	22,953	100 0	—	30,583	100 0	—	133
65+	30,600	57.2	100.0	12,041	52 5	100 0	18,558	60 7	100 0	154
55-59	12,947	24 2	—	6,224	27.1	—	6,723	22 0	—	108
60-64	9,990	18.7	—	4,688	20 4	—	5,302	17.3	—	113
65-69	9,023	16 9	29.5	4,021	17.5	33.4	5,002	16 4	27 0	124
70-74	8,056	15 1	26 3	3,368	14.7	28 0	4,688	15 3	25 3	139
75-79	6,224	11 6	20.3	2,375	10 4	19 7	3,849	12 6	20.7	162
80-84	4,080	7 6	13.3	1,383	6 0	11 5	2,697	8 8	14 5	195
85+	3,217	6 0	10 5	894	3 9	7.4	2,323	7 6	12.5	260
55-64	22,937	42 8	—	10,912	47 5	—	12,025	39.3	—	110
65-74	17,079	31 9	55 8	7,389	32 2	61.4	9,690	31.7	52.2	131
75+	13,521	25 3	44 2	4,652	20.3	38 6	8,868	29 0	47.8	191
% increases										
55+	27.2			24.2			29 5			
65+	37 0			31 6			40 8			
55-59	22 9			24 0			22 0			
60-64	8 1			8 6			7.7			
65-69	11.4			12.3			10 8			
70-74	39.3			37.7			40 5			
75-79	55.7			51.3			58 5			
80-84	55.2			45 1			61 0			
85+	76 6			50.0			89 5			
55-64	16 0			16 9			15 2			
65-74	23 0			22 6			23 4			
75+	60 0			49.2			66.4			

Source Bureau of the Census, taken from Brotman (1977)

projections are likely to be accurate, since all who will be in the over-55 age categories are already born and their numbers are therefore not affected by future birth rates. A basic assumption, however, is that there will be no major medical breakthroughs (like a cancer cure) in the next 25 years which would alter these figures.

Economic Status of the Elderly

Economists have given only scant attention to the economic realities of the elderly. This may account for the preponderance of stereotypical portrayals of the economic status of the elderly. Accordingly, Schulz (1976) has stressed that commonly held beliefs that the elderly are poor, that they are the group most hurt by inflation, and that they have been forced to retire are today serious misconceptions. Schulz (1976, p. 1) describes the major breakthroughs which occurred in the past few decades in the development of private and public programs to deal with the economic problems of the aged as follows:

1. Over the past ten years, Social Security old-age benefits have been increased by almost 100 percent, significantly faster than inflation over the same period.
2. Private pension programs have spread throughout industry and have grown rapidly--with dramatic increases in benefit levels.
3. Public health insurance programs have been created--currently providing over $15 billion a year in benefits to older persons.
4. Property tax relief laws have been legislated in 96 percent of our states.

5. Old-age assistance has been abolished and a new Supplemental Security Income Program (SSI) has taken its place. This program roughly doubles the number of low income elderly eligible for income supplementation. In addition, it raised benefit levels in twenty-four states above the previous levels of old-age assistance--in some cases, dramatically.

It is Schulz's contention that such social programs have shifted income from the employed population to the retired population. And this shift has resulted in reducing poverty among the aged.

The Economic Viability of the Elderly

There are two contrasting views of the economic viability of the elderly as a market. The first is that the aged segment of the population is poor, deprived, victimized, and has little influence in the marketplace. Prominent among those holding this view are Reinecke (1964), Butler (1968), Mason and Smith (1973), Waddell (1975), and Clark, et al. (1978).

The second view, an optimistic one, envisions the elderly as a viable market with a consumption potential of great importance for marketers. This view is substantiated by United States Census and Conference Board data on the consumption patterns of the various major age categories of the population (Linden, 1976; 1978).

Specifically, the economic viability of the elderly market is supported by Linden (1976) in his profile of early-elderly (i.e., those 55-64 years of age) and late-

elderly (i.e., those 65 years of age and older). According to his estimates, family income for those 55-64 years of age was $152 billion in 1975 and $85 billion for those 65 and older (a total of some $237 billion).

In terms of family size, families with head-of-household 55-64 years of age (i.e., those in the postparental stage) consist of approximately 2.3 persons. While few wives work and the mean income is 12 percent lower than the preceding age grouping (45-54 age group), this age group is still relatively well off. Nonetheless, as can be seen from Table II-3, the general distribution of expenditures is not very different from the 45 to 54 age group.

In contrast to the 55-64 age group, the age group of 65 and older experiences a substantial decline in income. At this stage, 45 percent of all households are headed by women (mostly living alone), 45 percent are husband-wife families, and the remaining 10 percent are unattached males. Average household size is 1.7 persons, and rarely does the household include a child. For this group, per capita spending is at best marginally above the national average. Two-thirds of all their expenditures go to food, housing and health and personal care (see Table II-3).

In certain respects the over-55 year (55 years of age and older) market is similar to the under-35 age (35 years of age and younger) market. Primarily, both markets have a greater than average number of one- and two-person

TABLE II-3

Life Cycle of the Household Budget*

		Age of Household Head					
	Total	Under 25	25-34	35-44	45-54	55-64	65 and Over
Households (millions)	71.6	6.2	14.8	12.0	12.9	11.6	14.1
Percent Distribution of:							
All households	100.0	8.6	220.6	16.7	18.1	16.3	19.7
All expenditures	100.0	6.3	21.9	21.2	22.7	15.9	11.9
Expenditures for Current Consumption	$8,080	$5,880	$8,596	$10,262	$10,148	$7,922	$4,888
Allocation of Expenditures	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Food	**19.4**	**11.5**	**15.9**	**21.6**	**20.5**	**20.3**	**22.8**
Food at home	17.0	9.1	13.3	18.7	18.0	18.1	21.2
Food away from home	2.2	2.0	2.3	2.6	2.2	1.9	1.5
Alcoholic Beverages and Tobacco	**2.6**	**2.8**	**2.8**	**2.5**	**2.6**	**2.7**	**1.9**
Clothing and Upkeep	**8.3**	**8.3**	**8.6**	**9.2**	**8.6**	**7.7**	**6.4**
Men's	2.8	2.6	3.0	3.3	3.0	2.4	1.5
Women's	4.0	3.4	3.8	4.5	4.3	3.9	3.6
Housing	**30.5**	**36.8**	**35.2**	**29.5**	**26.6**	**27.1**	**32.7**
Shelter	16.2	24.5	20.3	15.2	13.4	12.9	15.8
Operations and utilities	9.2	6.9	8.8	8.6	8.4	9.8	12.9
House furnishings and equipment	5.1	5.4	6.1	5.7	4.7	4.3	4.0
Automobiles	**18.6**	**23.7**	**18.5**	**17.7**	**20.1**	**19.8**	**13.3**
Purchases (net)	9.1	13.0	9.3	8.5	10.0	9.6	5.4
Operations	9.5	10.7	9.2	9.2	10.1	10.2	7.9
Health and Personal Care	**7.4**	**4.4**	**5.9**	**6.3**	**7.1**	**8.8**	**11.9**
Recreation	**8.3**	**8.6**	**8.7**	**8.4**	**8.0**	**8.5**	**7.2**
Vacation trips	3.1	2.1	2.7	2.7	3.1	3.8	4.0
Other	5.2	6.5	6.0	5.7	4.9	4.7	3.2

*Based on a U.S. government survey conducted in 1973
Sources: U.S. Department of Labor; The Conference Board

Source: Linden (1978)

households. However, if asked to assess the spending ability of these two markets, many marketers are likely to assume that the consumption abilities of the under-35 market would be much greater than the over-55 market. In actuality, the under-35 market, like the over-55 market, in 1975 had the same combined family incomes of $237 billion (Linden, 1976).

When we contrast the over-55 age group as a market to the under-35 age group (really consisting of two sub-groups--those under 25 years of age and those between 25 and 34 years of age) we find the following marketplace reality: while both have the same combined family income ($237 billion), the amount of attention given by marketers to the under-35 market is overwhelming when contrasted to the over-55 market. Certainly, for many products there is a logic for attending to the younger consumers, but this does not mean that the elderly cannot form an economically viable market, and marketers have much to lose by not accepting this.

Literature About Consumer Behavior of the Elderly

Marketers are realizing that an important part of the consumer population has been neglected in the past. As a result, in the last few years there has been a general call among marketers for research on the elderly. The Journal of Marketing Research had a major review article on the research done on the aging process relevant to

consumer researchers (Phillips and Sternthal, 1977). Among the many who recently stressed the need for empirical research on the elderly are Bernhardt and Kinnear (1976), Mauldin (1976), Martin (1976), Mason and Beardon (1978), and Lawther (1978). However it is notable that among recent consumer behavior textbooks only two paid more than superficial attention to aged consumers (Schiffman and Kanuk, 1978; Reynolds and Wells, 1977).

Segmentation Studies of the Elderly Consumer

There are a small number of segmentation studies of the elderly consumer which have been published in the marketing literature. Fela (1977) in his dissertational study segmented a population aged 65 years and older on the basis of psychographics (of the kind developed by Wells and Tigert, 1971) into three segments: (a) traditionalists, 53.5 percent, (b) outgoers, 23.1 percent, and (c) isolationists, 23.4 percent. The differences between these segments are basically the following: (a) the traditionalists are conservative, religiously inclined, resist social change, high risk perceivers, home oriented, and economically relatively well-off; (b) the outgoers are liberal, active, socially and politically concerned, interested in classical music and travel, self-confident and independent, yet not innovators or opinion leaders, of a higher social class than the other segments (c) the isolationists are materialistic,

withdrawn and inactive; social interaction with others is low, and their social exposure is indirect and consists mainly of heavy television viewing. The isolationists also do not show an interest in a youthful image as do the other two segments. Income-wise they are the worst off of the three segments.

In another life-style segmentation study Towle and Martin (1976) considered a sample of over-65 year old consumers from a National Target Group Index Study (TGI 1973). As can be seen from Table II-4, they succeeded in segmenting this population through cluster analysis into six segments (saver/planner, brand loyalist, information seeker, economy shopper, laggard, and conspicuous consumer).

Reynolds and Wells (1977) describe in a consumer-behavior textbook a commercial study conducted in 1975 for the Needham, Harper and Steers Life Style Survey. Part of this survey was specifically concerned with consumers 55 years and older.

The above mentioned studies indicate the viability of life-style segmentation research among an elderly population.

A segmentation study which had come to a different conclusion in regard to the viability of segmentation research among the elderly is that of Gelb (1978). She used a different approach since she based her research on the chronological age construct. This study is especially

TABLE II-4

TOWLE AND MARTIN'S BUYING STYLE SEGMENTS

Segment	Psychographic Description	Share Elderly Market %
1. Saver/Planner (buys unknown brands)	Frank, candid, self-assured, confident	25.1
2. Brand Loyalist (does not buy for approval of friends)	Brave, courageous, reserved, conventional, insecure; not stubborn	8.4
3. Information Seeker (persuasible)	Kind, sincere	10.1
4. Economy Shopper (not brand loyal)	Not brave, not dominating, not egocentric, not frank, candid, funny, witty	10.6
5. Laggard (not persuasible)	Not witty, not kind, not reservative, liberal	11.2
6. Conspicuous Consumer	Stubborn, egotistical, dominating	34.6

Source: Towle and Martin (1976)

interesting in the context of this dissertation. Gelb's findings were inconclusive, since they found that while chronologically age-based segmentation is possible (two segments--those 64 years of age and younger, and those 65 years and older) on the basis of differing attitudes and life-styles, it would not be profitable for marketers to do so since these segments did not allow for better marketing strategies.

Information Processing Among the Aged

Phillips and Sternthal (1977) present a general overview of literature about information processing among the elderly. According to them, the literature indicates that elderly individuals process information differently from younger persons. Age differences are responsible for differences in sources of information used, learning ability, and social influence susceptibility. What is of special interest here is their reported finding that chronological aging is not responsible for these differences, but that rather the social, psychological, and physical changes that accompany aging (the patterns of aging) cause these differences.

Social Integration

Social integration, a new measure of consumer behavior, was developed by Lawther (1978) specifically for research among elderly consumers. Lawther recognized that

a special consumer population such as the elderly required measurement instruments relevant to this population. Social integration measures the degree of integration based on the following three factors: (a) close friends or relatives, (b) person or persons living in one's household, and (c) the population density/degree of urbanization. Lawther's findings indicated that the higher the social integration, the greater the awareness of unfair marketing practices, the complaint registration, and the use of information (especially consumer-dominated sources of information).

Purchase Criteria

Mason and Beardon (1975) conducted a study of purchase criteria and limited their sample to households having a member of at least 65 years of age. The findings of this study indicated a lack of specific buying plans among more than half the households. The major and primary guide in shopping was personal experience; nonetheless, two-thirds of the sample reported heavy usage of advertising to help in making their purchases. Price awareness and price comparisons were also important (84 percent of the sample). This explained the reported rarity of in-home shopping. Aged consumers were found to be alert and cost conscious. Also, shopping was viewed as a recreational activity that was to be enjoyed.

Media Habits

Research on the media habits of the elderly has been mainly the domain of communication researchers and social gerontologists (Atkin's review of the mass-communication literature, 1976; Bernhardt and Kinnear, 1976; Graney and Graney, 1974; Graney, 1975). The conclusions of their studies indicate that the elderly are heavier television viewers than younger population groupings and are more interested in news and current affairs programs. Television was considered to be among the most important and popular leisure pursuits.

Media advertising directed at retired consumers and its influence on their shopping patterns were evaluated by French and Crask (1977). Their research indicated that ads directed at the aged consumer can have a noticeable effect on purchase behavior. Also, the advertisement messages seem to be more influential than the media used. Television was watched in the evenings (80 percent of the respondents) with radio listening being predominant in the morning hours. The study tested for the credibility of the three advertising media considered (TV, radio, and newspapers), and found that the elderly sampled did not perceive differences in the credibility of the different media.

Of special interest is French and Crask's conclusion that to the elderly their approach to living is of greater relevance than their chronological age in terms of their

consideration of advertising appeals. They therefore suggested to abandon the chronological old-age construct and replace it with a concept such as the patterns of aging (modes of behavior adopted by the elderly). They made this suggestion since they believed that the old-age construct masked many causes of variance in purchase activities.

Diffusion of Innovation

A major research effort relating to diffusion of innovation among the elderly was made in the early 1970's by Schiffman (1971a and b; 1972a and b). This work was significant in that it was among the first to approach the study of elderly consumers in terms of consumer behavior rather than on the basis of economic criteria. It was the first study among elderly consumers to consider the consumers' sources of information (Schiffman, 1971b). The finding here was that both internal (personal experience) and external sources of information are influential in new product adoption. Product-related conversations (an external source) were relatively unimportant; only in 10 percent of the cases did such conversations take place. This may have been because of low consumer involvement in the new product used in the research (a salt substitute).

Another first in his study of elderly consumers was Schiffman's (1972a) evaluation of new-product trial and its relation to perceived risk (measured through a new criterion developed by Schiffman--perceived error-

tolerance). The finding reported was that the more willing elderly consumers were to try a new product (new-product trial) the lower their perceived risk.

Additional significant aspects of elderly consumer behavior examined by Schiffman (1972b) were the social interaction patterns among his sample. Word-of-mouth activity existed although these product-related conversations were few in number and the product considered (the salt substitute) was a low-involvement product. On the basis of this social interaction pattern, four separate groupings were identified: (a) social isolates, 35 percent; (b) social identifiers, 21 percent; (c) social receivers, 16 percent; and (d) social reciprocators, 28 percent. Product-related communication among consumers and innovativeness were not strongly related, yet those Schiffman had found to be most socially integrated (the social reciprocators) were considered the most innovative.

Other findings reported in this study are that consumers who had many product-related social interactions also: (a) were involved in other forms of social interaction, (b) were more exposed to mass media and current event information, and (c) seem to value innovative behavior more, and are perceived by their peers to be more innovative.

The next chapter is concerned with a review of the topics and variables specifically studied in this dissertation--age variables, personality and social traits, social interaction, and selected demographics among the elderly.

CHAPTER III

THE AGING PROCESS AND ITS PATTERNS

This chapter reviews the literature specifically relevant to the variables considered in this dissertation. It is organized into several parts according to the different sets of variables examined: (1) age constructs and their measurement, (2) personality and personality traits, (3) social traits, (4) dimensions of social interaction, (5) selected demographics, and (6) product related interaction.

When considering age constructs and their measurement, it is important to have a clear idea of the aging process itself. This requires a definition of aging which illustrates the interaction of biological, psychological, and social forces. A slightly modified definition of aging as proposed by Birren and Renner (1977) is among the best. They define aging as: "....the regular changes that occur in mature genetically representative organisms living under representative conditions as they advance in chronological age" (page 4).

From this definition it is understood that chronological age, while important, is not the only concept

involved in the aging process. When studying the aging constructs involved in the aging process, chronological age should be considered as well as other alternative age variables, such as biological age, "self-" and "other-" perceived age.

Chronological Age

Chronological age, defined either as the number of years lived (Hendricks and Hendricks, 1976) or as the distance from birth (Jarvik, 1975), is generally measured in terms of years or age categories (preferred age categories are 5- and 10- year periods).

In the main, researchers are of the opinion that chronological age is limited in scope as a dependent variable in research of the aging process. Some researchers (i.e., Baltes and Willis, 1977) even express satisfaction over seeing chronological age as a variable that is declining in popularity as a primary explanatory variable.

However, some researchers tend to view developmental-age research as the study of the relationship between behavior and events which require time in order to take place, and this relationship necessarily has some correlation with chronological age. This view considers chronological age as an independent variable (Wohlwill, 1973). Another reason often given for using chronological age as an independent variable is that the aging

process is multidimensional in nature and is influenced by biological, psychological, and social forces (Blau, 1956; Baltes and Willis, 1977; Birren and Renner, 1977).

In marketing chronological age is a popular demographic variable used in market segmentation, and it is considered to be one of the classic measures. Fortunately, an awareness of the limitations of chronological age is coming about, and suggestions have been made to broaden the chronological age measure. Age-related factors such as age of household, age at first trial of a product, or even forms of perceived age (i.e., youthfulness), have been suggested as alternatives to the traditional chronological-age measure in market segmentation (Roscoe et al., 1977).

One useful aspect of the chronological-age measure is as an indicator of changes in the human life cycle. The most popular chronological age used to indicate changes in status and roles associated with becoming a member of an elderly grouping is 65.

There are a number of reasons for the 65+ age category being considered elderly. The main reasons are society's expectation that changes will occur at this age and the general changes that actually do take place in terms of income, employment, and taxation. This general view held by many in society (especially the young) that age 65 is the start of the last stage of the life cycle is important to consider. It is, therefore, not surprising to note that 65

is the popular age to indicate changes in terms of psychological, social, and physical factors. If there were changes at this age, one could expect those over 65 to be different from those under 65. However, it is not altogether clear at what specific age these changes really do take place, nor is it clear what type of changes take place and how they affect different individuals (Phillips and Sternthal, 1977; Neugarten, 1977; Britton and Britton, 1972; Thomae, 1970; 1976a).

The reasons for this lack of understanding are manifold and are related to the different life-histories, educational backgrounds, family upbringing, as well as the timing of critical life events through which individuals pass (Baltes and Willis, 1977; Thomae, 1976a).

It seems reasonable to conclude that the use of chronological age as a primary age antecedent variable is misleading and possibly inappropriate; it represents only an approximation of the identification of behavior change and possesses the risk of being theoretically impotent (Baltes and Willis, 1977).

Alternative Age Variables

If not chronological age, what then? The answer to that question is not so simple. Several researchers have attempted to develop alternative age variables. Possible alternatives are functional age, biological age, social age,

and social-psychological age (including both self-perceived subjective age and other perceived subjective age).

Functional Age

Functional age is an age measure that encompasses several alternative age factors. It is a multivariate age variable developed by Bell and his associates at the Boston Veterans Hospital (Bell, 1972). Its components are (1) biochemical age (measured through assays of blood serum and urine), (2) auditory age (measured through the clinical assessment of auditory functioning), (3) anthropometric age (measured through anthropometric descriptions), (4) ability age (measured through evaluations of verbal, perceptual and motor abilities, (5) personality age (measured through an evaluation of personality), and (6) social age (measured through an evaluation of sociological life style, namely, occupational and social interaction factors).

Most of the work on the development of this functional age measure took place at the Veterans Administration Outpatient Clinic in Boston and was under Bell's leadership. It is based on a cross-sectional and longtitudinal age study begun in 1963. In 1972 the study contained 2,000 healthy male veterans ranging in chronological age from 28 to 83 as subjects.

While the functional age variable is of interest, it is in its present format not yet applicable to consumer research.

Biological Age

Biological age can be defined as an estimate of an individual's present position with respect to his potential life-span (Birren and Renner, 1977; Jarvik, 1975). This definition takes into account the wide differences that exist in human aging (within the limits characteristic of the species), while considering the inevitability of the processes of aging and mortality (Jarvik, 1975).

Measuring biological age is difficult and tends to take the approach recommended by Bell and his associates, namely, the measurement of biochemical age through assays of blood serum and urine (Bell, 1972).

Biological age is not particularly suited to market research and does not provide a viable alternative age measure to chronological age for marketers.

Social Age

Social age is the age of the individual as defined by roles and social habits with respect to other members of that individual's society (Birren and Renner, 1977). This definition implies that the aging process can be examined in the contest of events that are socially defined, and that aging is experienced in socially defined patterns. Within this context, age expresses an individual's place in the social structure. An individual's place is indexed by such variables as socioeconomic status, occupation, education, race, and sex, as well as alterations that take place within

a society and that can cause changes in the social structure itself (Bengston et al., 1977).

Social aging is also concerned with the different roles a person takes while passing through the life cycle. There is a continuous role change that takes place and the patterned sequencing of these roles reflects some of the changes in an individual's life (Blau, 1973). Tied to this role alteration is a subjective perception of appropriate and inappropriate age-specific, society-determined norms that are an integral part of the varied roles (Bengston et al., 1977). In other words, as an individual moves from one role to another, his behavior is influenced by the individual's view of what society expects from him in each role.

For these reasons social age is subjective in nature and depends to a great extent on the individual's perception of self in the various roles (i.e., family roles from being single, to marriage, to widowhood, or from childhood, to parenthood through the "empty-nest," to grandparenthood).

Society is full of age-related roles, and even occupational or nonoccupational roles are full of age imagery. Therefore, these social roles influence greatly a person's perception of his or her age and the behavior associated with that age (Bengston et al., 1977; McTavish, 1971; Peters, 1971).

In addition to social roles, an individual' social age is determined by life style. That is, in a manner similar to the influence education has on life styles, these two

(education and life styles) combined cause different social age patterns to be developed (Bengston et al., 1977).

There are different approaches to the measurement of social age. Rose (1972) developed a measure of social age based on the regression of chronological age on a variety of social correlates of age. These correlates tapped life style factors relating to family, work and retirement. The resulting social age measure is expressed as a number of "years." Rose's (1972) social age measure had a multiple correlation of .6 with chronological age.

A different approach was taken by Blau (1956, 1973) and Rosow (1967, 1974). These sociologists used a subjective age measure based on age related reference groupings, which is more social psychological in nature. This measure will be considered in the next section dealing with social psychological measures.

Overall, the concept of social age seems highly relevant to marketing, where segmentation research is so concerned with social variables such as socioeconomic status, family life cycle, and life style.

Social-Psychological Age

Social psychological age can be defined as the age referred to when consideration is given to concepts like memory, learning, intelligence, skills, motivations, personality traits, life styles, and social roles. That is,

social-psychological age is related to all of these concepts (Baltes and Renner, 1977; Bengston et al., 1977).

Social psychological age is subjective in nature and can be "self-" or "other-" perceived. This view of social-psychological age is so wide in scope that any study using these concepts in conjunction with subjectively measured age could be considered a social-psychological study.

For this reason, many researchers would consider the social-age measures previously discussed as part of social-psychological age research. For the same reason, the usage and approach to social-psychological age is multi-disciplinary in nature.

Strangely enough, marketing is not among the many social science disciplines that have concerned themselves with these subjective age measures. Roscoe et al. (1977) are among the very few marketers who specifically suggested consideration of a social-psychological age measure.

The notion of self-perceived age was mentioned by Kotler in his description of how the Ford Motor Company used age in the development of its target market for the Mustang automobile (Kotler, 1976). Kotler (p. 147) suggests that

> The car was designed to appeal to young people who wanted an inexpensive sporty automobile. Ford found to its surprise that the car was being purchased by all age groups. It then realized that its target market was not the chronologically young, but those who were psychologically young.

Moreover, John Howard explains

> Many older people don't want to be reminded that they are old, and they often tend to react against advertising and marketing programs that separate them from the masses" (The Power of the Aging, 1971, p. 55).

Indeed, it is strange that marketers have neglected an alternative age demographic that seems to be so very relevant to marketers for purposes of market segmentation, new product development, promotion, and nonprofit marketing. As such it would be worthwhile not only for research with the elderly but also for evaluation of markets in general.

Two major types of social-psychological age measures have received special attention: (1) self-perceived social-psychological age, and (2) other-perceived social-psychological age.

Self-Perceived Age. In general, two approaches have been used to measure self-perceived age. The first is subjective (or identity) age, which is measured through survey instruments that ask respondents to state how they perceive themselves or how they identify themselves with a reference group such as the "young," "middle-aged," "elderly," or "old" (Blau, 1956, 1973; Peters, 1971; Rosow, 1967, 1974; and Ward, 1977). The second measure is the personal-age measure developed by Kastenbaum and his associates (Kastenbaum et al., 1972), which is derived through extensive personal interviews and is based on four major self-perceived age dimensions

(look-age, feel-age, do-age, and interests-age). In the personal age measure an evaluation is made how old in terms of years individuals perceive themselves to be.

These two types of self-perceived age, subjective and personal age, are considered in greater detail below.

Subjective Age. Subjective (or identity) age measures an individual's self-perception in terms of reference age groups (i.e., "middle-aged" or "elderly"). It is how a person feels about such age reference groups, and it is a self-perceived relation with a subjective perception of the model of those age groups. This is why a strong relationship between self-concept and the model selected (the model being the age group the person feels closest to or would like to be closest to) is assumed by most researchers working with the subjective age concept (Peters, 1971).

Several conclusions can be drawn from the findings of research using the subjective age measures:

1. The majority of elderly persons deny their age and their being old. Moreover, they have a strong tendency to see themselves as considerably younger than the age reference group they belong to on the basis of their chronological age (Blau, 1956, 1973; Peters, 1971; Rosow, 1967, 1974).

2. The self-identification with a younger group varies between cohorts on the basis of variables such as social class (Bengston et al., 1977; Peters, 1971; Rosow, 1967).

This is also confirmed by McTavish's (1971) finding that individuals of higher socio-economic status hold less negative views of aging. (This implies that education also is relevant to self-perceived age).

3. Women are more sensitive to the negative stereotypes associated with the old and elderly, and tend to see their age differently from their male cohort counterparts (Bengston et al., 1977; Peters, 1971).

4. Loss of critical roles and status also has a differential effect on subjective age perception (Rosow, 1967; Peters, 1971). In this context, Neugarten (1977) suggests that especially "off-schedule" crises causing adaptational problems bring about change in the subjective perception of age.

Overall, it is important to realize the role that the strong youth orientation in the United States has on the subjective age perception of many older citizens. Rosow (1974) stresses that the socialization process of the elderly suffers greatly from this rather extreme youth orientation and that it is disfunctional in nature. McTavish (1971) confirms the finding that American society holds many negative stereotypes associated with aging, and that the elderly accept these negative stereotypes to an even greater extent than younger persons. It is therefore not surprising that these perceptions affect the self-imagery of the elderly and

that an even stronger youth orientation takes place with advancing age.

A unique study of subjective age and its relation to attitudes in society is reported by Bengston and Cutler (1976). They had their respondents, in a survey of political concern, identify themselves through alternative age reference groupings based on broad age categories of 18-35, 36-59, and 60+. Their findings clearly indicated a more youthful self-image with an increase in chronological age. In addition they found that those who perceived themselves to be 36-59 had different political attitudes (i.e., less traditional) than those who perceived themselves to be 60+.

In the words of Bengston and Cutler, while discussing respondents belonging to a chronological age group of 60+ "....the variable of subjective identification indicates that this group is not homogeneous with respect to a variety of social, political, and economic attitudes and perceptions" (Bengston and Cutler, 1976, p. 154).

Other research with subjective age indicates that it is related to subjective well-being (life satisfaction or morale) and self-confidence (Bengston et al., 1977; Peters, 1971). Moreover Zola (1962) reports that subjective age is not always strongly related to chronological age.

From these commentaries it becomes clear and self-evident that self-perceived changes and self-images can be

expected to be more related to subjective age (which some also call "identity age") than to chronological age (Peters, 1971).

An important implication of this is that one can hypothesize social interaction variables, such as opinion leadership, life-satisfaction, self-confidence, as well as life styles, to be more related to subjective age than to chronological age. If evidence indicates this to be so, then such a finding should be of great interest to marketers and could be of importance in the consideration of market strategies.

Personal Age. Personal age is a different type of self-perceived age. While it is also subjective in nature, it is based on a different concept than the subjective age measure (Kastenbaum et al., 1972).

Personal age is more of a self report by an individual on his/her perception of how old he/she seems to be in terms of units of years. An absolute number of years is given by the individual for his/her self-perceived age in four age dimensions. These self-perceived age dimensions are: (1) feel-age (how old he/she feels), (2) look-age (how old he/she looks), (3) do-age (how he/she does things according to a certain age), and (4) interests-age (how his/her interests are like a person of a certain age).

In addition to responding to questions relating to the four age dimensions, respondents are also required to

answer questions dealing with the individual's feelings about age in general and how these four age dimensions compare with the respondent's actual chronological age.

While Kastenbaum's work on personal age is the conceptual cornerstone for the present study, its measurement approach is problematic for marketing studies. In its present format, it requires lengthy personal interviews, and for that reason it does not lend itself to marketing oriented survey research. All this does not take away from its importance and the insights it provides into the nature of self-perceived age.

Other-Perceived Age. This perceived age measure is concerned with the subjective evaluation of how others evaluate an individual's age. This measure is especially appropriate for examining stereotyping of age groupings and is largely based on perceived physical looks and the perceived life style of others (Lawrence, 1974).

This type of measure is not mentioned in the marketing literature. However, it might be useful as a device that could provide insight about the nature and importance of age stereotyping in our society.

Personality and Personality Traits

While there is disagreement among social scientists as to what exactly personality is, overall the consensus seems to be that we can think of personality as those enduring

and consistent traits or factors that affect the way in which an individual deals with his immediate environment (Kassarjian, 1971; Schiffman, 1975).

There are a number of approaches to personality theory. Predominant among them is psychoanalytic theory, but psychoanalytic theory is not used too much in consumer research, except by motivational researchers. The probable reason for this is the problem of describing a comprehensive picture of an individual's "character" as a member of a social grouping. On the other hand, a different approach to personality theory, trait (or factor) theory, shows more promise, since it emphasizes classificantion and measurement of specific predispositional attributions called traits. Traits can also be considered individual difference variables (Schiffman and Kanuk, 1978; Engel et al., 1978). Furthermore trait factor theory is quantitatively oriented, unlike the psychoanalytic approach to personality (which is qualitative in nature), and this makes it more attractive to consumer research. When totalled, the personality traits form a personality profile (Schiffman, 1975).

Since many theorists believe that personality and the environment interact to shape behavior and that a set of personality characteristics (traits) can be viewed as moderator variables that influence behavior, consumer researchers have devoted much effort towards isolating and applying

selective personality scales (Engel et al., 1978). These scales measure specific characteristics that, when included in an a priori hypothesis that stipulates a proposed relationship between the traits under study and a specific variable, might provide insight into consumer behavior (Schiffman and Kanuk, 1978).

For these reasons, a selected number of personality traits were evaluated and included in this dissertation.

The next section will review the specific traits considered.

Error Tolerance

The perceived risk construct has seen much attention since its introduction by Bauer in 1960. Bauer pointed out in his article that perceived risk is "subjective" rather than "objective" and influences consumer decision making; that is, individuals "respond to what they perceive, and not necessarily to what is" (Bauer, 1960, p. 395). After Bauer introduced the concept it was further defined and it is best known today as a function of uncertainty and consequences (Cox, 1967; Cunningham, 1967).

There are a number of ways in which perceived risk has been operationalized and scales have been developed, but of special relevance here is the operationalization of perceived risk by Schiffman (1971a) for his doctoral thesis. He developed a new perceived-risk scale, named "perceived error tolerance," that he used in studying an elderly

consumer population. This scale was found to be relevant within the elderly consumer population. It measures the risk perception of consumers in a buying or shopping situation. Schiffman's (1971a) "perceived error tolerance" measure evaluates consumers' readiness to make one of two types of decision errors in their purchasing behavior (a Type I or Type II error). A Type I error is a predisposition or tolerance for including negative outcomes (bad product choices) in order to maximize the likelihood of achieving positive outcomes. On the other hand, a Type II error is a tolerance for excluding positive outcomes (satisfying product choices) so as to limit the chance of including negative outcomes. Consumers willing to make a Type I error (i.e., try out a new product when it first comes out) are low-risk perceivers, while those who prefer a Type II error (i.e., wait and learn how good the product is before trying it) are high risk perceivers. Schiffman's (1972a) findings indicate that error tolerance in terms of perceived risk was inversely related to new product trial and that, therefore, innovators could be said to be low-risk takers.

In the context of this dissertation a lower perceived age might be related to a "better" self image as a part of a young age identity in a society that favors youth, and this could manifest itself in a willingness to accept risks and be a low-risk perceiver.

Venturesomeness

Perceived risk seems to be a trait associated with innovativeness, and the study of innovators is of great interest to marketing scholars and practitioners. Most of the studies dealing with that subject matter have attempted to identify the individual characteristics or personality traits which help separate innovators from noninnovators (Jain and Etgar, 1977).

Among the traits identified as having a relation to innovativeness is venturesomeness, since research has consistently found that venturesome consumers tend to be innovators (Schiffman and Kanuk, 1978).

Venturesomeness can be said to be a broad-based measure of a consumer's willingness to take risks in trying new and different things (Jain and Etgar, 1977). From this definition the close relationship of venturesomeness and perceived error tolerance or perceived risk is evident. The definition also shows why venturesomeness is such a typical innovator trait.

Overall, it can be said, therefore, that consumers who have highly positive scores on a venturesomeness scale are probably innovators, while laggards or noninnovators tend to score negatively on this trait. Thus, venturesomeness might serve as an indicator of actual innovative behavior.

Venturesomeness reflects an individual's self image, to a certain extent, and a person who has a good image of

himself might be more venturesome. It would therefore not be surprising if a person with a low perceived age also tends to be venturesome.

Self-Confidence

This important psychological trait is defined by Bauer (1970, p. 256) as "a personality trait that refers to a person's perception of his ability to perform a wide range of judgement tasks with which he is confronted." Another definition of this variable, which shows its relevance to this dissertational study, is by Barach (1969, p. 315), who defined self-confidence as "a measure of the confidence a person has in himself and his risk-handling ability." Summers (1970) and Reynolds and Darden (1971) found there was a relationship between self-confidence and opinion leadership. According to Summers, this relationship exists since in order to function as an opinion leader, one must have confidence in oneself and in one's ideas. This brings forth the speculation that self-confidence and a young age-oriented self-image might be related concepts. That such a relationship is plausible is confirmed by Peters (1971) reporting on a positive relationship between high self-confidence and subjective age or youthfulness.

In consumer behavior research, the self-confidence trait has been operationalized by Reynolds and Darden (1971) who found this trait to be a relevant characteristic of innovators.

An interesting alternative view of self-confidence is proposed by Newman and Newman (1979), in their discussion of the last stage of the life cycle. They stress the problem faced by individuals who in this last stage are inevitably vulnerable to some degree of discouragement about the limits of their accomplishment.

As Newman and Newman (1979) point out, it is necessary to have the capacity to incorporate certain areas of failure, crisis, and disappointment into one's self-image without being crushed by a sense of inadequacy. One must be able to take pride in past achievements, even if these achievements were not the greatest. According to Newman and Newman (1979) there are two major ways to cope with disappointment: the first is to become extremely depressed and resign oneself to a future of unhappiness; the second is to respond by becoming rigidly self-confident. For example, older adults see their own lives as examples for younger people and reject any implication of failure. In order to protect their self-image they reject all doubt and present an impression of total confidence.

This different interpretation of self-confidence might mean that among an elderly population there is not necessarily a connection between measured self-confidence and innovative characteristics. On the other hand a strong relation between self-confidence and life satisfaction (or morale) could be expected.

Dogmatism

Like the traits discussed before, dogmatism is another relevant personality characteristic when considering innovators.

In his study of personality and innovation proneness, Jacoby (1971) states that the "personality variable of dogmatism provides a sound theoretical and empirical foundation for predicting new product acceptance" (p. 244). This is understandable because dogmatism is the trait that measures the amount of rigidity (or open mindedness) a person has toward the unfamiliar and toward information contrary to that person's established beliefs (Rokeach, 1960).

A consumer who is low in dogmatism (i.e., who is open minded) tends to approach new or unfamiliar products (or brands) with considerable openness, with little anxiety, and feels comfortable about them. In contrast the highly dogmatic (closed minded) consumer feels so threatened by new products that this individual will put off purchases and is, therefore, a noninnovator (Schiffman and Kanuk, 1978).

Although Rokeach (1960) rightly gained fame as the developer of the Rokeach dogmatism scale which consists of 66 attitude statements, there are a few problems with his operationalization. The major and crucial problem is the size of the scale. Even the short-form dogmatism scale developed by Troldahl and Powell (1965) suffers from excessive size (20 items).

A very short form (a four-item scale) of dogmatism is available; it is the scale developed by Lane (1955) which uses only four psychographic type attitude statements and has a reported high reliability and validity. This dogmatism (or authoritarian) scale relates to values of traditionality held by many in American society.

There is not much research reported dealing with dogmatism among the elderly. However, Angleitner (1976) reports that his study of dogmatism among the elderly, in the Bonn Longitudinal Study of Aging, using various scales of dogmatism, indicated that prior findings of researchers were confirmed concerning an increase in dogmatism with advancing age.

There are no studies of dogmatism among the elderly available in the marketing literature, yet it seems reasonable to expect that rigidity in terms of closed mindedness will prevent innovativeness among the elderly, as it seems to do among the population in general. As Jacoby (1971) found, high dogmatics should be less likely than low dogmatics to try new products, and that should not be dependent on age. On the other hand, age might have an influence on the occurrence of dogmatism. Angleitner's (1976) findings indicate that this is the case for chronological age; an increase in dogmatism occurs with an increase in chronological age. Also, Bengston and Cutler (1976) found that subjective age is related with liberal and traditional

positions taken in life. Subjective age identification at the older end of the life cycle (a self-perception of age as old) was associated with more traditional attitudes held as well as a more pessimistic attitude towards life.

Dogmatism is, therefore, probably not only related to subjective age, but also to feelings of satisfaction with life.

Social Traits

While the traits discussed so far are part of an individual's personality, there are also traits or human characteristics that are indicative of a person's social interaction and functioning in society. These traits are indicative of how an individual behaves and perceives him/herself as part of a social system. According to the social psychological viewpoint that holds that social variables are the most important determinants in shaping personality (Engel et al., 1978), we can consider such traits as important variables when evaluating self-perceptions and interpersonal orientations.

For this dissertation two social characteristics (opinion leadership and life satisfaction) were considered; these traits were viewed as social variables which were probably related to age factors and also as traits relevant to innovativeness.

Opinion Leadership

This variable relates to the flow of informal and interpersonal communication. Informal communication is to some extent concerned with the identification and measurement of individuals referred to as "opinion leaders." Katz and Lazersfeld (1955) in their benchmark study of opinion leadership suggested that opinion leaders serve informal rather than formal groups, and that they guide opinions and opinion change rather than lead actively and directly. On the other hand, Summers (1971), Robertson (1971), Reynolds and Darden (1971), and Schiffman and Gaccione (1974) indicate that opinion leadership is relative and that the opinion leader may be influenced just as much as his followers. From this, it is evident that many marketers have shifted their orientation toward the opinion leadership concept and many of them have adopted a new multistep flow of communication theory (Schiffman and Kanuk, 1978; Engel et al., 1978), rather than the more limited two-step flow of communication theory originally proposed by Katz and Lazersfeld (1955).

The usual methods employed to identify opinion leaders are as follows (Rogers and Schoemaker, 1971):

1. Self-designating method--this method relies on self-report by a respondent about his opinion leadership.
2. Sociometric method--this method relies on respondent identification of members of a social group that they have gone to for information or advice on a product category.

3. Key-informant technique--expert key informants in a social system are asked to identify opinion leaders.
4. Objective method--this method artificially creates opinion leaders and measures their effect.

Because of the great difficulties in interviewing an entire social system, the method used most often, especially in surveys, is the self-designating method.

As far as the actual measurement of opinion leadership is concerned, there are a few opinion leadership scales available. One of the most often used scales, which has been studied specifically for its reliability and validity, is a simple self-report identification measure of one item. This measure is reported to be high in reliability and validity (Corey, 1971; Bellenger and Hirshman, 1977).

It is important to marketers to identify opinion leaders, mainly because they are perceived to be the main generators of word-of-mouth activity, and are considered more likely to be innovators. For these reasons marketers have devoted much effort to the study of opinion leadership. One of the methods used to study them is identification of personality characteristics strongly related to opinion leadership.

Traits found to be related to opinion leadership are self-confidence, gregariousness, perceived error tolerance, and venturesomeness (Summers, 1970; Schiffman, 1972a). However, there are other reports of studies that found little

relationship between certain personality traits (i.e., sociability, self-acceptance and socialization) and opinion leadership (Robertson and Myers, 1969).

There are certain attitudes towards products which are thought to be typical of the opinion leaders of these products. For example, opinion leaders perceive themselves as being more interested in products (Summers, 1970; Corey, 1971), they tend to expose themselves more to information sources (Corey, 1971; Schiffman, 1972b), and they tend to be better educated and have greater income and higher occupational status (Corey, 1971; Summers, 1970). There is some inconsistency on the subject of age. Only chronological age has been studied in relation to opinion leadership and some research indicates no correlation with chronological age (Corey, 1971), perhaps since a non-age oriented product (automobiles) was considered. On the other hand, when an age sensitive product (fashion clothing) was studied, the finding was that opinion leaders tended to be younger (Summers, 1970). There are no studies relating the opinion leadership concept with subjective age. This dissertation is a first effort in that direction.

There are a few studies of opinion leadership among the elderly (Schiffman, 1971a and Fela, 1977) and most of the findings, as reported among the population at large, seem to hold. What is not clear from most of these studies is if opinion leadership is general or product specific. The

evidence is contradictory and requires further study. There are excellent reviews and profiles of opinion leaders to be found in consumer behavior textbooks such as that by Schiffman and Kanuk (1978), and Engel et al. (1978).

To conclude, a number of traits can be said to be related to the opinion leader concept. These traits include error tolerance, venturesomeness, and self-confidence. Other concepts thought to be related to opinion leadership are information seeking, brand trying and switching, size of evoked set, and social integration.

In terms of age it can be expected that for products that are age image sensitive, opinion leaders are younger in terms of both chronological and self-perceived age.

Life Satisfaction

A social variable that has been neglected by marketing is life satisfaction or, as it has also been termed, "subjective well-being" or "morale" (Bengston et al., 1977; Larson, 1978). When studying an elderly population, this social trait has special meaning, since its measurement was developed especially for such a population.

The major scales used to measure life satisfaction include dimensions of morale and adjustment. They have been used over a relatively long period of time and are both highly reliable and valid (Larson, 1978). The scales used most often are the Life Satisfaction Index-A (LSI-A), which contains 20 psychographic attitude statements developed by Neugarten et al. (1961), and a revised shorter version

known as the Life Satisfaction Index-Z. (The LSI-Z contains 13 attitude statements developed by Wood et al., 1969).

When one considers a major review article of life satisfaction, it is evident that this social trait is not so new and is relevant to a study of the elderly. In that article the reviewer states that "a great deal of research has been done over the past 30 years on the life satisfaction, morale, and contentment of people over 60" (Larson, 1978, p. 109).

Correlates of life satisfaction include variables such as health, socioeconomic status, income and education, residence, activity, and social interaction (Blau, 1973; Larson 1978).

Of special interest are the correlates found for life satisfaction and age. When factors such as health, financial resources, widowhood, and loss of friends are controlled for, no significant relationship between chronological age and life satisfaction is found (Edwards and Klemmack, 1973; Larson, 1978). On the other hand, subjective age is a correlate of life satisfaction and morale (Peters, 1971; Blau, 1956, 1973; Bengston et al., 1977).

The adoption of the life satisfaction measure could provide marketers with a ready-made, reliable, and valid measure of selected dimensions of self-perceived image which might be reflective of a consumer's consumption and purchasing behavior.

The life satisfaction trait expresses a dimension of self-perceived well-being which is probably related to a number of other relevant consumer traits. One might also venture to guess that a well adjusted person with a high morale, especially with innovator traits, is likely to be subjectively young.

Social Interaction and Integration

Social interaction in marketing refers to concepts such as flow of communication, and to topics such as information-seeking and exposure to the mass media. It also includes social participation, which deals with social networks and community involvement. Aspects of social interaction and integration that do not deal directly with the mass media have not received much attention from marketers, except as part of studies dealing with the issue of the diffusion of innovations (Schiffman 1971a; Summers, 1970). Social interaction with the world surrounding the consumer is highly relevant in terms of contacts and perceptions of reference groups, the mass media, and word-of-mouth activity. When social interaction variables among the elderly are considered, it is important to keep in mind that this group is more sensitive to patterns of social integration than younger populations, especially in terms of the happiness and life-adjustment it can provide (Bengston et al., 1977).

Among the elderly, gender makes a difference in the quality and type of social interaction and integration experienced. For example, older women seem to be engaged in community-level organizations and activities, whereas greater political activity is expected among men (Bengston et al., 1977).

The overall integration concept is evaluated through a variety of measures such as family contacts, contacts with friends and neighbors, telephone usage, club membership, and the mass-media variables that are measured in terms of hours of television viewing, radio listening, and reading (Graney and Graney, 1974; Summers, 1970; Schiffman and Kanuk, 1978).

It is self-evident that knowledge about mass-media usage is considered crucial by the advertising industry and that much research effort is devoted to studying media patterns. The very existence of companies such as TGI and the Nielsen organization depends on it. However, not too much is known about the media habits of the elderly beyond the relative sparse information discussed in Chapter II.

Demographic Attributes

The marketing literature does not yield many studies that relate to specific demographic characteristics among elderly consumers. The exceptions are studies involved with the income variable (see Chapter II) and a few studies involved with demographics such as age (Gelb, 1978) and retirees (French and Crask, 1977). Yet, there is reason to

believe that some demographic variables could influence an individual's self-image, especially his or her subjective age, self-image or age identity (Peters, 1971).

Variables of this nature would include the following:

1. Education (easily indicated through a self-report measure) is not only important in issues related to social class, but it is important in issues related to a person's involvement and integration with the rest of the world and, in that way, with that person's life satisfaction (Coleman and Neugarten, 1971). Education is also crucial in terms of its effect on the aging patterns of an individual (Thomae, 1976a). Education is also among the correlates of subjective age; the higher the education, more likely subjective age will be low (Peters, 1971; Rosow, 1967).

2. Employment (measured through self-report) is also indicative of various forms of social interaction and integration. Changes in employment status, such as retirement, can have a great impact on a person's life, and can be considered among the major changes taking place in an individual's life patterns. It is often considered among the losses that take place in critical roles and statuses. As such, employment is a variable that is considered a correlate of age variables. Subjective age in this context is influenced negatively by retirement and would cause a

person to have an older perception of self (Rosow, 1967, 1974; Blau, 1973; Peters, 1971).

3. Family (measurable through self-reported number of children and grandchildren) in an elderly population probably relates to the opportunity to engage in social integration. Dependence on family contact is important to the elderly. Older women especially tend to see their families more than older men. Furthermore, older women have more emotional involvement and experience than older men, not only in family relationships, but also in their relationships with friends and neighbors (Bengston et al., 1977). In addition, family and age are related to each other. An increase in chronological age might mean a larger family since there is more time to have grandchildren. Because of this, a large progeny might bring with itself an identification as being old and therefore it would not be surprising if a small family (progeny) brought with itself a self-identification as being young. In that way self-perceived age might be related with a family variable.

Product-Oriented Variables

Product-oriented variables such as product importance, product liking, frequency of product usage, brand-switching, and evoked set size are measurable through self report. In a consumer research context, these variables are often considered in terms of their relation to general characteristics such as innovativeness.

In this dissertational study, a general thought behind the selection of variables to be studied for the evaluation of the new age variable (cognitive reference age) has been that an individual with a low self-perceived age is more likely to be an innovator for an age-sensitive product.

Since this dissertation is the first study that considers the impact and/or influence of subjective age upon product-related consumer behavior, this discussion will consider the relation between product variables and innovators as a relevant issue. Innovators are more liable to be interested in the product class and consider it important. They tend to like the product class more and use the product more frequently (Dichter, 1966; Corey, 1971; Schiffman and Kanuk, 1978).

In addition, innovators can be expected to be brand switchers (Jacoby, 1971; Uhl et al., 1970). They have probably a larger evoked set and, therefore, consider more brand choices (Narayana and Markin, 1975; Houston and Rothschild, 1977). For these reasons, it is suggested that consumers who have a low self-perceived age (in this study, a low cognitive reference age) will probably rate the product class as more important, like it more, use it more, switch brands more often, and will have a larger evoked set.

In terms of chronological age, the 1978 TGI reports on a decrease in the use of shampoos with increasing age.

Fewer elderly women over 65 years of age (chronological age) use shampoo than women between ages 55 and 64 (TGI 1978).

Since it may be expected that opinion leadership will be related to chronological age for an age-sensitive product such as shampoo (less opinion leadership the higher the chronological age), it can also be expected that less brand switching will take place with advancing age.

Conclusion

In this chapter the marketing and related literature pertaining to patterns of aging, the use of variables, and the key independent variables used in the dissertation field study (to be described later) have been reviewed. This review supports the need for further research of the elderly consumer in order to uncover more information concerning the patterns of aging in the consumer. In addition, the effects of these patterns of aging on age perception and consumption are in need of investigation. This is especially true if marketers and policy-makers want to understand and communicate better with the aged. The next chapter presents the research model and field study design.

CHAPTER IV

RESEARCH MODEL AND FIELD DESIGN

This chapter examines the following facets of the field survey: (1) the research model, (2) research hypotheses, (3) field study design and procedures, (4) definition and measurement of variables, and (5) data analysis approaches.

Research Model (Study Flow Chart)

Preliminary to the consideration of the proposed research hypotheses, a simple study flow chart is depicted in Figure IV-1 which shows the major relationships studied.

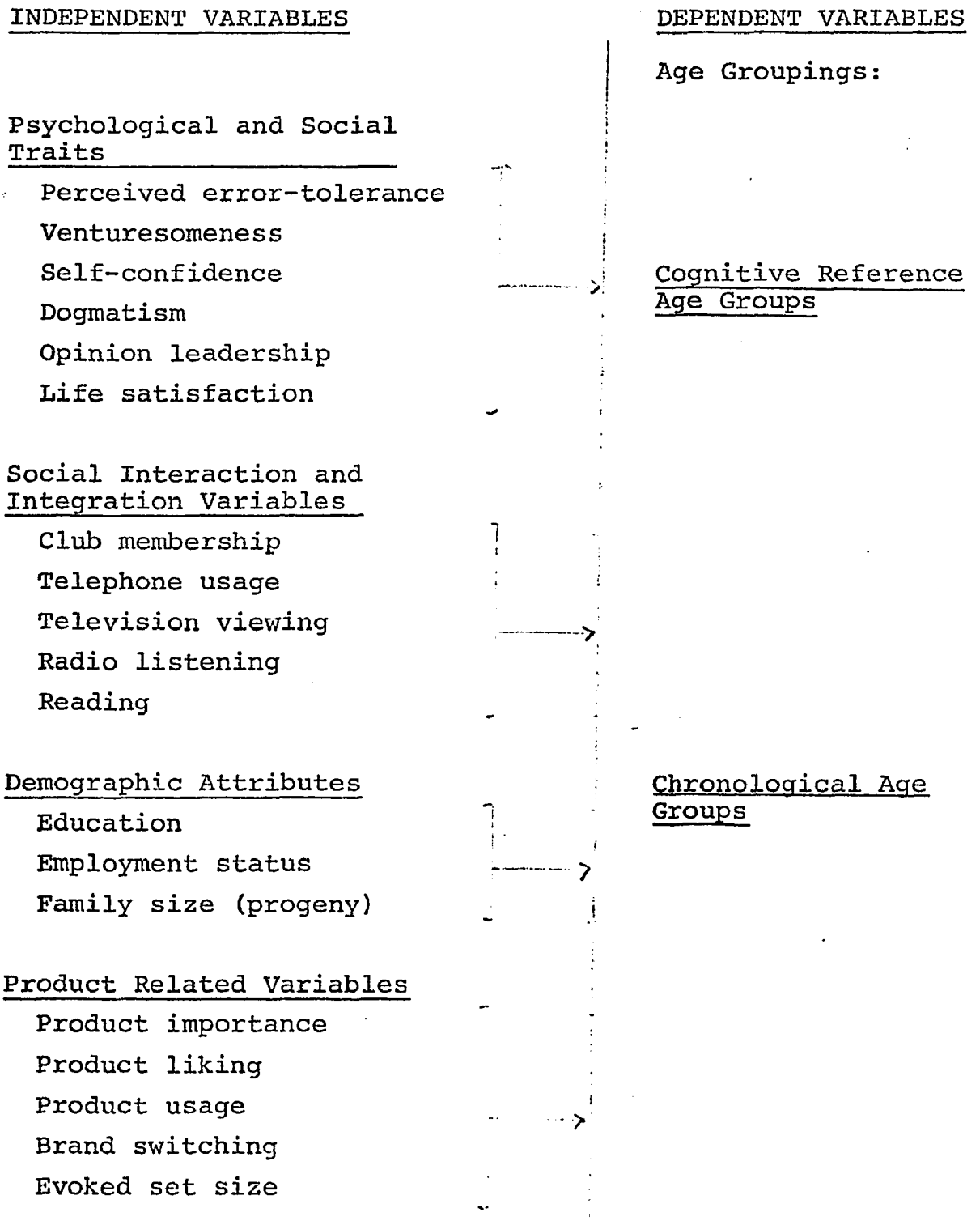
The age variables (cognitive reference age and chronological age groups) are the major dependent variables (on the right side of the flow chart) evaluated in this study. These two dependent variables will be separately evaluated and compared.

The cognitive reference age groups are in two categories:

1. The "early" cognitive reference age group (respondents with a cognitive reference age less than 55 years of age); and

FIGURE IV-1

RESEARCH FLOW CHART



2. The "late" cognitive reference age group (respondents with a cognitive reference age of 55 years of age and older).

The chronological age groups are also in two categories:

1. The "early" chronological age group (respondents with a chronological age ranging from 55 to 64 years of age); and
2. The "late" chronological age group (respondents with a chronological age of 65 years of age and older).

The independent variables related to these age variables (on the left side of the flow chart) consist of characteristics and behavior patterns thought to be related to the age (self-perceived and chronological) of the consumers.

Specifically, the independent variables examined are listed on the left side of the research model depicted in Figure IV-1.

Research Hypotheses

The research hypotheses reflect the underlying belief that cognitive reference age and chronological age have the same directionality. It is, therefore, possible to consider the hypothesis statements for both kinds (cognitive reference age and chronological age) of age group, because while the age types are different, the direction

of their association with the independent variables is thought to be similar. As a consequence, the hypotheses are dual in nature for both kinds of age grouping.

The hypotheses are stated in terms of early age group (describing both early cognitive reference age group and early chronological age group) and late age group (describing both late cognitive reference age group and late chronological age group).

On the basis of the above, the following hypotheses were developed:

Personality Trait Hypotheses

Respondents in the early age group will be more error-tolerant, more venturesome, more self-confident, and less dogmatic than respondents in the late age group.

Social Trait Hypotheses

Respondents in the early age group will more likely be opinion leaders, and will indicate greater life satisfaction than respondents in the late age group.

Social Interaction Hypotheses

Respondents in the early age group will less likely be club members, and will use the telephone more often than respondents in the late age group.

Media Hypotheses

Respondents in the early age group will view less television, will listen to less radio, and will read less than respondents in the late age group.

Demographic Hypotheses

Respondents in the early age group will have more formal education, will have a greater incidence of employment, and will be members of a smaller family than respondents in the late age group.

Product Hypotheses

Respondents in the early age group will rate the product class studied as more important and more enjoyable; they will be more frequent users, switch brands more often, and have a larger evoked set than respondents in the late age group.

An Overall or Grand Null Hypothesis

A basic line of thought behind the cognitive reference age concept is that it taps different dimensions of age than the chronological age variable. This implies that the perception of age can be young-oriented without depending on an individual being in an old-chronological-age category. This notion can be tested through the following hypothesis:

Respondents who are chronologically between 55 and 64 years of age and whose cognitive reference age is less than 55 years of age will not differ from respondents who are chronologically 65 years of age and older, and whose cognitive reference age is less than 55 years of age.

Field Study Design and Procedures

This section explains the methodology employed to test the hypotheses. The following topics in relation to the field study are described: (1) selection and description of the respondents, (2) product selection, (3) field survey procedures, and (4) pilot study.

Selection and Description of Respondents

The population studied consisted of women who resided in the New York Metropolitan area at the time of the survey (May/June 1978).

Respondents were contacted by student interviewers who approached "elderly" women in the parks, on the streets, in homes for the elderly, in churches, clubs, and in their homes.

In this manner 477 respondents were interviewed; the chronological age of these respondents ranged from a low of 43 years to a high of 90 years.

For the purpose of excluding the race variable from the study, only Caucasian respondents were to be considered. In the same manner the use of only women excluded the sex variable. In addition, only shampoo users were considered for the study. Because of these criteria 61 (12.8 percent) of the original 477 respondents were not included in the analysis. An additional prior condition for inclusion into the sample involved age requirements. These age requirements were the following:

1. An exact statement of chronological age. This caused 42 respondents (8.8 percent) to be excluded from the sample. (Ten refused to indicate their chronological age; 18 indicated that their chronological age was in the fifties, 11 indicated the sixties, and three the seventies).

2. A response was required to all four questions that contained the age dimensions to be considered for cognitive age. In case one of these questions was not answered, the respondent was deleted from the sample.

Only eight of the respondents (1.7 percent) refused to answer questions relating to cognitive reference age. (To feel-age, one nonresponse; to look-age, five nonresponses; to do-age, one nonresponse, and to interests-age there were five nonresponses).

As an overall result of these requirements, the final sample studied consisted of 324 Caucasian women with a chronological age ranging from 55 to 90, and ranging in cognitive reference age from 30 to 85.

Product Selection

Shampoo was the product class selected for the study. One major reason for this selection was that shampoos are used by most women in the United States, no matter what their chronological age (TGI, 1978). In addition, shampoo has additional benefits for a study of the effects

of self-perceived age on consumption behavior. These major benefits are:

1. Shampoo is a cosmetic product with an age sensitive product image. This image is relevant to all four age dimensions: (a) feel-age--it provides a soft feeling to hair which is liable to make a person feel younger; (b) look-age--it causes women to look younger in their own eyes (e.g., a 1979 shampoo commercial stressing "you're too young to look old"); (c) do-age--as portrayed in commercials, shampooing is an activity intimately associated with women young in spirit and still young and glamorous; (d) interests-age--taking care of one's hair is seen to be among a younger woman's interests.

2. The use of shampoo is affected by age. According to the 1978 TGI, the lower the chronological age grouping (i.e., 65+, 55-64, 45-54) the greater the percentage of women that use shampoo, and the greater the frequency of use (the younger the women the heavier the use).

3. Shampoo is a product class with a large number of competing brands, which in actuality do not differ all that much from each other.

Field Survey Procedures

Personal interviews were conducted in the summer of 1978 by 39 junior and senior college students selected

by the researcher to serve as interviewers. All of the students selected were marketing majors who performed the interviews as the major project of a marketing research course. All student interviewers were provided with interviewer instructions, which provided detailed question-by-question instructions on how to administer the questionnaire. The student interviewers also participated in a pilot survey in order to familiarize them thoroughly with the interviewing procedures. Several class sessions were devoted to this preparation for the survey, and these various safeguards seem to have accounted for what was a relatively smoothly completed interviewing phase. All 477 interviews were completed within a three week period; the questionnaire itself took approximately 30 minutes to complete.

Within two weeks after the interviews were conducted one respondent out of every set of interviews conducted by a student was contacted to verify that the actual interview took place. Without exception, all respondents contacted confirmed being interviewed. Moreover, the majority of respondents contacted also stated that the interviewer was nice, and that they had enjoyed the interviewing process.

Pilot Study

Prior to the initiation of the field study, a pilot study was undertaken to test the questionnaire. This pilot test was conducted by junior and senior marketing students.

As the result of the interviews (a total of 100 elderly consumers were interviewed), the language of several questions was altered. The most important change centered around the set of statements used to measure opinion leadership.

Originally Reynolds and Darden's (1971) scale was used to measure opinion leadership, but from the pilot study it was learned that respondents reacted negatively to the repetitiveness of statements that form this scale.

Field Questionnaire

In addition to the issue of correct question construction, the strategy for the design of the questionnaire was based on the need to have all questions answered. Therefore, the decision was made to: (1) design a questionnaire that would be easy to conduct and that would facilitate conducting of the interview, (2) include as few open-ended questions as possible in order to avoid interviewing bias, (3) disassociate the survey from any particular big business connections, (4) explain that the survey is to be used for academic research, and (5) have a clear, plausible, and persuasive introductory letter identifying the interviewer to each interviewee as a college student.

The results of this strategic planning are the introductory letter and questionnaire reproduced in their entirety in Appendix I.

Definition and Measurement of Variables

In this section each of the variables is operationally defined.

1. Cognitive Reference Age - This variable is based on four questions to measure the four dimensions of self-perceived age.

An introductory statement is read by the interviewer to the respondent before the questions are asked:

> Most people seem to have other 'ages' besides their official or 'date of birth' age. The questions which follow have been developed to find out about your 'unofficial' age. Please specify which age group you FEEL you really belong to: twenties, thirties, forties, fifties, sixties, seventies, or eighties.

After having read the statement the four self-perceived age dimensions were evaluated as follows:

	20's	30's	40's	50's	60's	70's	80's
a. Feel-age I feel as though I am in my --	___	___	___	___	___	___	___
b. Look-age I look as though I am in my --	___	___	___	___	___	___	___
c. Do-age I do most things as though I were in my --	___	___	___	___	___	___	___
d. Interests-age My interests are mostly those of a person in her --	___	___	___	___	___	___	___

Each respondent's score was assigned a midpoint value (i.e., a response of '50's' was recoded to be '55') as is shown here:

The Cognitive Reference Age Measure

Age Dimensions	20's	30's	40's	50's	60's	70's	80's
Feel-age	25	35	45	55	65	75	85
Look-age	25	35	45	55	65	75	85
Do-age	25	35	45	55	65	75	85
Interests-age	25	35	45	55	65	75	85

This scoring method allows for the determination of a self-perceived age in numbers of years comparable to chronological age, while remaining subjective in nature.

The simple average of the four midpoint values of the age dimensions determines the cognitive reference age. If this simple average is not a whole number, the age given is rounded upwards.

2. Chronological Age - This variable was measured by the following question:

Please tell me now, what is your ACTUAL age? _____

The age-dimension questions asked prior to this question were probably of help in convincing the respondents to state their actual chronological age. This question format (open ended), according to Kerin and Peterson (1978), has the highest accuracy (92.4 percent) in reporting chronological age.

Weiss and Davis (1960) also report a high accuracy (90 percent) of responses to the open-ended question format

when they examined the same question. For these reasons the respondents in the study probably provided their true chronological age. (As was mentioned before in this dissertational study, 42 respondents were excluded from the sample population since they refused to provide their exact chronological age).

Independent Variables

Before discussing each of the independent variables and their scoring formats it is necessary to point out that the assumption was made that personality and social trait variables were distributed normally over the population, and these variables were categorized accordingly.

1. Perceived Error Tolerance was measured by the following question:

I-3 When shopping in a supermarket, do you prefer to:
   a. try a new brand of product when it first comes out
   b. wait and learn how good it is before trying it

Try it_____ Wait_____ Do not know_____

The question is an adaption from the one used by Schiffman (1971a) to measure the same variable. The selection of the response "try it" indicates a Type I error in terms of decision making. (A Type I error is conceived of as a predisposition or tolerance for including negative outcomes--in this case poor product choices--in order to maximize the likelihood of including positive outcomes). The

selection of the response "wait" is a Type II error. (A Type II error is a tolerance for excluding positive outcomes--here good product choices--in order to minimize the likelihood of including negative outcomes).

Each respondent's score for the perceived error tolerance dimension was categorized into two levels of error tolerance (high and low). First the score was established through assigning numerical values to the responses as follows:

Level	Response
Low	Wait
High	Try it

2. Venturesomeness was measured through eight attitude statements:

		Agree	Dis-agree	?
III- 2	I will try anything at least once.	____	____	____
III- 4	I feel self-conscious when I am first to wear a new fashion.	____	____	____
III-10	When my mind is made up, I never change it.	____	____	____
III-18	I enjoy browsing through new stores.	____	____	____
III-25	I like experimenting with new and different things.	____	____	____
III-29	I usually wait and see how other people like new brands before trying them.	____	____	____
III-38	I take a lot of interest in new products which can be used in household work.	____	____	____
III-39	Once I have made up my mind on a particular brand, I stick to it.	____	____	____

The questions are adaptions of the attitude statements used by Jain and Etgar (1977, p. 66) to measure the same variable.

Each respondent's score for the dimension of venturesomeness was determined by assigning numerical values to each of the three scale points (Agree = 1; Disagree = -1; ? = 0).

A simple addition of the numerical values of the eight attitude statements provided the total scores. The various levels of venturesomeness were determined through rescoring as follows:

Level	Total Score
Low	-8 through -3
Medium	-2 through 2
High	3 through 8

3. Self-confidence was measured through the following five statements:

		Agree	Disagree	?
III- 1	I am more independent than most people.	____	____	____
III- 5	I think I have a lot of personal ability	____	____	____
III-11	I think I have more self-confidence than most people	____	____	____
III-23	I like to be considered a leader.	____	____	____
III-38	I take a lot of interest in new products which can be used in household work.	____	____	____

The questions are from the self-confidence scale developed by Reynolds and Darden (1971), which, according to them, was tested for reliability and construct validity.

Each respondent's score for the self-confidence dimension was determined through the designation of numerical values to each of the three scale points (Agree = 1; Disagree = -1; ? = 0).

A simple addition of these numerical values provided the total scores. The levels of self-confidence are then determined through rescoring in the following manner:

Level	Total Score
Low	-5 through 0
High	1 through 5

4. Dogmatism was measured by four questions:

		Agree	Disagree	?
III- 6	A few strong leaders could make this country better than all the laws and talk.	_____	_____	_____
III- 9	People sometimes say that an insult to your honor should not be forgotten. Do you agree or disagree with that?	_____	_____	_____
III-17	What young people need most of all is strict discipline by their parents.	_____	_____	_____
III-26	Most people who don't get ahead just don't have enough will power.	_____	_____	_____

The questions are taken from the four-item F scale developed by Lane (1955) and is used to measure authoritarian dogmatism.

Scores for the dimension of dogmatism were determined by assigning numerical values to each of the three scale points (Agree = 1; Disagree = -1; ? = 0).

A simple addition of the numerical values of the four questions provided the total scores. On this basis two levels are considered (low and high).

Lane's (1955) scale is reported to have a coefficient of reproducibility (test-retest reliability) of .904 and also to have construct validity.

5. Opinion Leadership - To operationalize this interpersonal social trait variable, which was adapted from the Katz and Lazersfeld (1955) measure, the following question was used:

		Agree	Disagree	?
III-3	My friends and neighbors often ask my advice on grooming and cosmetic products.	_____	_____	_____

The method for determining respondent opinion leadership is the self-designating technique. This technique is most often used when brevity is needed and an entire social system cannot be surveyed. In this instance, Question III-3 evaluated general opinion leadership in grooming and cosmetic products.

The scoring method used involved assigning opinion leadership status as follows:

Status of Opinion Leadership	Response
Non-opinion leadership	Disagree and don't know
Opinion leadership	Agree

Corey (1971) established the criterion-related validity of this measure, using criteria such as topic area involvement, awareness of new developments in the topic area, media exposure, and various demographics (including chronological age).

Myers and Robertson (1974) reported this single opinion leadership scale to have high test-retest correlations (after a nine-month period), which leads to the acceptance of the scale as a reasonable, reliable and valid one.

6. Life-Satisfaction was measured through the following 13 statements:

		Agree	Dis-agree	?
III- 7	These are the best years of my life.	_____	_____	_____
III-12	As I look back on my life I am fairly well satisfied.	_____	_____	_____
III-14	The things I do are as interesting to me as they ever were.	_____	_____	_____
III-15	This is the dreariest time of my life.	_____	_____	_____

		Agree	Dis-agree	?
III-16	I have gotten more of the breaks in life than most of the people I know.	_____	_____	_____
III-21	Most of the things I do are boring or monotonous.	_____	_____	_____
III-24	As I grow older things seem better than I thought they would be.	_____	_____	_____
III-28	Compared to other people I get down in the dumps too often.	_____	_____	_____
III-30	I have made plans for things I'll be doing a month or a year from now.	_____	_____	_____
III-32	In spite of what people say the lot of the average man is getting worse, not better.	_____	_____	_____
III-33	I've gotten pretty much what I expected out of life.	_____	_____	_____
III-35	When I think back over my life, I didn't get most of the important things I wanted.	_____	_____	_____
III-40	I am just as happy as when I was younger.	_____	_____	_____

These questions are from the short form life-satisfaction scale developed by Wood et al., (1969).

Each respondent's score for the life-satisfaction dimension was determined by assigning numerical values to each of the three scale points (Agree = 1; Disagree = -1; ? = 0). Following the scoring instructions of Wood et al., (1969), a simple summation of the numerical values of these 13 questions provided the overall scores for life-satisfaction.

These summated overall scores were recoded in the following manner to indicate the three levels of life-satisfaction:

Level	Total Score
Low	- 13 through - 5
Medium	- 4 through 4
High	5 through 13

Larson (1978) reports this scale to be among the most often used scales in gerontological research and indicated that the scale can be considered reliable and valid.

7. The Social Interaction Variables measured consisted of club membership and telephone usage and were operationalized as follows:

a. Club Membership - this variable was determined by the following question:

IV-7A Do you belong to any clubs, civic groups, or other organizations?

Yes_____ No_____

Numerical values were assigned to each of the two responses as follows: Yes received a score of 1; no received a score of -1.

b. Telephone Usage - this social interaction variable was determined by the following question:

IV-6 About how many phone calls do you make and receive on an average day (like yesterday)?

Calls made_____ (number) Calls received_____ (number)

A simple average of telephone usage helped determine three levels of telephone usage (low, medium and high) for each respondent.

8. The Media Variables--television viewing, radio listening and reading--were operationalized as follows:

a. Television Viewing - One question was used to operationalize this media variable:

IV-1 About how many hours did you spend watching TV yesterday?

_____hours None_____

Two levels of television viewing were considered:

Low (two hours or less) and High (three hours or more)

b. Radio Listening - To operationalize this media variable one question was asked:

IV-2 About how many hours did you spend listening to the radio yesterday?

_____hours None_____

Levels of radio listening were determined in the following manner:

Low (two hours or less) and High (three hours or more)

c. Reading - Two questions were asked to operationalize this variable:

IV-3A About how many hours did you spend reading yesterday?

_____hours None_____

IV-3B About how many hours did you spend reading magazines and/or newspapers yesterday?

_____hours None_____

A simple average of the hours of reading in the two questions determined two levels of reading:

Low (two hours or less) and High (three hours or more)

9. Demographic Attributes measured consisted of education, employment status, and family size (progeny). They were operationalized and measured as follows:

a. Education was measured through one question:

VI-3

Completed grade school	_____	Completed or attended college	_____
Graduated from high school	_____	Completed or attended graduate school	_____
Graduated from trade school	_____		

Three levels of education were considered (grade school, high and trade school, and college or more).

b. Employment Status was operationalized through one question:

VI-2 Are you presently employed outside of the home?

Full time_____ Part time_____ Retired_____

c. Family Size was operationalized by the following question:

Children (how many)_____ Grandchildren (how many) _____

Family size was determined through a simple average of the number of children and grandchildren. Four different sizes of family (none, small, medium, and large) were determined through this average.

10. The Product Variables measured consisted of product class importance, product class enjoyment, frequency of product class usage, brandswitching, and evoked set size. They were operationalized and measured as follows:

a. Importance of the product class (shampoo) was determined through two questions:

II-2 Compared with other personal groom products, how important are shampoos to you?

Very important___ Important___ Unimportant___

II-3 How important is it to you to get the best brand of shampoos?

Very important___ Important___ Unimportant___

A combination of these two questions (averaging the numerical values assigned to the responses) provided two levels of importance (low and high).

b. Enjoyment of shampooing was determined by one question:

II-1b How much do you enjoy shampooing?

Enjoy very much___ Enjoy___ Neither enjoy nor dislike ___ Dislike___

c. Frequency of shampoo usage was determined by one question:

II-2a How often do you shampoo?

One or more times a day	___	One to three times a month	___
Two or three times a week	___	Less than once a month	___
Once a week	___	Never	___

Three levels of product use frequency were determined; a never response was not included in the analysis of the data.

d. Brandswitching was measured through a simple question:

II-5 How often do you switch brands of shampoo?

Often_____ Sometimes_____ Never_____

e. Evoked Set Size of the respondents, which could be considered a form of brand involvement (Howard and Sheth, 1968; Narayana and Markin, 1975) was operationalized through one question:

II-9A Which of the following brands of shampoo would you consider purchasing?

1. Afro Sheen	___	16. Reflon Flex	___
2. Alberto Balsam	___	17. Revlon-Milk Plus 6	___
3. Alberto VO5	___	18. Selsun Blue	___
4. Avon	___	19. Suave	___
5. Breck	___	20. Tame	___
6. Clairol-Colorfast Shampoo	___	21. Tegrin	___
7. Clairol-Herbal Essence	___	22. Wella Balsam	___
8. Clairol-Short and Sassy	___	23. Wella Care Herbal	___
9. Earth Born	___	24. White Rain	___
10. Halo	___	25. _____	
11. Head and Shoulders	___	26. _____	
12. Johnson's Baby Shampoo	___	27. _____	
13. L'Oreal	___	28. _____	
14. Prell	___	29. _____	
15. Protein 21	___	30. (Don't know)_____	

Each respondent's score for the size of evoked set for shampoo brands was determined in a very simple manner. The number of brands indicated formed the basis for the determination of evoked set size as follows:

Size of Evoked Set	Number of Brands Indicated
Small	1 - 3
Medium	4 - 6
Large	7 or more

The variables considered in the study were operationalized and described in this chapter. The next chapters (V and VI) report on the data analysis of the survey.

CHAPTER V

RESEARCH FINDINGS: TEST OF HYPOTHESES

This chapter examines the research findings concerning the test of the hypotheses suggested in the previous chapter. Chapter VI will consider discriminant models developed for the two types of age groupings (cognitive reference age and chronological age).

Before examining the research findings pertaining to the hypotheses, a profile of respondents is considered together with a discussion of some new variables that were developed during this study. These new variables are based on responses to attitude statements and were found through factor analysis of the attitude statements. The assessment of reliability and validity will be discussed after the evaluation of the results of hypothesis testing.

Questionnaire Responses

In Table V-1 the questionnaire data base for the survey is summarized. From the 585 questionnaires handed out to 39 interviewers, 477 questionnaires were returned within two weeks. Of these 477 respondents, only those meeting the preset qualifications (Caucasian respondents, an exact statement of chronological age, a chronological age of

TABLE V-1

SUMMARY PROFILE OF RESPONDENTS

Total Questionnaires:	Number	
Questionnaires handed out (39 interviewers)	585	
" returned	477	
Total Respondents:		
Respondents interviewed	477	
Caucasian	417	
Black (not analyzed)	39	
Other races (not analyzed)	7	
Non-shampoo users (not analyzed)	14	
Caucasian Respondents:	**Number**	**%**
Total Caucasian respondents	417	100.0
Respondents who refused to divulge their exact chronological age, and therefore were excluded from the data analysis	42	10.0
No response to the chronological age question	10	2.5
Responded as being in their fifties	18	4.5
" " " " " sixties	11	2.5
" " " " " seventies	3	.5
Respondents with a chronological age less than 55 years	46	11.0
Respondents not responding to one of the questions of the cognitive reference age scale	8	2.0
Respondents who stated their exact chronological age, had a chronological age of 55 years and older, responded to all cognitive reference age questions, and are therefore included in the data analysis	324	78.0

55 years or older, and a response to all four age-dimension questions) were included in the analysis of the data. As a result of these preset conditions the final usable sample consisted of 324 subjects.

Factor Analysis

Factor analysis was used as a screening device for the identification of potential new variables. To this end, the data based on the responses to the attitude statements (see Appendix I, questions III-1 through III-40) was factor analyzed. This analysis suggested several new sub-variables. Appendix II shows the factors and the scores for the attitude statements as produced by rotating factors. The new sub-variables were the following two:

1. Traditionality - This variable expresses a conservatively oriented value system that is determined through the following four attitude statements:

III- 6	A few strong leaders could make this country better than all the laws and talk.
III-17	What young people need most of all is strict discipline by their parents.
III-22	Liquor is a curse on American life.
III-32	In spite of what people say the lot of the average man is getting worse, not better.

On the basis of a summed score, three levels of traditionality were created (low, medium, and high). A reliability test indicated this scale to be viable for inclusion in further analysis (Guttman Lambda = .49).

Two of the attitude statements in this scale (III-6 and III-17) are also part of the dogmatism scale (a measure based on four attitude statements) and this explains the significant ($p \leq .001$) relationship of the new variable (traditionality) with dogmatism (Pearson pairwise correlation = .49).

2. Morale - A variable that expresses a sense of "well-being" or morale. This variable is measured through four attitude statements. These four statements are among the thirteen attitude statements that form the life-satisfaction scale.

The attitude statements that form the morale scale are:

III- 7 These are the best years of my life.

III-14 The things I do are as interesting to me as they ever were.

III-24 As I grow older things seem better than I thought they would be.

III-40 I am just as happy as when I was younger.

A summed score for this variable helped establish three levels of morale (low, medium, and high).

A reliability test indicated that this scale can be considered reliable (Guttman Lambda = .71).

Morale can be viewed as a subscale of life-satisfaction, and even though it contains only four of the 13 life-satisfaction attitude statements, it has a high correlation with life-satisfaction (Pearson correlation = .74; $p \lesssim .001$). On the basis of these findings (the high reliability and the strong correlation with life-satisfaction) it is feasible to evaluate the morale variable as a possible and suitable replacement for the more cumbersome life-satisfaction index.

Although these variables were not considered in the research flow chart (see Figure IV-1) and had, therefore, not been included in the a priori hypotheses, they will nonetheless be reported on alongside the variables they are most closely related to. These new variables were also considered in the discriminant analysis.

Hypothesis Testing

The hypotheses proposed in Chapter IV were tested through cross-tabulations and chi-square analysis. In this analysis the age groups were evaluated in terms of their relationship with the independent variables as discussed in Chapter IV.

The two types of age groups considered were cognitive reference age and chronological age.

1. Cognitive reference age groups consisted of
    a. The "early" cognitive reference age

group (respondents with a cognitive reference age less than 55 years of age).

b. The "late" cognitive reference age group (respondents with a cognitive reference age of 55 years of age and older).

2. Chronological age groups consisted of

a. The "early" chronological age group (respondents with a chronological age ranging from 55 to 64 years of age).

b. The "late" chronological age group (respondents with a chronological age of 65 years of age and older).

Cross-tabulation and chi-square analysis were employed to determine acceptance or rejection of the hypotheses. The level of significance used to determine acceptance (or rejection) was .05 or less. In the discussion of the various hypotheses the cross-tabulation table with the chi-square computed for that table, together with its level of significance, will be shown.

Personality Trait Hypotheses

The following hypotheses have been proposed:

> Respondents in the early age group will be more error-tolerant, more venturesome, more self-confident, and less dogmatic than respondents in the late age group.

The results of the hypothesis tests for each of the variables considered in the personality trait hypotheses follow.

1. Error-Tolerance

The proposition that error-tolerance and the age groups are related to each other is not supported by the data in Table V-2. According to Table V-2, there is no significant relationship between perceived error-tolerance and the different age groups and, therefore, the hypothesis was rejected.

2. Venturesomeness

The data in Table V-3 supports the proposition that respondents in the early age groups are more venturesome than those in the late age groups. The higher the venturesomeness, the greater the likelihood of respondents being in an early age group (for both cognitive reference age and chronological age).

In her discussion of old age in a changing society, Blau (1973) comments that her study results seem to indicate that elderly who perceive themselves as younger will more likely be innovative. The results of the analysis of the venturesomeness proposition confirm this conclusion.

3. Self-Confidence

Table V-4 presents the research findings relating the degree of self-confidence with age group. The data shown in Table V-4 indicate that the self-confidence

TABLE V-2

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' ERROR TOLERANCE SCORES

Level of Error Tolerance	Cognitive Reference Age Groups		
	Early %	Late %	Total %
Low	63.9	62.7	63.3
High	36.1	37.3	36.7
Total	100.0	100.0	100.0
Base	(166)	(150)	(316)

$X^2 = .01$; 1 d.f.; N.S.

Level of Error Tolerance	Chronological Age Groups		
	Early %	Late %	Total %
Low	60.9	66.2	63.3
High	39.1	33.8	36.7
Total	100.0	100.0	100.0
Base	(174)	(142)	(316)

$X^2 = .72$; 1 d.f.; N.S.

TABLE V-3

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' VENTURESOMENESS SCORES

Level of Venturesomeness	Cognitive Reference Age Groups		
	Early %	Late %	Total %
Low	7.8	7.0	7.4
Medium	45.8	62.0	53.7
High	46.4	31.0	38.9
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = 8.98$; 2 d.f.; $p < .01$

Level of Venturesomeness	Chronological Age Groups		
	Early %	Late %	Total %
Low	6.7	8.2	7.4
Medium	46.1	63.0	53.7
High	47.2	28.8	38.9
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = 11.53$; 2 d.f.; $p < .01$

TABLE V-4

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' SELF-CONFIDENCE SCORES

Level of Self-confidence	Cognitive Reference Age Groups Early %	Late %	Total %
Low	13.3	20.3	16.7
High	86.7	79.7	83.3
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = 2.37$; 1 d.f.; N.S.

Level of Self-confidence	Chronological Age Groups Early %	Late %	Total %
Low	16.9	16.4	16.7
High	83.1	83.6	83.3
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = .002$; 1 d.f.; N.S.

hypothesis has to be rejected for both age groups, since there is no relationship between self-confidence and the age groups.

4. Dogmatism

The proposition that early age groups will score lower in dogmatism is supported by the data presented in Table V-5. The respondents of the early age groups have a greater likelihood of scoring low on the dogmatism scale. This finding is supported for both the early cognitive reference age group and the early chronological age group.

In the Bonn Longitudinal Study of Aging, Angleitner (1976) found similar results concerning the relationship between dogmatism (or rigidity) and chronological age. Thus, the results of the present analysis confirmed the prior findings.

5. Traditionality

Table V-5 examines the relationship between traditionality and members of each age group. The results support an additional hypothesis that respondents in the early age groups are significantly lower in their traditionality than respondents belonging to the late age groups.

In their study of elderly voters, Bengston and Cutler (1976) found that the subjectively young respondents had a more liberal and less traditional outlook on life.

TABLE V-5

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' DOGMATISM SCORES

Level of Dogmatism	Cognitive Reference Age Groups		
	Early %	Late %	Total %
Low	32.5	20.9	26.9
High	67.5	79.1	73.1
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = 5.01$; 1 d.f.; $p \leq .05$

Level of Dogmatism	Chronological Age Groups		
	Early %	Late %	Total %
Low	34.3	17.8	26.9
High	65.7	82.2	73.1
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = 10.24$; 1 d.f.; $p \leq .001$

TABLE V-6

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' TRADITIONALITY SCORES

Level of Traditionality	Cognitive Reference Age Groups Early %	Late %	Total %
Low	11.4	5.7	8.6
Medium	33.7	19.0	26.5
High	54.8	75.3	64.8
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = 14.98$; 2 d.f.; $p \leqslant .001$

Level of Traditionality	Chronological Age Groups Early %	Late %	Total %
Low	12.4	4.1	8.6
Medium	31.5	20.5	26.5
High	56.2	75.3	64.8
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = 14.46$; 2 d.f.; $p \leqslant .001$

They noted a relationship between subjective-age identification among the elderly and traditionality similar to that found in the present study.

Social Trait Hypotheses

The following hypotheses have been proposed:

> Respondents in the early age group will more likely be opinion leaders, and will indicate greater life-satisfaction than respondents in the late age group.

The results of the hypothesis tests for the social trait variables follow.

1. Opinion Leadership

The opinion leadership hypothesis suggests that early age groups will more likely be opinion leaders, but as can be seen from Table V-7, the data does not support this conclusion for both age groupings.

Table V-7 suggests that respondents belonging to the early cognitive reference age group are likely to be opinion leaders, but that this is not the case with respondents who are members of the early chronological age group. To be more precise, Table V-7 shows cognitive reference age groups to be significantly related to opinion leadership, as proposed, but the proposition that chronological age groups are significantly related to opinion leadership has to be rejected.

These findings are supported by Corey's (1971) finding that there is no relationship between chronological

TABLE V-7

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' OPINION LEADERSHIP SCORES

Status of Opinion Leadership	Cognitive Reference Age Groups		
	Early %	Late %	Total %
Non-opinion Leader	60.8	77.2	68.8
Opinion Leader	39.2	22.8	31.2
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = 9.36$; 1 d.f.; $p \leqslant .01$

Status of Opinion Leadership	Chronological Age Groups		
	Early %	Late %	Total %
Non-opinion Leader	66.9	71.2	68.8
Opinion Leader	33.1	28.8	31.2
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = .53$; 1 d.f.; N.S.

age and opinion leadership. Prior to this dissertation, no study has been reported in the marketing literature that evaluates the relationship between a self-perceived age variable and opinion leadership. The present findings illustrate the strength of the new alternative age variable (cognitive reference age) to help identify opinion leaders for age-sensitive products.

2. Life-Satisfaction

As is the case with opinion leadership, the life-satisfaction variable is, as shown by Table V-8, only related to the cognitive reference age groups. As predicted, members of the early cognitive reference age group are more likely to score high on the life-satisfaction index than are respondents in the late cognitive reference age group. On the other hand, as can be seen from Table V-8, there is no support for the proposition that a relation exists between chronological age groups and the life-satisfaction variable.

The finding that a significant relationship exists between cognitive reference age groups and life-satisfaction is similar to findings reported by Bengston et al. (1977), Blau (1956, 1973) and Peters (1971) that subjective (self-perceived) age is significantly related to life-satisfaction, with a younger identity age having a higher degree of life-satisfaction associated with it.

The finding that chronological age is not related to life-satisfaction is also supported by prior gerontological

TABLE V-8

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' LIFE-SATISFACTION SCORES

Level of Life-Satisfaction	Cognitive Reference Age Groups Early %	Late %	Total %
Low	9.0	12.0	10.5
Medium	34.3	52.5	43.2
High	56.6	35.4	46.3
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = 14.74$; 2 d.f.; $p < .001$

Level of Life Satisfaction	Chronological Age Groups Early %	Late %	Total %
Low	10.1	11.0	10.5
Medium	40.4	46.6	43.2
High	49.4	42.5	46.3
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = 1.59$; 2 d.f.; N.S.

research. Larson (1978) and Edwards and Klemmack (1973) reported that they found no significant relationship between chronological age and life-satisfaction. This dissertation shows that the life-satisfaction index is sensitive to self-perceived age in a consumer behavior setting, while chronological age does not seem to influence a consumers' life-satisfaction.

3. Morale

Table V-9 which shows the relationship between the morale variable and age groups evaluates an additional proposition, namely, that respondents in early age groups will be significantly higher in morale than respondents belonging to the late age groups.

As can be seen from Table V-9 this proposition is only supported for the cognitive reference age grouping. This is similar to the findings for the life-satisfaction variable. This is not unusual since morale is a variable closely related to the life-satisfaction variable.

The data in Table V-9 suggests that as morale is raised, the cognitive reference age is likely to decrease; in other words, happy consumers with a high morale are likely to be in the early cognitive reference age group.

The situation is different when the chronological age groups are considered. Then it is evident that no relationship exists between chronological age groups and morale (see Table V-9).

TABLE V-9

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' MORALE SCORES

Level of Morale	Cognitive Reference Age Groups Early %	Late %	Total %
Low	17.5	29.7	23.5
Medium	24.1	27.2	25.6
High	58.4	43.0	50.9
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = 9.28$; 2 d.f.; $p \leq .001$

Level of Morale	Chronological Age Groups Early %	Late %	Total %
Low	24.2	22.6	23.5
Medium	23.6	28.1	25.6
High	52.2	49.3	50.9
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = .85$; 2 d.f.; N.S.

These findings provide additional support for results obtained by researchers in other social sciences relating to a sense of "well-being" and subjective (self-perceived) age (Bengston et al., 1977; Peters, 1971).

Social Interaction Hypotheses

The following hypotheses have been proposed:

> Respondents in the early age group will less likely be club members, and will use the telephone more often than respondents in the late age group.

The results of the hypothesis tests for the social interaction variables follow.

1. Club Membership

Information presented in Table V-10 indicates that no significant relationship exists between respondents' club membership and their cognitive reference age group. On the other hand, the data supports the proposition that respondents in the early chronological age group are less likely to be members of a club.

Graney (1975) reports on a relationship between membership in a voluntary association (club) and happiness, especially when chronological age increases, but he does not report on a direct relationship between club membership and age.

Summers (1971), in a consumer behavior context, considers the relationship between affiliation with organizations and opinion leadership. He reports a greater likelihood of affiliation with organizations (clubs) for opinion leaders. Again no mention is made of the association between

TABLE V-10

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' CLUB MEMBERSHIP SCORES

Status of Club Membership	Cognitive Reference Age Groups		
	Early %	Late %	Total %
Non Club Member	53.6	47.5	50.6
Club Member	46.4	52.5	49.4
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = .99$; 1 d.f.; N.S.

Status of Club Membership	Chronological Age Groups		
	Early %	Late %	Total %
Non Club Member	56.7	43.2	50.6
Club Member	43.3	56.8	49.4
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = 5.40$; 1 d.f.; $p \leqslant .05$

club membership and age. As such, the finding that club membership and chronological age are related seems not to have been reported yet in the marketing literature. That women of increasing chronological age are more likely to become associated with clubs makes sense since they will have more leisure time and a greater need for social participation (Blau, 1973; Graney and Graney, 1974).

2. Telephone Usage

As can be seen from the data presented in Table V-11, the proposition concerning a relationship between telephone usage and age groups had to be rejected. Although there seems to be some support for the direction of such a relationship, it is evident that no significant relationship exists between frequency of telephone usage and respondents' age group.

Graney and Graney (1974) proposed that older people tend to use the telephone less with advancing chronological age. The present study did not support this concept, and found basically no difference in telephone usage among the various age groups.

Media Hypotheses

The following hypotheses have been proposed:

> Respondents in the early age group will view less television, will listen to less radio, and will read less than respondents in the late age group.

The results for the hypothesis tests for the media variables follow.

TABLE V-11

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' TELEPHONE USAGE SCORES

Level of Telephone Usage	Cognitive Reference Age Groups Early %	Late %	Total %
Low	32.5	42.4	37.3
Medium	22.9	21.5	22.2
High	44.6	36.1	40.4
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = 3.63$; 2 d.f.; N.S.

Level of Telephone Usage	Chronological Age Groups Early %	Late %	Total %
Low	35.4	39.7	37.3
Medium	23.0	21.2	22.2
High	41.6	39.0	40.4
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = .65$; 2 d.f.; N.S.

1. Television Viewing

Table V-12 presents research findings relating to television viewing and the respective age groups. As can be seen from that table, there is no significant relationship between television viewing and cognitive reference age groups. This is not the case when chronological age groups are considered. According to the data presented in Table V-12, the proposition that respondents in the early chronological age group watch less television is supported and accepted.

There is no evidence of research evaluating self-perceived age in relation to television viewing. On the other hand, there is prior research that supports the notion that a relationship exists between television viewing and chronological age. The Gallup Opinion Index (1974) shows that television viewing is seen increasingly as the favorite entertainment with advancing chronological age, and the present findings tend to support this.

Wenner's (1976) research supports the idea that the elderly often use television as a substitute activity because of limitations of mobility or social interaction. His views are similar to the notions of Graney and Graney (1974). It makes sense to expect that with advancing age more individuals will suffer from handicaps and, therefore, will watch more television.

TABLE V-12

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' TELEVISION VIEWING SCORES

Level of Television Viewing	Cognitive Reference Age Groups		
	Early %	Late %	Total %
Low	50.0	48.1	49.1
High	50.0	51.9	50.9
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = .05$; 1 d.f.; N.S.

Level of Television Viewing	Chronological Age Groups		
	Early %	Late %	Total %
Low	55.1	41.8	49.1
High	44.9	58.2	50.9
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = 5.14$; 1 d.f.; $p \leqslant .05$

2. Radio Listening

According to the data shown in Table V-13, there is no relationship between age groups (both of a cognitive reference and a chronological age type) and the amount of time spent listening to the radio as was proposed. Therefore, this proposition had to be rejected.

The logic behind the hypothesis that with advancing age individuals suffer more social isolation and will attempt to overcome that problem through activities such as radio listening, which do not require much effort (Graney and Graney, 1974), is clearly not of relevance in the population studied. The results shown in Table V-13 clearly indicate this premise to be rejected here, since no relation was found to exist between age and radio listening.

3. Reading

Table V-14 shows the evaluation of the relationship between reading and age. The data indicates no significant relationship is to be found between these variables.

Similar to radio listening, in the sample population, reading does not seem to function as a communications substitute, as suggested by Graney and Graney (1974). According to Table V-14 the proposition that reading and age groups (both cognitive reference age and chronological age types) are related had to be rejected.

TABLE V-13

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' RADIO LISTENING SCORES

Level of Radio Listening	Cognitive Reference Age Groups		
	Early %	Late %	Total %
Low	71.2	77.8	74.5
High	28.8	22.2	25.5
Total	100.0	100.0	100.0
Base	(163)	(158)	(321)

$X^2 = 1.55$; 1 d.f.; N.S.

Level of Radio Listening	Chronological Age Groups		
	Early %	Late %	Total %
Low	75.7	72.9	74.5
High	24.3	27.1	25.5
Total	100.0	100.0	100.0
Base	(177)	(144)	(321)

$X^2 = .19$; 1 d.f.; N.S.

TABLE V-14

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' READING SCORES

Level of Reading	Cognitive Reference Age Groups Early %	Late %	Total %
Low	84.8	90.5	87.6
High	15.2	9.5	12.4
Total	100.0	100.0	100.0
Base	(165)	(158)	(323)

$X^2 = 1.89$; 1 d.f.; N.S.

Level of Reading	Chronological Age Groups Early %	Late %	Total %
Low	87.0	88.4	87.6
High	13.0	11.6	12.4
Total	100.0	100.0	100.0
Base	(177)	(146)	(323)

$X^2 = .04$; 1 d.f.; N.S.

Demographic Hypotheses

The following hypotheses have been proposed:

> Respondents in the early age group will have more formal education, will have a greater incidence of employment, and will be members of a smaller family than respondents in the late age group.

The results of the hypothesis tests for the demographic variables follow.

1. Education

The data portrayed in Table V-15 clearly shows that those belonging to the early age group have attained a higher level of formal education than their older counterparts.

In social gerontology research, similar findings are reported concerning the relationship between self-perceived age and education. Similar to the finding here, it has been established that those who perceive themselves as young are more likely to have had more education than those who perceive themselves as old (Rosow, 1967, 1974; Peters, 1971).

That lower educational levels have been achieved by the chronological older group is in line with evaluations on that subject made by gerontologists, such as Neugarten and Hagestad (1976) and Blau (1973).

Neugarten and Hagestad (1976) point out that the reason behind these differences is primarily economic in nature, since economic conditions affecting the timing of events in youth are responsible for present differences in educational levels.

TABLE V-15

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' EDUCATIONAL LEVEL

Level of Education	Cognitive Reference Age Groups Early %	Late %	Total %
Grade School	28.3	49.4	38.6
High and Trade School	51.2	39.2	45.4
College or more	20.5	11.4	16.0
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = 16.0$; 2 d.f.; $p \leqslant .001$

Level of Education	Chronological Age Groups Early %	Late %	Total %
Grade School	23.0	57.5	38.6
High and Trade School	57.3	30.8	45.4
College or more	19.7	11.6	16.0
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = 40.4$; 2 d.f.; $p \leqslant .001$

2. Employment

As can be seen from the data displayed in Table V-16, the hypothesis that early age groups have a greater incidence of employment than the late age group has to be accepted.

Retirement can be considered a major status change that typically occurs in old age and designates the permanent loss of an important social role. Therefore, it may have serious effects on an individual's sense of self and identity.

Blau (1956, 1973) paid special attention to these phenomena and reports findings similar to those of the present study. She mentions that subjective age and employment are inversely related (when subjective age goes up, employment goes down) and that this is, of course, also the case with chronological age (Blau, 1973). The fact that the chronological age and employment are inversely related is hardly surprising, because a chronological age of 65 years means the mandatory retirement for most workers.

Table V-16 shows the sample assessed to be considerably smaller than the regular population sample of 324 respondents. This is because the question of employment specifically dealt with the issue of employment outside of the home, and this caused 71 respondents not to reply to this question.

TABLE V-16

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' EMPLOYMENT STATUS

Status of Employment	Cognitive Reference Age Groups		
	Early %	Late %	Total %
Full time	42.2	16.5	29.8
Part time	20.0	12.6	16.4
Retired	37.8	70.9	53.8
Total	100.0	100.0	100.0
Base	(135)	(127)	(262)

$X^2 = 30.0$; 2 d.f.; $p \leq .001$

Status of Employment	Chronological Age Groups		
	Early %	Late %	Total %
Full time	50.3	5.0	29.8
Part time	19.6	12.6	16.4
Retired	30.1	82.4	53.8
Total	100.0	100.0	100.0
Base	(143)	(119)	(262)

$X^2 = 79.7$; 2 d.f.; $p \leq .001$

3. Family Size

As hypothesized, respondents in the early age group had smaller families (less progeny) than respondents in the late age group, and the data in Table V-17 shows this to be the case.

Even though there seem to be no studies based on self-perceived or chronological age that report on the relationship between number of progeny and age, it is reasonable and understandable that the early chronological age group would have fewer children and grandchildren than the late chronological age group. After all, they have had far less time to have acquired grandchildren.

The reasons for family size to be related to cognitive reference age groups is more complicated and less self-evident. A major reason to be considered is that having a large number of progeny communicates the message that the individual must be old to have many offspring, and this may affect the person's self-image. Another reason could be related to the educational levels, because of the idea that the better educated finish school later and start a family later. Some empirical evidence for this phenomenon is reported on by Neugarten and Hagestad (1976) in their discussion of the relationship of chronological age, social class, and successive events (such as birth of a first child and birth of a first grandchild).

This could explain an important reason behind the acceptance of the hypothesis that determined a positive

TABLE V-17

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' NUMBER OF PROGENY

Family Size (Number of Progeny)	Cognitive Reference Age Groups Early %	Late %	Total %
None	14.5	17.1	15.7
Small (1 - 3)	34.9	20.3	27.8
Medium (4 - 7)	35.5	31.0	33.3
Large (8 or more)	15.1	31.6	23.1
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$x^2 = 16.76$; 3 d.f.; $p \leqslant .001$

Family Size (Number of Progeny)	Chronological Age Groups Early %	Late %	Total %
None	14.0	17.8	15.7
Small (1 - 3)	40.4	12.3	27.8
Medium (4 - 7)	29.8	37.7	33.3
Large (8 or more)	15.7	32.2	23.1
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$x^2 = 34.45$; 3 d.f.; $p \leqslant .001$

relationship between size of family and cognitive reference age groups.

Product Hypotheses

The following hypotheses have been suggested:

> Respondents in the early age group will rate the product class studied as more important, more enjoyable; and they will be more frequent users, switch brands more often, and have a larger evoked set than respondents in the late age group.

1. Product Importance

Age-group membership had no apparent effect on the rating of product importance, as is shown by Table V-18. The data presented in Table V-18 does not support the hypothesis for either age group (cognitive reference age or chronological age).

2. Product Liking

The data portrayed in Table V-19 clarifies that there is no significant relationship between age groups and product liking, as had been hypothesized. Therefore, this hypothesis, just like the product importance hypothesis, is rejected.

3. Frequency of Product Usage

As can be seen from the data shown in Table V-20, the hypothesis suggesting an inverse relationship between age group and the frequency of product usage is accepted.

A greater frequency of product use among respondents in the early cognitive reference age group is a finding that could be of some importance and value to marketers of age sensitive products, such as the product class studied in this dissertation (shampoo). The present study is probably

TABLE V-18

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' PRODUCT IMPORTANCE SCORES

Level of Product Importance	Cognitive Reference Age Groups		
	Early %	Late %	Total %
Low	18.7	24.7	21.6
High	81.3	75.3	78.4
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = 1.39$; 1 d.f.; N.S.

Level of Product Importance	Chronological Age Groups		
	Early %	Late %	Total %
Low	17.4	26.7	21.6
High	82.6	73.3	78.4
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = 3.56$; 1 d.f.; N.S.

TABLE V-19

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' PRODUCT LIKING SCORES

Level of Product Liking	Cognitive Reference Age Groups Early %	Late %	Total %
Dislike	7.8	8.9	8.3
Neutral	36.7	38.6	37.7
Enjoy	39.8	36.7	38.3
Enjoy very much	15.7	15.8	15.7
Total	100.0	100.0	100.0
Base	(166)	(158)	(324)

$X^2 = .37$; 3 d.f.; N.S.

Level of Product Liking	Chronological Age Groups Early %	Late %	Total %
Dislike	6.2	11.0	8.3
Neutral	36.5	39.0	37.7
Enjoy	43.8	31.5	38.3
Enjoy very much	13.5	18.5	15.7
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = 6.79$; 3 d.f.; N.S.

TABLE V-20

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' PRODUCT USAGE SCORES

Frequency of Product Usage	Cognitive Reference Age Groups Early %	Late %	Total %
Rarely	7.3	15.7	11.3
Once a week	47.9	60.8	54.1
Two or more times a week	44.8	23.5	34.6
Total	100.0	100.0	100.0
Base	(165)	(153)	(318)

$X^2 = 17.84$; 2 d.f.; $p < .001$

Frequency of Product Usage	Chronological Age Groups Early %	Late %	Total %
Rarely	4.5	19.7	11.3
Once a week	51.1	57.7	54.1
Two or more times a week	45.4	22.6	34.6
Total	100.0	100.0	100.0
Base	(176)	(142)	(318)

$X^2 = 27.40$; 2 d.f.; $p < .001$

the first one that assessed the relationship between a self-perceived age variable and a consumer product.

That a greater frequency of shampoo usage exists among the members of the early chronological age group is similar to the 1978 TGI survey finding concerning the incidence of shampoo usage.

4. Brandswitching

The brandswitching proposition suggests that brandswitching is more common among respondents in the early age group than among members of the late age group. As the data portrayed in Table V-21 shows, this hypothesis can be accepted for both types of age group.

As in the case of the evaluation of product usage and cognitive reference age groups, this is probably the first study to assess a relationship between a self-perceived age variable and brandswitching. The results, as reported here, show the promise the cognitive reference age variable holds for future consumer behavior research with this kind of variable. Engel et al. (1978) point out in their survey of the brand-loyalty literature that there are no clear correlates with brand loyalty, especially not of a demographic or social-psychological nature.

One of the reasons that a significant relationship could be established in the present study might be due to the age-sensitive nature of the product which, as a cosmetic product, could influence the age image of consumers.

TABLE V-21

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' BRAND SWITCHING SCORES

Frequency of Brand Switching	Cognitive Reference Age Groups		
	Early %	Late %	Total %
Never	26.2	45.1	35.3
Sometimes	62.2	49.7	56.2
Often	11.6	5.2	8.5
Total	100.0	100.0	100.0
Base	(164)	(153)	(317)

$x^2 = 13.95$; 2 d.f.; $p \leqslant .001$

Frequency of Brand Switching	Chronological Age Groups		
	Early %	Late %	Total %
Never	20.9	53.6	35.3
Sometimes	67.2	42.1	56.2
Often	11.9	4.3	8.5
Total	100.0	100.0	100.0
Base	(177)	(140)	(317)

$x^2 = 37.65$; 2 d.f.; $p \leqslant .001$

When the relationship between chronological age groups and brandswitching is considered, other reasons for the significant association between the two variables come to mind. The relationship might be due to some extent to the natural processes of aging in the case of the chronologically old who suffer from hair loss and brittleness, and who, therefore, would avoid experimentation with unknown brands, since unknown brands could harm their hair (a high functional risk). Also, the chronologically old who have given up on hair care (something that would also have a negative effect on their cognitive reference age) would avoid new brands of shampoo that they use seldom anyway. The respondents of early cognitive reference age group with a high chronological age could easily have a different view of the situation. They probably take good care of their looks (it is part of the look-age dimension), have greater self-assurance (expressed as a greater life-satisfaction and morale), and have a greater interest in new shampoo brands (part of their search for knowledge needed to perform as opinion leaders). Further study of this issue shows other avenues of study with the cognitive reference age variable.

5. Evoked Set

Table V-22 shows the relationship between the two types of age group and the evoked set size of the respondents to be dissimilar.

TABLE V-22

THE RELATIONSHIP BETWEEN AGE GROUPS AND RESPONDENTS' EVOKED SET SCORES

Size of Evoked Set	Cognitive Reference Age Groups		
	Early %	Late %	Total %
Small	49.1	61.7	55.1
Medium	28.2	22.8	25.6
Large	22.7	15.4	19.2
Total	100.0	100.0	100.0
Base	(163)	(149)	(312)

$X^2 = 5.29$; 2 d.f.; N.S.

Size of Evoked Set	Chronological Age Groups		
	Early %	Late %	Total %
Small	47.4	65.0	55.1
Medium	29.7	20.4	25.6
Large	22.9	14.6	19.2
Total	100.0	100.0	100.0
Base	(175)	(137)	(312)

$X^2 = 9.59$; 2 d.f.; $p \leqslant .01$

In the case of cognitive reference age groups, the data of Table V-22 does not support the hypothesis. No relationship between cognitive reference age groups and the evoked set variable is established. Therefore, the hypothesis dealing with cognitive reference age groups has to be rejected.

In the instance of chronological age groups, the data presented in Table V-22 provide evidence that the hypothesis is acceptable. As proposed, members of the early chronological age group are more likely to have a large evoked set than respondents in the late chronological age group. This might be attributed to the same factors discussed for the brand-switching variable. The respondents in the late chronological age group will probably experiment less with different brands (a greater functional risk) and keep to the one or two brands they know to be safe for their hair.

Grand Null-Hypothesis

As can be seen from a Pearson correlation between cognitive reference age and chronological age, the two variables are closely related ($R = .60$; $p \leqslant .001$), yet they are not the same. That these two age variables are positively related to each other is no surprise. Prior research with self-perceived age has established a similar relationship (Kastenbaum et al., 1972; Bell, 1972; Peters, 1971). The proposed grand null-hypothesis is not concerned with an evaluation of the closeness and direction of the relationship between cognitive reference age and chronological age;

instead it attempts to test a popular American folk belief. This belief is that chronological age is not so important and crucial as long as one is "young at heart." This basically implies that chronological age is less influential in terms of personality and self than is self-perceived age (here cognitive reference age). In other words, an individual's self-perceived age (or cognitive reference age) is a more revealing and better explanatory variable than chronological age.

The hypothesis assesses the relevance of cognitive reference age group membership as compared to chronological age group membership. This is expressed as follows:

> Responsents who are chronologically between 55 and 64 years of age and whose cognitive reference age is less than 55 years of age will <u>not</u> differ from respondents who are chronologically 65 years of age and older and whose cognitive reference age is less than 55 years of age.

An important aspect of the above proposition is that it considers the early cognitive reference age group as homogeneous in terms of respondents' traits, media, and product behavior. If accepted, this proposition, therefore, would be of great relevance to market segmentation strategists.

For purposes of portrayal the two groups considered have been named as follows:

Early-Young - cognitive reference age less than 55 years (members of the

early cognitive reference age group) and chronological age between 55 and 64 years (members of the early chronological age group).

Early-Old - cognitive reference age less than 55 years (members of the early cognitive reference age group) and chronological age 65 years and older (members of the late chronological age group).

All of the 20 independent variables considered in this dissertation were cross-tabulated with these two age groups to assess the proposition.

While 11 of 20 independent variables had been found to be significantly related to chronological age group membership, only three variables were found to be significantly different in terms of the early-young and early-old age groups. This difference can be seen from Table V-23. Specifically, respondents in the early-young age group watch less television, have a higher level of formal education, and have a greater incidence of employment. These results (no significant differences between these two age groups in terms of 17 independent variables, as can be seen in Appendix III) lead to the conclusion that the grand null-hypothesis may be considered as accepted.

TABLE V-23

THE RELATIONSHIP BETWEEN
EARLY-YOUNG AND EARLY-OLD AGE GROUPS
FOUND TO BE DIFFERENT

	Age Groups		
	Early Young %	Early Old %	Total %
Level of Television Viewing			
Low	54.6	33.3	50.0
High	45.4	66.7	50.0
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	$x^2 = 4.29$; 1 d.f.; $p < .05$		
Level of Education			
Grade School	22.3	50.0	28.3
High and Trade School	56.2	33.3	51.2
College or more	21.5	16.7	20.5
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	$x^2 = 10.83$; 2 d.f.; $p < .01$		
Status of Employment			
Full time	52.9	9.1	42.2
Part time	20.6	18.2	20.0
Retired	26.5	72.7	37.8
Total	100.0	100.0	100.0
	(102)	(33)	(135)
	$x^2 = 25.5$; 2 d.f.; $p < .001$		

Reliability

An important aspect of scales used in research is their reliability. If a measure is not reliable, then it is not really worth pursuing the research much further. Consequently, it was necessary to evaluate the reliability of the new cognitive reference age measure. It is also necessary to realize that behavior measures are seldom, if ever, totally reliable and valid, but for the research to amount to anything reasonable, reliability has to be established (Peter, 1979).

In this dissertation three different approaches were used to estimate the reliability of the cognitive reference age measure:

1. Test-retest Reliability

The test-retest reliability approach involves an estimate of the stability of a measure's performance. Two applications of the test are applied to the same respondents, with a two week interval considered as the generally recommended retest period (Peter, 1979).

For the cognitive reference age measure, the test-retest estimate is based on the correlation between two measurements of cognitive reference age, taken during two sets of interviews with 15 respondents, which took place within a three week interval during the pretests in April 1978. This test-retest correlation is .88 and this can be considered an indication that the scale is reasonably and sufficiently stable and reliable.

Although the test-retest estimate provides a relatively acceptable method of measuring stability, it is not sufficient. Additional reliability tests are generally recommended (Peter, 1979). In the case of single-item observation measures such as chronological age, the test-retest is probably the only reliability assessment feasible, but with a new four-item scale such as cognitive reference age more reliability tests are advisable.

2. The Guttman Lambda Reliability Test

This test is based on Guttman's (1945) work on the testing of the internal consistency of multiple-item scales. He proposed to do this through a simple sum of scores across items.

Using the reliability test procedures as described in the Statistical Package for the Social Sciences (SPSS), the largest of six coefficients generated by the computer program to evaluate reliability can be selected, and one can be sure that the true reliability is higher than this coefficient (Specht and Bubolz, 1977).

In the case of the cognitive reference age four-item scale this coefficient (the Guttman Lambda) turned out to be .86, which indicates a good internal consistency and reliability.

3. The Split-half Reliability Test

In the case of the split-half technique of estimating reliability, the scale items are divided into

equivalent groups and the item responses correlated provide the split-half reliability estimate. In the case of an odd-number-item scale, an unequal-length split-half reliability coefficient is estimated. The SPSS program allows this to be done with the estimation of the Spearman-Brown split-half reliability coefficient. Like the Guttman Lambda test, the split-half reliability evaluation determines the homogeneity of a set of items in a scale within single-testing occasions.

The Spearman-Brown split-half reliability estimated for cognitive reference age is satisfactory with an internal consistency reliability coefficient of .85.

On the basis of the above three reliability estimates, it is possible to claim that the cognitive reference age scale forms a reliable measure.

An additional test of reliability is the capacity of the measure to distinguish between groups within a population. This is the test of usefulness in discriminant analysis and it will be discussed in the next chapter.

Besides the reliability tests for the new cognitive reference age measure, other estimates of reliability were made for the other multi-item scales used in this dissertation. Table V-24 shows the results of these reliability estimates.

TABLE V-24

RELIABILITY ESTIMATES

Variables	Number of Items in Scale	Test-retest Correlation*	Guttman-Lambda Coefficients**	Spearman-Brown Split-half Coefficients**
1. Cognitive reference age	4	.88	.85751	.85612
2. Chronological age	1	.99		
3. Venturesomeness	8		.56401	.56413
4. Self-confidence	5		.57021	.52811
5. Dogmatism	4		.34620	.34676
6. Traditionality	4		.48839	.49368
7. Life-satisfaction	13		.55989	.54704
8. Morale	4		.71195	.70971
9. Product importance	2		.76825	.76950
10. Telephone usage	2		.70222	.70394
11. Reading	2		.84226	.84818
12. Family	2		.62687	.73739

* Test-retest period - two to three weeks; 15 respondents

** Sample size = 324

Validity

Validity is synonymous with accuracy or correctness. Validity of a measuring instrument depends on its capacity to measure true differences among individuals of the trait one seeks to measure (Churchill, 1979). Validity of a measure is generally evaluated on the basis of its construct, content or pragmatic validity.

This study was exploratory in terms of the evaluation of self-perceived age in a consumer-behavior context. Also, the objective was the development of an entirely new scale; construct validity was not assessed and, therefore, future studies will have to be concerned with the determination of the construct validity of the cognitive reference age scale.

Content validity is concerned with how well the measure relates to the domain assessed. It is also often referred to as face validity (Churchill, 1979). The cognitive reference age measure performed well in terms of content validity. The four age dimensions within the scale related to each other, to the cognitive reference age measure, and to chronological age in a meaningful manner not too different from the relationship found by Kastenbaum and his associates (1972). The type of relationship portrayed (see Table V-25) is what would reasonably be expected from age measures and their various dimensions.

The test of the various hypotheses also allowed sufficient insight into the cognitive reference age measure

TABLE V-25

CORRELATION MATRIX
AGE VARIABLES AND DIMENSIONS

Age Variables and/or Dimensions	Chronological Age	Cognitive Reference Age	Feel Age	Look Age	Do Age	Interests Age
1. Chronological age	1.00					
2. Cognitive reference age	.60	1.00				
3. Feel age	.43	.85	1.00			
4. Look age	.70	.78	.55	1.00		
5. Do age	.47	.83	.65	.60	1.00	
6. Interests age	.45	.87	.59	.54	.65	1.00

so that it can be concluded that the measure of cognitive reference age performed as a self-perceived age variable and did so in a pertinent way. This means that from a common sense viewpoint, the measure performed as expected, and this provides face validity.

Pragmatic validity, also known as predictor or criterion validity, was established for the cognitive reference age measure on the basis of various associations determined through cross-tabulations (the hypothesis tests), and they are discussed and assessed separately with respect to previous research with self-perceived age measures.

The associations establishing criterion (pragmatic) validity for the cognitive reference age measure are the following:

1. Chronological age has been established in prior research as a variable that correlates significantly with self-perceived age; moreover, individuals tend to perceive themselves as younger than their chronological age (Bengston et al., 1977; Rosow, 1967, 1976; Blau, 1956, 1973; Kastenbaum et al., 1972; Peters, 1971). In this dissertation, cognitive reference age related to chronological age in a similar manner as other self-perceived age measures. The data portrayed in Table V-26 shows the relationship between cognitive reference age and chronological age to be significant, and in the same direction as found by other researchers.

TABLE V-26

CROSS-TABULATION
CHRONOLOGICAL AGE WITH COGNITIVE REFERENCE AGE

Membership in Cognitive Reference Age Group	Chronological Age Groups (%) Early	Late	Total
Early cognitive reference age group	73.0	24.7	51.2
Late cognitive reference age group	27.0	75.3	48.8
Total	100.0	100.0	100.0
Base	(178)	(146)	(324)

$X^2 = 73.2$; 1 d.f.; $p < .001$

2. Life-satisfaction and morale were assessed in prior studies in terms of their relationship with subjective age. These prior studies established a close inverse relationship between measures of well-being and self-perceived age (Bengston et al., 1977; Peters, 1971). In the present study the cross-tabulations of life-satisfaction and morale are related in a similar way (see Tables V-8 and V-9).

3. Education and self-perceived age were found to be inversely related in a significant manner by social gerontologists interested in this aspect of self-perceived age (Rosow, 1974; Blau, 1973; Peters, 1971). The hypothesis testing a relationship between levels of formal education and cognitive reference age established a similar finding (see Table V-15).

4. Employment status and self-perceived age among the elderly were reported by Blau (1973) to be significantly related with retired individuals more likely to perceive themselves as old. In this dissertation a similar relationship has been found through the hypothesis test dealing with this issue (see Table V-16).

5. Traditionality and self-perceived age among elderly voters were assessed by Bengston and Cutler (1976), and they report that in their study voters with a young self-perceived age were less likely to have traditional views than those who perceived themselves as old. In this study the cross-tabulation of the traditionality variable

and cognitive reference age established a similar pattern and relationship (see Table V-6).

Validity of Other Variables

An assessment of criterion validity of variables examined in this study took place through consideration of a correlation matrix of these variables (see Appendix IV). This correlation matrix showed the variables to be related to each other in a pattern not contrary to prior findings of research with variables of similar nature.

This concludes Chapter V, which was mainly concerned with the results of the hypothesis tests, the estimates of reliability, and the assessment of validity for the cognitive reference age measure. The next chapter will consider respectively the development and validation of discriminant models for cognitive reference and chronological age groups.

CHAPTER VI

DISCRIMINANT MODELS OF AGE GROUPS

This chapter consists of two parts. In the first part the development and resulting profile of cognitive reference age groups is considered; in the second part the same is done for chronological age groups.

The models developed determined statistically significant differences between the average score profiles of the two types of age grouping. The models also established procedures to classify the respondents into these groups on the basis of their scores on several variables. In addition, they determined which of these independent variables were the most important in the average score profiles of the age groups. The overall profile of respondents according to the models established was determined through these procedures.

This dissertation employed discriminant analysis because of an interest in the understanding and the need for assessing the age group differences, as well as the wish for evaluating the capacity of discriminant models to correctly classify respondents into age groups.

The Cognitive Reference Age Group Model

The derivation of a discriminant model for the cognitive reference age groups involved several steps and procedures, each of which will be discussed.

Step 1: Variable Selection

In order to apply discriminant analysis it is required to first evaluate the type of model and to select dependent and independent variables.

Discriminant models are linear in nature and are of the following form:

$$Z = w_1X_1 + w_2X_2 + w_3X_3 + ... + w_nX_n$$

where

Z = the discriminant score

w = the discriminant weights

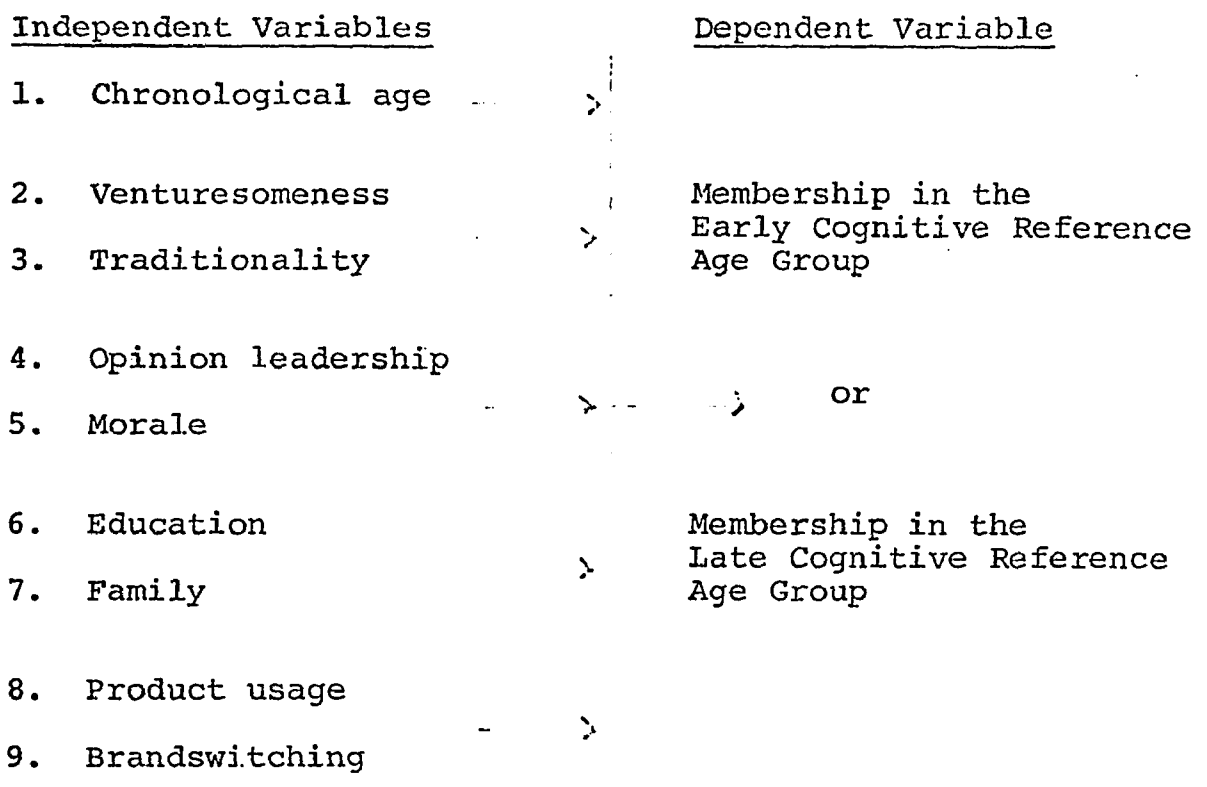
X = the independent variables

The model to be considered for the cognitive reference age groupings is depicted through a simple flow chart in Figure VI-1. In this model the dependent variable (Z) is shown on the right side of Figure VI-1. The dependent variable consists of two cognitive reference age groups:

1. The early cognitive reference age group: respondents with a cognitive reference age of 54 years and younger.
2. The late cognitive reference age group:

FIGURE VI-1

DISCRIMINANT COGNITIVE REFERENCE AGE GROUP MODEL



respondents with a cognitive reference age of 55 years and older.

Discriminant analysis allows an evaluation of a possible significant difference between the early and late cognitive reference age groups. If the model developed allows a significant separation, then the model can be considered useful, and an additional aspect of reliability will have been provided for the cognitive reference age measure. This is not sufficient by itself, since the model will also have to be validated. The assessment of both usefulness and validation form later steps in discriminant model-building and will be discussed later in this chapter.

X_1 through X_n in the linear discriminant function equation are the independent variables, which are listed specifically on the left side of Figure VI-1 and were selected from the 22 variables considered for this dissertation on the basis of the following criteria:

a. A significant relationship had been established between the variables and cognitive reference age through cross-tabulation and chi-square analysis (see the test of hypotheses in Chapter V).

b. A reliability test where applicable had estimated which variables could be considered reasonably reliable (a reliability coefficient of at least .49; see Table V-23).

c. The intercorrelation of the independent variables was less than .35; this helped avoid problems of multi-collinearity (see the correlation matrix in Appendix IV).

d. The independent variables did not contain too many missing values (i.e., employment status). This helped avoid a shrinking in the sample size used for the discriminant analysis.

Step 2: Usefulness of the Model

Step 2 involves the determination of the usefulness of the discriminant function derived through multiple discriminant analysis. This is done through a test of the null-hypothesis to show that the function does not separate significantly (early and late cognitive reference age groups). Both this hypothesis test and the next procedural step (the validation of the model) are based on the even-split half of the population sample.

There are a number of approaches to determine the usefulness of a discriminant function. In this dissertation the following three tests of usefulness were employed:

1. The Hotelling T^2 Test

In this test the Hotelling T^2 is computed for the function derived for the even-split model. Once this has been done, this T^2 can be compared with a critical F value. A T^2 larger than the $F_{critical}$ provides evidence

that the null-hypothesis can be rejected and that the function significantly separates the population (Bolch and Huang, 1974).

As the data in Table VI-1 shows, the Hotelling T^2 is greater than the $F_{critical}$ and the null-hypothesis is rejected. The function is useful and separates the cognitive reference age groups in a significant ($p \ll .001$) manner.

2. Wilks' Lambda Test

The computer program (SPSS) generated a discriminant function for the even-split half sample with a Wilks' Lambda = .6348. This is equivalent to a chi-square statistic of 66.570 with nine degrees of freedom, indicating the function to be significant ($p \ll .001$).

3. Chi-Square of "Hit-and-Miss" Ratio

A corrected chi-square is computed for the "Hit-and-Miss" ratio generated by the function in the even-split half. This is assessed in terms of the correctness in placing respondents in the early and late cognitive reference age groups (Hair et al., 1979).

The data in Table VI-2 shows that a significant ($p \ll .001$) separation took place.

On the basis of the three tests of usefulness it has been established that the null-hypothesis concerning the capacity of the function to separate the cognitive reference groups significantly can be rejected since this separation was found to be significant ($p \ll .001$).

TABLE VI-1

MAHALANOBIS' D^2 AND HOTELLING T^2
COGNITIVE REFERENCE AGE - DISCRIMINANT FUNCTION
EVEN-SPLIT HALF

Mahalanobis' $D^2 = (\Delta\bar{X})' \cdot S_*^{-1} \cdot (\Delta\bar{X}) = 2.27$

where

$(\Delta\bar{X}) = \bar{X}_1 - \bar{X}_2$ = difference between the means of the early and late cognitive reference age groups.

S_* = the within group covariance matrix.

Hotelling $T^2 = (n_1 \cdot n_2)/(n_1 + n_2) \cdot D^2 = 40.07$

where

n_1 = number of respondents in the early-cognitive reference age group = 83

n_2 = number of respondents in the late-cognitive reference age group = 70

$F_{critical} = F_{(.001,\ p-1,\ n_1+n_2-p-1)} = F_{(.001,\ 8,\ 145)}$

where

p = number of independent variables = 9

Since $F_{(.001,\ 8,\ 145)}$ was not listed in statistical F tables the next larger F statistic listed can be considered for the evaluation. This next $F_{critical} = F_{(.001,\ 8,\ 120)} = 3.55$

Therefore:

$$\text{Hotelling } T^2 > F_{critical}$$

TABLE VI-2

"HIT AND MISS" RATIO OF
EVEN SPLIT HALF POPULATION
COGNITIVE REFERENCE AGE GROUP MODEL

Predicted Group Membership	Cognitive Reference Age Groups Early %	Late %	Total %
Predicted - early	88.0	27.1	54.25
Predicted - late	12.0	72.9	45.75
Total	100.0	100.0	100.0
Base	(83)	(70)	(153)

$X^2 = 55.16$; 1 d.f.; $p < .001$

Correctly classified: 81.05%

Chance proportion = $(.5425)^2 + (.4575)^2 = .5036$

Chance accuracy = 50.36%

Overall correctness better than chance = 81.05 - 50.36 = 30.69%

This finding provides additional reliability to the cognitive reference age measure, since it provides evidence that the measure is meaningful.

Step 3: Validation of the Discriminant Model

Validation of the model involves a comparison of the performance of the discriminant function in the even-split half sample with the odd-split half sample, which is also often referred to as the hold-out sample. Two methods will be considered for the validation of the discriminant model.

1. Comparison of Generalized Distances (D^2 and D_o^2)

The discriminant function developed for the even-split half is compared with the discriminant function developed for the odd-split half. The null-hypothesis that these two functions do not differ is tested. An acceptance of this null-hypothesis means that the discriminant model has been validated (Boch and Huang, 1974).

The comparison of the generalized distances of the two functions involves the compuation of these distances (D^2 and D_o^2) as well as the F statistic upon which the comparison relies (the $F_{calculated}$). The $F_{calculated}$ makes assessment of the null-hypothesis possible through a comparison with the $F_{critical}$, because if the $F_{calculated}$ is less than $F_{critical}$, the null-hypothesis can be accepted (Bolch and Huang, 1974).

As can be seen from the data portrayed in Table VI-3, this is the case here; that is, the null-hypothesis is accepted

TABLE VI-3

GENERALIZED DISTANCES IN
COGNITIVE REFERENCE AGE - DISCRIMINANT FUNCTIONS
EVEN AND ODD SPLIT HALF SAMPLES

D^2 (even-split half) = 2.27 (see Table VI-1)

$D_o^2 = (C' \cdot \Delta\bar{X}) \cdot (C' \cdot S_* \cdot C)^{-1} \cdot (C' \cdot \Delta\bar{X}) = 1.56$

where

$C' = (c_1, c_2, c_3, \ldots\ldots\ldots\ldots, c_9)$ = coefficients of the odd-split half (hold-out) function.

$\Delta\bar{X} = \bar{X}_1 - \bar{X}_2$ = differences between means of early and late cognitive reference age groups in the even-split half sample.

S_* = the within group covariance matrix of the even-split half sample.

$F_{calculated} = (n_1 + n_2 - p - 1)/(p - 1) \cdot m(D^2 - D_o^2)/(1 + mD_o^2) = 1.81$

where

n_1 = number of respondents in the early-cognitive reference age group (even-split half) = 83

n_2 = number of respondents in the late-cognitive reference age group (even-split half) = 70

p = number of independent variables = 9

$m = (n_1 \cdot n_2)/(n_1+n_2) \cdot 1/(n_1+n_2-2) = .25$

$F_{critical} = F_{(.05,\ p-1,\ n_1+n_2-p-1)} = F_{(.05,\ 8,\ 145)}$

Since $F_{(.05,\ 8,\ 145)}$ is not listed in the statistical F tables, the smallest F statistic with 8 degrees of freedom can be considered a correct substitute for the evaluation. The substitute is $F_{(.05,\ 8,\ \infty)}$.

$F_{critical} < F_{(.05,\ 8,\ )}$ and $F_{(.05,\ 8,\ )} = 1.94$

Therefore:

$$F_{calculated} < F_{critical}$$

and the discriminant model (depicted in Figure VI-1) is validated ($F_{calculated} = 1.81$ is less than $F_{critical(.05,\ 8,\infty)} = 1.94$.

2. The Split-half Cross-validation Approach

The application of the even-split half function to the population in the odd-half sample is the most popular validation technique among marketers (Hair et al., 1979; Frank et al., 1965). The resulting correctness and incorrectness of the "Hit-and-Miss" ratios caused by this even-split half function as applied in both halves of the sample is compared through chi-square analysis.

In case no significant difference exists between the two "Hit-and-Miss" ratios, the function is validated.

The data in Table VI-4 supports the contention that the model is valid, since the even-split function does not perform in a significantly different manner in the two split halves.

On the basis of the above two validation techniques, it has been established that the proposed model is valid. This finding allows consideration of its application to the total population sample.

Step 4: Cognitive Reference Age Group Profile

Since it has been established that the model (as depicted in Figure VI-1) is acceptable and valid for cognitive reference age groups, a profile of membership in these groups can be assessed. To this end, the validated

TABLE VI-4

SPLIT-HALF CROSS-VALIDATION
COGNITIVE REFERENCE AGE GROUP MODEL

The even split half discriminant function, as applied to the even and odd split halves, leads to the following correctness of the classification:

Correctness of Classification	Population Samples - Halves (%) Even Split	Odd Split	Total
Correctly classified	81.05	75.46	48.42
Incorrectly classified	18.95	24.54	51.58
Total	100.00	100.00	100.00
Base	(153)	(163)	(316)

$X^2 = 1.13$; 1 d.f.; N.S.

model is applied to the total sample, and a profile is feasible for consideration which is based on an evaluation of the coefficient weights of the variables in the function derived (Bolch and Huang, 1974). The profile to be discussed here is of members of the early cognitive reference age group (the late cognitive reference age group is the exact opposite).

Table VI-5 shows the independent variables and their associated coefficient weights. For the profile, only the variables that have the greatest meaning (they influence the dependent variable most) will be considered. This means that only weights of .1 or higher will be part of the profile (Churchill, 1979).

The profile of the members of the early cognitive reference group turns out as follows:

1. They are younger in their chronological age.
2. They are more likely to be opinion leaders.
3. They are less traditional.
4. They have a high morale.
5. They have achieved a higher level of education.

These results confirm the hypotheses discussed in Chapter V. According to the interpretation of the discriminant function, these five variables are the most important and influential in the model.

It is of special interest to note that this profile does not include any specific product oriented variables. This fact might indicate the cognitive reference age variable

TABLE VI-5

DISCRIMINANT FUNCTION - TOTAL SAMPLE
EARLY COGNITIVE REFERENCE AGE GROUP

Variables	Standardized Coefficient Weights
1. Chronological age	- .81900
2. Venturesomeness	- .07441
3. Traditionality	- .12787
4. Opinion leadership	+ .13710
5. Morale	+ .28636
6. Education	+ .13859
7. Family	+ .03690
8. Product usage	+ .09033
9. Brand switching	+ .05138

Wilks' Lambda = .6709; $p \ll .001$

X^2 of "Hit and Miss" ratio = 101.52; 1 d.f.; $p \ll .001$

Percent of cases classified correctly = 78.48

Percent of cases classified better than chance =

78.48 - 50.07 = 28.41

to be a psychological trait that is not product specific, which has implications for future research and will, therefore, be discussed in the last chapter.

The Chronological Age Group Model

The derivation of the chronological age group discriminant model involved several steps that will be discussed step by step.

Step 1: Variable Selection

A procedure similar to that for the cognitive reference age group model was followed. A discriminant function of the form

$$Z = w_1X_1 + w_2X_2 + w_3X_3 + ... + w_nX_n$$

where

Z = the discriminant score

w = the discriminant weights

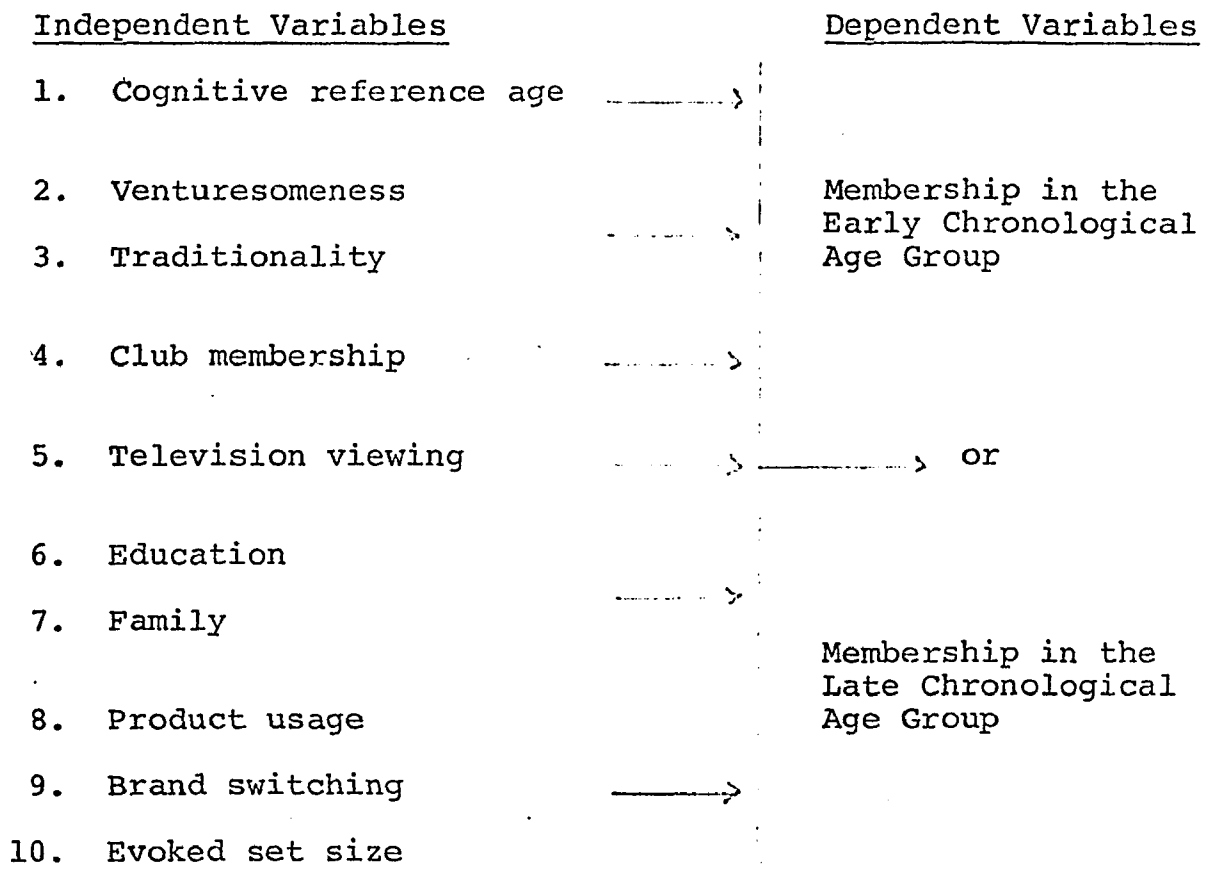
X = the independent variables

is considered and portrayed through a simple flow chart in Figure VI-2. The dependent variable (Z) shown on the right side of Figure VI-2 consists of two chronological age groups:

1. The early chronological age group (respondents chronologically 54 to 64 years of age).
2. The late chronological age group (respondents chronologically 65 years of age and older).

FIGURE VI-2

DISCRIMINANT CHRONOLOGICAL AGE GROUP MODEL



X_1 through X_n in the linear discriminant function equation are the independent variables of the model, listed specifically on the left side of Figure VI-2. These ten independent variables were selected from the variables considered in this dissertation on the basis of the following criteria:

a. A significant relationship existed between chronological age and the independent variables to be selected. This was established through the test of hypotheses and cross-tabulations (see Chapter V).

b. The independent variables were reasonably reliable (see Table V-23).

c. The intercorrelation of the independent variables selected was less than .35 (see Appendix IV).

d. The independent variables did not contain too many missing values.

Step 2: Usefulness of the Model

Three procedures were used to evaluate the null-hypothesis that the function does not separate the chronological age groups significantly. These procedures were based on the even-split half of the population sample.

These three procedures were as follows:

1. The Hotelling T^2 Test

As the data in Table VI-6 shows, the Hotelling T^2 for the chronological age group discriminant function is greater than the $F_{critical}$. Therefore, the null-hypothesis

TABLE VI-6

MAHALANOBIS' D^2 AND HOTELLING T^2
CHRONOLOGICAL AGE - DISCRIMINANT FUNCTION
EVEN SPLIT HALF

Mahalanobis' $D^2 = (\Delta\bar{X})' \cdot S_*^{-1} \cdot (\Delta\bar{X}) = 1.36$

where

$(\Delta\bar{X}) = \bar{X}_1 - \bar{X}_2$ = difference between means of the early and late chronological age groups.

S_* = the within group covariance matrix

Hotelling $T^2 = (n_1 \cdot n_2)/(n_1 + n_2) \cdot D^2 = 49.15$

where

n_1 = number of respondents in the early-chronological age group = 83

n_2 = number of respondents in the late-chronological age group = 64

$F_{critical} < F_{(.001,\ 10,\ 120)} = 3.24$

Therefore:

$$\text{Hotelling } T^2 > F_{critical}$$

that the function is not significant can be rejected. Therefore, the discriminant function is useful and significant ($p \ll .001$).

2. Wilks' Lambda Test

The Wilks' Lambda calculated by the computer in its derivation of the function is .6149, which is equivalent to a chi-square statistic of 146.85 with 10 d.f., indicating the function to be significant ($p \ll .001$).

3. Chi-Square of "Hit-and-Miss" Ratio

The corrected chi-square computed for the "Hit-and-Miss" ratio is significant ($p \ll .001$) as is clear from the data shown in Table VI-7.

Therefore, it has been established through three different tests that the null-hypothesis concerning the capacity of the discriminant function to separate the chronological age groups in a significant manner can be rejected, because the separation has been found to be significant ($p \ll .001$).

Step 3: Validation of the Model

Two methods will be considered and discussed for the validation of the chronological age group discriminant model.

1. Comparison of Generalized Distances (D^2 and D_o^2)

The null-hypothesis that the discriminant function developed for the even-split half does not differ from the function developed for the odd-split half was tested through

TABLE VI-7

"HIT AND MISS" RATIO OF
EVEN-SPLIT HALF POPULATION
CHRONOLOGICAL AGE GROUP MODEL

Predicted Group Membership	Chronological Age Groups Early %	Late %	Total %
Predicted - early	83.1	32.8	56.46
Predicted - late	16.9	67.2	43.54
Total	100.0	100.0	100.00
Base	(83)	(64)	(147)

$X^2 = 36.45$; 1 d.f.; $p < .001$

Correctly classified: 76.19%

Chance proportion + $(.5646)^2 + (.4354)^2 = .5083$

Chance accuracy = 50.83%

Overall correctness better than chance - 76.19 - 50.83 = 25.36%

the calculation of an F statistic. This F statistic includes the generalized distances D^2 and D_o^2.

As shown by the data of Table VI-8, there is support for this null-hypothesis, and the discriminant model is validated

$(F_{calculated} = 1.18 < F_{critical} < F_{(.05,\ 9,\infty)} = 1.88)$.

2. The Split-half Cross-validation

As can be seen from the data portrayed in Table VI-9, the application of the even-split half function to the hold-out sample provides additional evidence of the validity of the chronological age group discriminant model. No significant differences in the "Hit-and-Miss" ratios were found between the two split half samples.

It is therefore concluded that the proposed chronological age group model is valid and can be applied to the total population sample.

Step 4: Chronological Age Group Profile

A profile of membership in the chronological age groups is assessed on the basis of the application of the model (as depicted in Figure VI-2) to the total population sample.

The discussion of the profile centers on the members of the early chronological age group, since it is understood that a reverse profile exists for the late chronological age group.

TABLE VI-8

GENERALIZED DISTANCES IN
CHRONOLOGICAL AGE - DISCRIMINANT FUNCTIONS
EVEN AND ODD SPLIT HALF SAMPLES

D^2 (even-split half) = 1.36 (see Table VI-6)

$$D_o^2 = (C' \cdot \Delta\bar{X}) \cdot (C' \cdot S_* \cdot C)^{-1} \cdot (C' \cdot \Delta\bar{X}) = .975$$

where

$C' = (c_1, c_2, c_3, \ldots\ldots\ldots, c_{10})$ = coefficients of the odd-split half (hold-out) function

$\Delta\bar{X} = \bar{X}_1 - \bar{X}_2$ = differences between means of early and late chronological age groups in the even-split half sample.

S_* = the within group covariance matrix of the even-split half sample

$$F_{calculated} = (n_1+n_2-p-1)/(p-1) \cdot m(D^2-D_o^2)/(1+mD_o^2) = 1.18$$

where

n_1 = number of respondents in the early-chronological age group (even-split half) = 83

n_2 = number of respondents in the late-chronological age group (even-split half) = 64

p = number of independent variables = 10

$$m = (n_1 \cdot n_2)/(n_1+n_2) \cdot 1/(n_1+n_2-2) = .25$$

$$F_{critical} = F_{(.05,\ p-1,\ n_1+n_2-p-1)} = F_{(.05,\ 9,\ 138)}$$

$$F_{critical} < F_{(.05,\ 9,\infty)} = 1.88$$

Therefore:

$$F_{calculated} < F_{critical}$$

TABLE VI-9

SPLIT-HALF CROSS-VALIDATION
CHRONOLOGICAL AGE GROUP MODEL

The even split half discriminant function, as applied to the even and odd split halves, leads to the following correctness of the classification:

Correctness of Classification	Population Samples - Halves (%) Even Split	Odd Split	Total
Correctly classified	76.19	79.63	77.99
Incorrectly classified	23.81	20.37	22.01
Total	100.00	100.00	100.00
Base	(147)	(162)	(309)

$X^2 = .30$; 1 d.f.; N.S.

Table VI-10 shows the independent variables in the chronological age model and their associated standardized coefficient weights. On the basis of weights of .1 or greater, the variables forming the profile are selected.

The early chronological age group turns out to have the following profile:

1. They are younger in their cognitive reference age.
2. They are less likely to be members of clubs.
3. They watch less television
4. They have achieved a higher level of education.
5. They are more frequent users of the product class (shampoo).
6. They switch brands of shampoo quite often.

This profile confirms the findings of Chapter V, which evaluated the results of the hypotheses tested. The six variables helped determine most of the correct classifications in the analysis. It is important to note that, contrary to the case with the cognitive reference age group profile, the members of the chronological age groups are classified according to product and demographic variables. This is indicative of the differences between these two age variables.

This ends Chapter VI, which evaluated discriminant models of cognitive reference age and chronological age

TABLE VI-10

DISCRIMINANT FUNCTION - TOTAL SAMPLE
EARLY CHRONOLOGICAL AGE GROUP

Variables	Standardized Coefficient Weights
1. Cognitive reference age	- .56398
2. Venturesomeness	- .00781
3. Traditionality	- .07779
4. Club membership	- .14356
5. Television viewing	- .23418
6. Education	+ .27757
7. Family	- .03972
8. Product usage	+ .19274
9. Brand switching	+ .29666
10. Evoked set size	+ .07166

Wilks' Lambda = .6149; $p \leq .001$

X^2 of "Hit and Miss" ratio = 102.77; 1 d.f.; $p \leq .001$

Percent of cases classified correctly = 79.61

Percent of cases classified better than chance =

79.61 - 50.80 = 28.81

groups. The next and final chapter is concerned with the summary, conclusions, and recommendations for future research based on the findings reported on in Chapters V and VI.

CHAPTER VII

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter the research findings presented in this dissertation will be summarized and the implications of these findings, together with recommendations concerning future research, will be presented.

Summary

The object of the research described in this dissertation was to develop a psychologically based age variable that might potentially be more useful than the traditional chronological age measure in the study of the behavior of elderly consumers. The study specifically examines a new self-perceived age variable, "cognitive reference age," and considers it as an alternative or supplemental variable to chronological age. This evaluation was made on the basis of an exploratory study of consumers 55 years of age and older. The research examined the relationship of both age variables (cognitive reference age and chronological age) and a number of behavioral and attitudinal variables.

Extensive research in literature dealing with studies among the elderly determined that relatively few have examined the consumer behavior of the elderly. An additional finding was that the majority of these few

studies were concerned with economic aspects of the elderly rather than with their consumer behavior. Several consumer researchers were quoted as saying that there is a need for more research among elderly consumers.

It was also determined that in the marketing literature no studies relating to a self-perceived age variable were to be found.

Gerontologists and sociologists reported some research and findings on self-perceived age measures, but these measures have not been applied to issues related to consumer behavior. In addition, the major self-perceived age variable reported upon is "subjective age," and these reports are very broad and general in nature. Therefore, a good self-perceived age measure that lends itself well to surveys was not yet developed and/or available, and the new age variable proposed in this dissertation might fill this gap.

While gerontologists and sociologists have devoted a fair amount of attention to the effects and influence aging has on elderly individuals, such studies are still quite rare in consumer benavior. This dissertation evaluates the influence of aging (both of a psychological and chronological nature) on elderly consumers.

In the marketing literature it has generally been assumed, without any reports of empirical testing, that consumers can be considered elderly when they reach a chronological age of 65 years.

In this study this assumption was tested empirically through a comparative analysis of consumers in two chronological age groups: (1) the early chronological age group, whose members ranged chronologically from age 55 to 64, and (2) the late chronological age group, whose members were chronologically 65 years of age and older.

Comparative analysis was used to evaluate chronological age groups as well as to assess the new cognitive reference age variable. This included the consideration of two age groups based on this new self-perceived age variable.

The cognitive reference age groups were as follows: (1) the early cognitive reference age group, with members who perceive themselves to be 54 years old or less, and (2) the late cognitive reference age group, with those perceiving themselves to be 55 years of age or older.

Another aspect of the study was concerned with a folk belief that was of relevance to this study. This belief, which was also tested empirically, involves the idea that the young at heart are not tied to the bounds of chronological age. In other words, it deals with the concept that being young at heart is of far greater relevance and meaning to an individual than her chronological age.

The testing of this belief involved an assessment (using cross-tabulation) of the concept that membership in a chronological age group is of less relevance than membership in a younger cognitive reference age group (the early cognitive reference age group) in terms of a person's behavioral

inclinations and characteristics as measured in this dissertation.

The basic research procedures used in this study were as follows:

1. A pretest that allowed redesign of the questionnaire and that also made retesting of several respondents possible, especially in relation to the new cognitive reference age scale. This retesting allowed determination of a test-retest reliability coefficient for the cognitive reference age measure.

2. The survey was conducted in the greater metropolitan area of New York City. Thirty-nine interviewers, who had received precise instructions and training for the interviewing process, conducted 477 interviews.

3. A screening process, after compilation of the data, lowered the number of respondents in the population sample to 324.

4. At this fourth stage of the research procedures, it became feasible to test hypotheses. The testing of the hypotheses involved an evaluation of the relationship (direction and significance) of the two types of age group (cognitive reference age and chronological age) with a set of independent variables. The independent variables in this study were the following: (a) perceived error-tolerance, (b) venturesomeness, (c) self-confidence, (d) dogmatism and traditionality,

(e) opinion-leadership, (f) life-satisfaction and morale, (g) club membership and telephone usage, (h) media variables, such as television viewing, radio listening and reading, and (i) product and brand variables such as product importance, product liking, frequency of product usage, brand switching, and evoked set size. The basis statistical procedure used to do the hypothesis tests was cross-tabulation and chi-square analysis. This stage was also concerned with the test of the young at heart notion and the same statistical testing procedure was used.

5. The estimation and assessment of reliability and validity was the next stage in the research. The reliability estimates dealt mainly with the internal consistency of the cognitive reference age variable and the other multi-item scales in the dissertation. (The test-retest reliability had been established in stage one of the research procedures for the cognitive reference age measure). The validity assessment was mainly concerned with the new cognitive reference age measure, and the results of the hypothesis tests conducted in stage four of the research provided the needed content and criterion validity.

6. The next stage was the development and testing for reliability and validity of discriminant models for each of the two types of age groupings. The independent variables selected for each type of model were based on established guidelines (cross-tabulations, reliability and correlation).

7. The last stage of the research procedures involved the determination of profiles of members of the two types of age groups. These profiles were determined through an assessment of the unstandardized coefficient weights associated with the independent variables in the discriminant functions, which had been developed for the cognitive reference age group and for the chronological age group.

Summary of Research Findings

The results relating to cognitive reference age will be summarized first. Then the findings relevant to the chronological age variable will be discussed.

Cognitive Reference Age Results

This discussion will start with a summary of the findings relating to the reliability of this new age measure. These findings were surprisingly good (for a brand-new variable). The test-retest reliability, which had been established through the reinterviewing of 15 respondents, had an $R = .88$, and the internal consistency estimates, which were established through two separate procedures were also highly satisfactory. The Guttman Lambda estimate had a coefficient of .85751, and the Spearman-Brown coefficient was .85612. These reliability estimates showed the new cognitive reference age measure to contain both stability and internal consistency.

Validity of the new measure centered on content and criterion. Content validity was based on the interrelationship of the age dimensions and variables, as well as the general

logic and reason displayed by the findings in this study. This refers to the idea that the cognitive reference age variable performed in a manner to be expected on the basis of common sense. This is exemplified by the relationship established (through cross-tabulation) with venturesomeness.

In the case of the criterion validity, the basis was not common sense but prior research with self-perceived age variables by social gerontologists and other diverse social scientists.

Correlates with cognitive reference age, established in this study through cross-tabulation and discriminant analysis, included variables that these diverse social scientists had also found to be related to self-perceived age. These correlates were (1) chronological age, (2) life-satisfaction and morale, (3) traditionality, (4) education, and (5) employment status. All of these correlates had a significant relationship of a direction similar to that established for other self-perceived age variables.

The hypothesis testing, with the cognitive reference age groups being cross-tabulated with the set of independent variables, established a number of significant relationships. These results have been summarized in Table VII-1. As can be seen from this table, 22 hypotheses were considered, and cross-tabulation and chi-square analysis established significant relationships with 12 of these variables. (Included in this listing is chronological age, even though it was not tested as a hypothesis).

TABLE VII-1

SUMMARY OF RESEARCH FINDINGS
COGNITIVE REFERENCE AGE GROUPS - HYPOTHESES

Hypotheses	Accepted	Rejected	Significance Level
1. Chronological age	x		$\leqslant .001$
2. Perceived error-tolerance		x	n.s.*
3. Venturesomeness	x		$\leqslant .001$
4. Self-confidence		x	n.s.
5. Dogmatism	x		$\leqslant .05$
6. Traditionality	x		$\leqslant .001$
7. Opinion leadership	x		$\leqslant .01$
8. Life-satisfaction	x		$\leqslant .001$
9. Morale	x		$\leqslant .001$
10. Club membership		x	n.s.
11. Telephone usage		x	n.s.
12. Television viewing		x	n.s.
13. Radio listening		x	n.s.
14. Reading		x	n.s.
15. Education	x		$\leqslant .001$
16. Employment status	x		$\leqslant .001$
17. Family	x		$\leqslant .001$
18. Product importance		x	n.s.
19. Product liking		x	n.s.
20. Product usage	x		$\leqslant .001$
21. Brand switching	x		$\leqslant .001$
22. Evoked set size		x	n.s.

*n.s. (not significant)

After screening the independent variables, which had a significant relationship with cognitive reference age groups, nine independent variables remained for inclusion into a discriminant model to be tested. The screening process involved elimination because of low reliability (i.e., dogmatism) and high intercorrelation (i.e., life-satisfaction and morale).

The nine variables formed the independent variables in the discriminant model which was found to be a reliable and valid model. This model enabled the establishment of key predictor variables which formed the basis of a profile of members of cognitive reference age groups.

The discriminant model developed for the cognitive reference age groups was considered and evaluated to enable a profile to be determined for the whole population sample. This profile for the early cognitive reference age group respondent is as follows: she is chronologically younger, is not traditional in outlook, is characterized as an opinion leader, has a high morale, and is likely to have some formal education.

The membership in a cognitive reference age group is not especially determined by demographic variables (exceptions are chronological age and education) and no media or product variables are typical of respondents' classification into a cognitive reference age group. The closest to a product-based variable is opinion leadership,

which here was measured more as a general-cosmetic product-class opinion leadership variable. This finding could imply that self-perceived age, as measured through cognitive reference age, is not a product-based variable.

The discriminant model that was developed and validated also provided additional reliability to cognitive reference age. The consistency of the profile, by stressing the most important correlates of self-perceived age, also strengthened the criterion validity of the new age measure. The employment-status variable was not part of the discriminant analysis, since too many respondents did not answer the employment question. Therefore that variable could not receive additional confirmation of its relationship with cognitive reference age.

On the basis of the results, the discriminant analysis should be considered a successful application of this statistical technique in this study.

Chronological Age Results

The reliability of the chronological age measure was estimated on the basis of the test-retest. As prior studies have indicated, this measure has great stability (here R = .99). There was also no need to assess the validity of this measure, since it is one of the best known reliable and validated measures in social research.

The hypothesis testing with chronological age involved an assessment of cross-tabulations and chi-square

analysis with the two chronological age groups (early and late). The results of the hypothesis tests can be found in Table VII-2. In this table the cross-tabulation results of chronological age and cognitive reference age groups were included even though this relationship had not been tested specifically as a hypothesis test. It was included because these variables formed the basis for the selection of variables for the discriminant analysis. As can be seen from Table VII-2, out of 22 cross-tabulations with the early and late chronological age groups only 12 variables turned out to have a significant relationship with chronological age in the direction expected. (None were in an unexpected direction).

These 12 variables could then be evaluated for inclusion into the chronological age discriminant model to be developed. This was done through the same screening process used in the determination of independent variables for the cognitive reference age group model. This caused the removal of employment status (too many non-responses) as an independent variable. Dogmatism (too low a reliability) was also removed. In this way ten key independent variables were left to be included in the discriminant analysis.

With these ten independent variables and with the chronological age groups as the dependent variable, a discriminant function was derived and tested for its

TABLE VII-2

SUMMARY OF RESEARCH FINDINGS
CHRONOLOGICAL AGE GROUPS - HYPOTHESES

Hypotheses	Accepted	Rejected	Significance Level
1. Cognitive reference age	x		$\leq .001$
2. Perceived error tolerance		x	n.s.*
3. Venturesomeness	x		$\leq .001$
4. Self-confidence		x	n.s.
5. Dogmatism	x		$\leq .001$
6. Traditionality	x		$\leq .001$
7. Opinion leadership		x	n.s.
8. Life-satisfaction		x	n.s.
9. Morale		x	n.s.
10. Club membership	x		$\leq .05$
11. Telephone usage		x	n.s.
12. Television viewing	x		$\leq .05$
13. Radio listening		x	n.s.
14. Reading		x	n.s.
15. Education	x		$\leq .001$
16. Employment status	x		$\leq .001$
17. Family	x		$\leq .001$
18. Product importance		x	n.s.
19. Product liking		x	n.s.
20. Product usage	x		$\leq .001$
21. Brand switching	x		$\leq .001$
22. Evoked set size	x		$\leq .01$

*n.s. (not significant)

reliability and validity. Once determined reliable and valid, this discriminant model could be used to provide consideration of a profile of chronological age group members. Based on the variables most influential in the correct classification into chronological age groups, it was established that the respondent in the early chronological age group is younger in terms of cognitive reference age, is not likely to be a member of a club, does not view much television, and probably has achieved some formal education. She also tends to use the product (shampoo) frequently and is likely to switch brands often.

This profile is quite different from the profile developed for the cognitive reference age group, which can be seen as an indication of the differences between the two age constructs.

Conclusions

The most important findings from this study are concerned with the new cognitive reference age variable. This newly developed variable turned out to be surprisingly reliable (both in terms of stability and internal consistency), and showed sufficient criterion and content validity for its overall validity to be acceptable.

The cognitive reference age variable also seems to offer marketers a new relevant and plausible alternative age variable that promises to be a good segmentation variable.

It seems to hold promise as an innovator characteristic among the elderly. Traits such as venturesomeness and opinion leadership, as well as product related variables such as frequency of product usage and brand switching, are related to this new variable.

The multiple discriminant model showed the possibility of considering the cognitive reference age measure as a reliable approach for separating a population sample into self-perceived age groups. A model was developed that provides a good and clear profile of members of such cognitive reference age groups.

A surprising albeit happy finding in the study was that the profile that was developed relies heavily on personality and social traits, and not on product-related variables. This is a fortuitous finding, since it provides evidence about the applicability of the cognitive reference age model and concepts to other studies that are not based on age-sensitive product classes.

The cognitive reference age variable also showed its strength in its relationship with life-satisfaction and a newly developed sub-component of life-satisfaction, "morale." Peters (1971) in his review article on self-perceived age, calls for the development of a variable such as cognitive reference age, which is not as ambivalent as the "subjective age" measure.

The new cognitive reference age variable showed itself to be of potential use in gerontology through its

relationship with life-satisfaction and morale. This is to be expected since it was based on the thinking and studies of gerontologists (especially Kastenbaum, 1972).

Life-satisfaction also provides new insights into the consumer behavior of the elderly. This is evident from its high correlation with opinion leadership and self-confidence. This last finding might indicate its value as an alternative to the present self-confidence measure in studies among the elderly. It is a reliable (in this study life-satisfaction had a reliability of .55) and valid measure, according to gerontologists. And "morale," the newly developed variable that might serve as a good and reliable alternative (reliability of .71 in this study) is also significant in terms of its relation to other consumer behavior variables in addition to cognitive reference age. (It is related to error-tolerance, self-confidence, opinion leadership, product importance and brand switching).

An important conclusion to be reached concerning the cognitive reference age variable is that overall it managed to shed some light into the obscurity of the personality and behavior of elderly consumers.

An entirely different aspect of the study is the assessment of the chronological age variable. While chronological age is the traditional age variable used by consumer researchers, there is little empirical research relating to the effects of aging based on chronological age, nor is there

much evidence of research that attempts to study the effects of encroaching chronological age upon consumers.

It seems to be an accepted norm that consumers who reach the chronological age of 65 years change and become "elderly." While this might be the case, it had not been empirically investigated. This study was a first attempt to do just that, and the findings seem to indicate that there is a difference between those under the chronological age of 65 years and those who are chronologically 65 years and older. At least the hypotheses that were tested and the discriminant analysis provide evidence to that effect.

The discriminant model developed for the chronological age groups showed a consumer profile that was heavily influenced by consumer specific variables, such as television viewing, product usage, and brand switching. The discriminant function developed showed itself capable of classifying well (about 80 percent), especially through the inclusion of the new age variable as an independent variable.

One of the most important conclusions that emerged from the data described in the preceding two chapters is the fact that the cognitive reference age variable is different from the chronological age variable. This difference is especially confirmed by the test of what was termed, in this dissertation, the folk-belief that a person's self-image as being "young" or feeling young at heart are of greater relevance to an individual's traits and consumer behavior than

chronological age. The findings provided empirical evidence of this phenomenon, and except for the patterns of television viewing and educational levels, young at heart consumers (those with a cognitive reference age younger than 55 years of age) did not differ from each other, regardless of the chronological age group that they belonged to.

Additionally, the difference between cognitive reference age and chronological age can be demonstrated by the fact that a significant minority of respondents are classified differently by the two age variables. More precisely, 80 respondents (25 percent of the sample population) were classified differently in terms of cognitive reference age groups than they are categorized by the chronological age variable (see Table V-26). This is additional evidence of the difference between the two types of age measures.

Finally, it should be said that the new cognitive reference age variable turned out to be a reliable and valid alternative age variable to chronological age. It showed its strengths as a variable that might perform as a segmentation variable and that deserves to be included among the ranks of easily measurable survey-research oriented consumer-behavior traits.

Recommendations

The results of this study suggest the improvement made possible for marketers and gerontologists through their use of the new cognitive reference age variable in examining patterns of aging.

Marketers have attempted to identify segments within the elderly consumer groupings, and this generally requires the identification of a number of traits. The cognitive reference age variable could make this process simpler and easier. For example, in this study it was determined that a young oriented consumer is likely to be an opinion leader, has a high morale, is non-traditional, and is relatively well educated. With this insight, marketers might understand consumers better and adjust their promotional strategies to relate to such consumers (who are probably open to new ideas and developments, and function as generators of important word-of-mouth activity).

The marketer might also understand better that it is not advisable to approach this elderly population with old stereotypical attitudes. A consumer who is in her sixties, for example, might perceive herself to be in her forties and identify herself with role models of that age--even though the product is aimed at and meant for elderly consumers. Another possibility is that she really belongs to a different target market than the marketer thought she belonged to. If she perceived herself to be

young, she actually might belong to a young target market, even though her chronological age could be high.

The study might also provide insight into what is of interest as a promotional vehicle to these consumers. The study indicated that the medium used is not of such great importance (except that the chronologically older consumers watch more television). However, it bears thinking that the medium environment of promotional message could be influenced by the interests of the consumer. This could be of importance if the cognitive reference age variable was influential to the type of media environment thought to be of interest to consumers.

Relative to ideas for further research, it is recommended that other studies be done using different product categories (some age sensitive and some not) to see if the results of this study can be repeated across different product categories, and if these categories make a difference in terms of the role models developed.

It is evident that further research is needed to repeat the present study and provide it with greater reliability and validity.

The capacity of cognitive reference age to perform well in a consumer behavior environment needs further investigation, especially in conjunction with other reliable new variables such as life-satisfaction and morale, which have

been developed specifically for an elderly population. Future studies of the relationship of life-satisfaction and morale as possible alternatives to measures such as self-confidence are highly recommended.

Of course, as a new trait, the cognitive reference age variable requires research among different types of populations such as elderly men, younger women and men, other races, and combinations of these various types. It might lend itself also to cross-cultural studies.

Such research could provide specific insights about the feasibility of cognitive reference age as applied to younger populations. For example, this research could include investigation of age perception among teenagers as compared to the elderly. (The teenagers might like to perceive themselves to be older than their chronological age, while the elderly perceive themselves as younger than their chronological age).

Cross-cultural studies could investigate if there exists a cultural difference in the perception of age as measured through the cognitive reference age scale and, if there is such a cultural difference, which factors (i.e., sex or ethnic background) are responsible or related to this difference.

Overall, it is also important to assess the effect of sub-cultural and situational factors on the response to the cognitive reference age measure. This assessment would

not only require replication studies with identical or comparable respondents, but also an evaluation of the relationship of sub-cultural and situational factors with cognitive reference age.

Another area of investigation that is feasible is the study of the relationship between attitudes held toward aging and response to the new age measure. This study could be done in conjunction with measuring subjective age, using the less precise gerontological measures. (This would also be helpful in the assessment of the construct validity of the cognitive reference age measure).

In gerontology several major role changes have been identified which occur with the approach of old age (roles dealing with marital status, health status, occupational status, and economic status). These role changes are important to understand, and they are also of relevance to consumer researchers. That these role changes have great influence on an individual's life is known, but research that evaluates the relative effects of these role changes on the aging process is lacking. Since all of these role changes have, or at least can be expected to have, an influence on an individual's self-image and identity, it is evident that the new cognitive reference age variable might provide important insights into the study of the effect these role changes have on the elderly and on their aging process.

Overall, further study is needed to improve identification of the various patterns of aging and the

self-perceptions associated with these patterns. Cognitive reference age could be of value here. For instance, what is the effect of age identifications on the general behavioral pattern of members of our society, not only among the aged but also among the young?

The possible applications of a new age trait such as cognitive reference age are almost endless since it can be applied to so many different social sciences. For this reason some feasible approaches to studies using cognitive reference age in some of the social sciences will be mentioned here:

1. Consumer Behavior: Can consumers be identified better through cognitive reference age for purposes of segmentation? Can the new variable make promotional strategies more relevant when dealing with the elderly? Does the new variable provide needed insight into the consumer behavior of the elderly and how can this be improved?

2. Psychology: How can a variable such as cognitive reference age further the study of the psychology of aging? Can it become part of longitudinal studies of the psychological development that takes place with aging? Is it healthy to have a low (young) cognitive reference age?

3. Social Psychology: Can an "other-perceived" age variable be developed which is based on the cognitive reference age variable? Could this "other-perceived" age variable perhaps contain only a few of the four age dimensions that

make up the cognitive reference age variable? How would this "other-perceived" age variable be used? Would it be based on interviews or on pictures?

4. Gerontology: How can the patterns of aging be studied best when including cognitive reference age among the variables used in the evaluation?

5. Sociology: How are the social class together with employment status related to cognitive reference age?

6. Economics: How is a person's perception of economic status influenced by cognitive reference age and vice-versa?

7. Social Work: Can cognitive reference age help identify aged persons who are in great need of social services? Can this be done through a combination of a study of cognitive reference age and life-satisfaction? (A low life-satisfaction might be indicative of greater need).

8. Industrial Psychology: Do workers who have a younger cognitive reference age have a greater resistance to pension plans? Are workers who approach retirement age and have a young cognitive reference age of greater production capacity, and are they perhaps more productive than others who are chronologically younger? (This might be helpful in the decision-making of personnel management).

Finally, it has been mentioned several times throughout this dissertation that the traits of those who perceive themselves as young (members of the early cognitive reference

age group) were innovative in orientation. The study found cognitive reference age to be related in a significant way with variables that have been consistently considered innovative traits in prior research. Those variables include venturesomeness, open-mindedness, non-traditionality, and frequent brand switching. All this suggests the opportunity to determine whether a link truly exists between cognitive reference age (which is the perception an individual has of his/her age) and general innovative behavior.

APPENDICES

APPENDIX I

COVER LETTER AND QUESTIONNAIRE

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N.Y. 10010

WILL YOU DO US A FAVOR?

THE STUDENT HANDING YOU THIS LETTER IS A STUDENT IN A MARKETING CLASS AT BARUCH COLLEGE, THE CITY UNIVERSITY OF NEW YORK.

THIS LETTER IS TO CLARIFY THAT THE INTERVIEW REQUESTED IS PART OF THE SCHOOLWORK TO BE DONE FOR A MARKETING CLASS. THE RESULTS ARE TO BE FOR ACADEMIC PURPOSES ONLY.

YOUR HELP AND PARTICIPATION IN THE INTERVIEW WILL BE MUCH APPRECIATED; HOPEFULLY YOU WILL FIND IT AN INTERESTING EXPERIENCE, AND AGAIN, THANK YOU FOR YOUR HELP.

SINCERELY YOURS,

Leon Schiffman

LEON SCHIFFMAN, PROFESSOR
DEPARTMENT OF MARKETING
BARUCH COLLEGE,
THE CITY UNIVERSITY OF NEW YORK

P.S. YOU CAN VERIFY THE IDENTITY OF THE STUDENT BY ASKING FOR HIS BARUCH STUDENT IDENTIFICATION CARD.

(Interviewer's name _____ No.:_____)
(Interview time: Date: / /74 Day of Week:_____ Begin:_____ End:_____)

PART I: SHOPPING BEHAVIOR

1. How frequently do you go shopping?

Daily	_____	Once a week	_____
3 or 4 times a week	_____	Less than once a week	_____
Twice a week	_____	(Do not know	_____)

2. When you go shopping, how often do you go with someone else:

Often _____ Sometimes _____ Never _____ (Do not know _____)

3. When shopping in a supermarket, do you prefer to:
   (a) try a new brand of product when it first comes out
   (b) wait and learn how good it is before trying it

Try it _____ Wait _____ (Do not know _____)

4. Is it better not to buy new untried products if well known ones are still available?

Yes _____ No _____ (Do not know _____)

PART II: SHAMPOOS

1. a. How often do you use shampoo?

One or more times a day	_____	One to 3 times a month	_____
2 or 3 times a week	_____	Less than once a month	_____
Once a week	_____	Never	_____

(IF NEVER, go to Question 12)

b. How much do you enjoy shampooing?
Enjoy very much _____ Enjoy _____ Neither enjoy nor dislike _____ Dislike _____

2. Compared with other personal groom products, how important are shampoos to you?
Very important _____ Important _____ Unimportant _____

3. How important is it to you to get the best brand of shampoos?
Very important _____ Important _____ Unimportant _____

4. Who decides which brand of shampoo you use?
Yourself _____ Yourself and someone else _____ Someone else _____

5. How often do you switch brands of shampoo?
Often _____ Sometimes _____ Never _____

6. a. Have you recently been asked your advice and/or opinion about shampoos?
Yes _____ No _____
b. (If yes) by whom? Family _____ Friends _____ Neighbors _____

7. About how many different shampoos have you tried during the past 3 months?
0 _____ 1-2 _____ 3-5 _____ 6 or more _____

8. How do you generally find out about the different brands of shampoo? (PROBE, check as many as the respondent states)

TV commercial	_____	Newspaper advert.	_____
Radio commercial	_____	Display in store	_____
Magazine advert.	_____	Friends or family	_____
Other	_____		

9. A. Which of the following brands of shampoo would you consider purchasing? (CHECK only those brands respondent would consider purchasing and PROBE for additional brands respondent might be considering)

1. Afro Sheen	___	11. Head and Shoulders	___	21. Tegrin	___
2. Alberto Balsam	___	12. Johnson's Baby Shampoo	___	22. Wella Balsam	___
3. Alberto VO5	___	13. L'Oreal	___	23. Wella Care Herbal	___
4. Avon	___	14. Prell	___	24. White Rain	___
5. Breck	___	15. Protein 21	___	25. _____	
6. Clairol-Colorfast Shampoo	___	16. Revlon-Flex	___	26. _____	
7. Clairol-Herbal Essence	___	17. Revlon-Milk Plus 6	___	27. _____	
8. Clairol-Short and Sassy	___	18. Selsun Blue	___	28. _____	
9. Earth Born	___	19. Suave	___	29. _____	
10. Halo	___	20. Tame	___	30. (Don't know _____)	

B. Which brand is your favorite? (PROBE _____)

C. How sure are you that this brand is the best? Very sure _____ Sure _____ Uncertain___

10. Which brands of shampoo do you dislike most? (PROBE)

a. _____ c. _____ e. _____
b. _____ d. _____ f. _____

11. Which are the qualities you look for in a shampoo (PROBE)

a. _____ c. _____ e. _____
b. _____ d. _____ f. _____

12. Do you go to a beauty parlor? Yes _____ No _____ (If no, go to Part III)

A. Do you bring your own shampoo? Yes _____ No _____

B. (if no) Do you request your favorite brand of shampoo? Yes _____ No _____

13. How often do you go to a beauty parlor?

Once a week	_____	1 to 3 times a month	_____
2 to 3 times a week	_____	Less than once a month	_____

14. Do you also shampoo your hair yourself? Yes _____ No _____

PART III: SHOPPING ATTITUDES AND VIEW OF LIFE

Please listen to each of the following statements and then, referring to the card, tell me if you agree, disagree or are uncertain.

(HAND RESPONDENT CARD WITH 3 POSSIBLE RESPONSES)

	AGREE	DISAGREE	?
1. I am more independent than most people.	_____	_____	_____
2. I will try anything at least once.	_____	_____	_____
3. My friends and neighbors often ask my advise about grooming and cosmetic products.	_____	_____	_____

	AGREE	DISAGREE	?
4. I feel self-conscious when I am first to wear a new fashion.	____	____	____
5. I think I have a lot of personal ability.	____	____	____
6. A few strong leaders could make this country better than all the laws and talk.	____	____	____
7. These are the best years of my life.	____	____	____
8. I like romantic movies.	____	____	____
9. People sometimes say that an insult to your honor should not be forgotten. Do you agree or disagree with that?	____	____	____
10. When my mind is made up, I never change it.	____	____	____
11. I think I have more self confidence than most people.	____	____	____
12. As I look back on my life I am fairly well satisfied.	____	____	____
13. I don't like to take chances.	____	____	____
14. The things I do are as interesting to me as they ever were.	____	____	____
15. This is the dreariest time of my life.	____	____	____
16. I have gotten more of the breaks in life than most of the people I know.	____	____	____
17. What young people need most of all is strict discipline by their parents.	____	____	____
18. I enjoy browsing through new stores.	____	____	____
19. There is too much violence on TV today.	____	____	____
20. I often seek out the advice of my friends regarding which grooming and cosmetics products I buy.	____	____	____
21. Most of the things I do are boring or monotonous.	____	____	____
22. Liquor is a curse on American life.	____	____	____
23. I like to be considered a leader.	____	____	____
24. As I grow older things seem better than I thought they would be.	____	____	____
25. I like experimenting with new and different things.	____	____	____
26. Most people who don't get ahead just don't have enough will power.	____	____	____
27. I feel it is safe to buy unfamiliar products instead of well known products.	____	____	____

		AGREE	DISAGREE	?
28.	Compared to other people I get down in the dumps too often.	____	____	____
29.	I usually wait and see how other people like new brands before trying them.	____	____	____
30.	I have made plans for things I'll be doing a month or a year from now.	____	____	____
31.	I often read the Bible.	____	____	____
32.	In spite of what people say, the lot of the average man is getting worse, not better.	____	____	____
33.	I've gotten pretty much what I expected out of life.	____	____	____
34.	When I see a brand of shampoo on a shelf, I often buy it just to see what it's like.	____	____	____
35.	When I think back over my life, I didn't get most of the important things I wanted.	____	____	____
36.	I prefer to buy things that my friends or neighbors would approve of.	____	____	____
37.	When I set my mind to doing something, I can usually do it.	____	____	____
38.	I take a lot of interest in new products which can be used in household work.	____	____	____
39.	Once I have made up my mind on a particular brand, I stick to it.	____	____	____
40.	I am just as happy as when I was younger.	____	____	____

PART IV: COMMUNICATION (PERSONAL AND IMPERSONAL)

1. About how many hours did you spend watching TV yesterday? _____hrs. (None _____)

2. About how many hours did you spend listening to the radio yesterday? ____hrs.(None___)

3A. About how many hours did you spend reading yesterday? _____hrs. (None_____)
(If none, go to Question 4)

B. About how many hours did you spend reading magazines and/or newspapers yesterday?
_____hrs. (None _____)

4. How often did you visit with your neighbors in the last 3 months?

More than once a day	_____	Less than daily	_____
Daily	_____	Never	_____

5. How often do you see your friends and relatives? I mean people you know pretty well.

Several times a week	_____	Once a month	_____
About once a week	_____	Less often than once a month	_____
Several times a month	_____	Never	_____

6. About how many phone calls do you make and receive on an average day (like yesterday)?
   Calls made _____ (Number) Calls received _____ (Number)

7A. Do you belong to any clubs, civic groups or other organizations?

B. (If yes) Which ones?
   Clubs _____ Civic groups _____ Church (or temple) _____
   Other organizations _____

C. How often do you attend this type of meeting?
   Weekly _____ Monthly _____ Less often than monthly _____ Never attend _____

PART V: AGE

Most people seem to have other 'ages' besides their official or 'date of birth' age. The questions which follow have been developed to find out about your 'unofficial' age. Please specify which age group you FEEL you really belong to: twenties, thirties, forties, fifties, sixties, seventies or eighties.

(HAND CARD WITH DIFFERENT AGE GROUPS TO RESPONDENT)

	20's	30's	40's	50's	60's	70's	80's
1. I feel as though I am in my--	___	___	___	___	___	___	___
2. I look as though I am in my--	___	___	___	___	___	___	___
3. I do most things as though I were in my--	___	___	___	___	___	___	___
4. My interests are mostly those of a person in her--	___	___	___	___	___	___	___

5. Please tell me now, what is your ACTUAL age? _____

PART VI: CLASSIFICATION QUESTIONS

1. Which category best describes the PRIMARY occupation you had in your life: (Not roles such as mother or grandmother)

   a. Service worker (Police, practical nurse, housekeeper, etc.) _____
   b. Manager or Proprietor (store manager, executive, supervisor, etc.) _____
   c. Housewife _____
   d. Sales or Clerical (Secretary, bookkeeper, sales lady, etc.) _____
   e. Professional (Teacher, Doctor, Engineer, etc.) _____
   f. Other, please specify (PROBE) _____

2. Are you presently employed outside of the home? Full time ____ Part time _____
   Retired _____

3. What is your level of school education?

   Completed grade school _____
   Graduated from high school _____
   Graduated from trade school _____
   Completed or attended college _____
   Completed or attended graduate school _____

4. Marital status:

   Single _____ Married _____ Widowed _____ Separated/Divorced _____

5. Children (how many) _____ Grandchildren (how many) _____

As a last question, I am requested by my professor to ask you for your name and telephone number. Please understand that this is only to enable my professor to make sure that I indeed did the survey, so that he will know I have done my work.

6. Name: _____(City (Borough):_____)
   Tel. no.: (Home) _____ (Work)_____

THANK THE RESPONDENT

7. (CHECK on basis of OBSERVATION only):
   Race: Black _____ White _____ Other: _____

8. (CHECK location of interview) Home _____ Apartment _____ Park _____ Club _____
   Other _____

INTERVIEWER PLEASE READ THIS AND SIGN

I have reread this completed questionnaire and certify that all questions requiring answers have been recorded in the respondent's exact words, and that all spaces requiring a checkmark (✓) or a number are filled in. This bona fide interview has been obtained following all interviewing specifications. I agree to keep the content of questions, respondent's answers, and the subject of this interview confidential.

INTERVIEWER's SIGNATURE: _____ DATE: _____

APPENDIX II

VARIMAX ROTATED FACTORS

VARIMAX ROTATED FACTORS

Attitude Statements	Factors	
	Morale	Traditionality
III- 1	-0.08923	0.04528
III- 2	0.05907	0.03187
III- 3	0.11048	-0.07840
III- 4	0.00414	0.02765
III- 5	0.08753	-0.04665
III- 6	-0.04567	0.36149
III- 7	0.62650	-0.07246
III- 8	0.08188	-0.00632
III- 9	-0.00903	0.02978
III-10	0.06495	0.11426
III-11	0.07123	0.09707
III-12	0.20792	0.09859
III-13	0.05474	0.12222
III-14	0.55596	0.05617
III-15	-0.13414	0.13391
III-16	0.20786	-0.04703
III-17	0.07121	0.50112
III-18	-0.04647	-0.03456
III-19	-0.03649	0.32870
III-20	0.12548	0.08018
III-21	-0.17061	0.03445
III-22	0.06051	0.47777
III-23	0.10574	-0.11530
III-24	0.55310	-0.00548
III-25	0.03621	-0.03781
III-26	0.06300	0.31482
III-27	0.04639	-0.04608
III-28	-0.17492	0.05823
III-29	-0.00101	0.15488
III-30	0.13619	-0.04173
III-31	0.10493	0.03409
III-32	-0.20001	0.45839
III-33	0.20459	0.07299
III-34	0.02536	-0.04237
III-35	0.02621	0.21800
III-36	0.17041	0.14226
III-37	0.11648	0.10225
III-38	0.10880	0.15155
III-40	0.52146	-0.07839

Variable	Eigenvalue	% of Variance
Morale	2.07009	15.2
Traditionality	1.27247	9.3

APPENDIX III

THE RELATIONSHIP BETWEEN EARLY-YOUNG AND EARLY-OLD AGE GROUPS NOT FOUND TO BE DIFFERENT

THE RELATIONSHIP BETWEEN
EARLY-YOUNG AND EARLY-OLD AGE GROUPS
NOT FOUND TO BE DIFFERENT

	Age Groups (%)		
	Early Young	Early Old	Total
Level of Error Tolerance			
Low	64.6	61.1	63.9
High	35.4	38.9	36.1
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = .04; 1 d.f.; N.S.		
Level of Venturesomeness			
Low	7.7	8.3	7.8
Medium	43.8	52.8	45.8
High	48.5	38.9	46.4
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = 1.06; 2 d.f.; N.S.		
Level of Self-confidence			
Low	13.8	11.1	13.3
High	86.2	88.9	86.7
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = .02; 1 d.f.; N.S.		
Level of Dogmatism			
Low	33.8	27.8	32.5
High	66.2	72.2	67.5
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = .24; 1 d.f.; N.S.		

	Age Groups (%)		
	Early Young	Early Old	Total
Level of Traditionality			
Low	11.5	11.1	11.4
Medium	35.4	27.8	33.7
High	53.1	61.1	54.9
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = .82; 2 d.f.; N.S.		
Status of Opinion Leadership			
Non-opinion leader	63.8	50.0	60.8
Opinion leader	36.2	50.0	39.2
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = 1.72; 1 d.f.; N.S.		
Level of Life Satisfaction			
Low	9.2	8.3	9.0
Medium	35.4	30.6	34.3
High	55.4	61.1	56.6
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = .38; 2 d.f.; N.S.		
Level of Morale			
Low	19.2	11.1	17.5
Medium	25.4	19.4	24.1
High	55.4	69.5	58.4
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = 2.43; 2 d.f.; N.S.		
Status of Club-Membership			
Non-club member	54.6	50.0	53.6
Club member	45.4	50.0	46.4
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = .09; 1 d.f.; N.S.		

	Age Groups (%)		
	Early Young	Early Old	Total
Level of Telephone Usage			
Low	34.6	25.0	32.5
Medium	20.8	30.6	22.9
High	44.6	44.4	44.6
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	$X^2 = 1.98$; 2 d.f.; N.S.		
Level of Radio Listening			
Low	74.4	58.8	71.2
High	25.6	41.2	28.8
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	$X^2 = 2.47$; 1 d.f.; N.S.		
Level of Reading			
Low	86.0	80.6	84.8
High	14.0	19.4	15.2
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	$X^2 = .30$; 1 d.f.; N.S.		
Family Size (Number of Progeny)			
None	13.1	19.4	14.5
Small (1-3)	38.5	22.2	34.9
Medium (4-7)	35.4	44.4	37.3
Large (8 or more)	13.1	13.9	13.3
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	$X^2 = 3.55$; 3 d.f.; N.S.		
Level of Product Importance			
Low	18.5	19.4	18.7
High	81.5	80.6	81.3
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	$X^2 = .01$; 1 d.f.; N.S.		

	Age Groups (%)		
	Early Young	Early Old	Total
Level of Product Liking			
Dislike	6.9	11.1	7.8
Neutral	35.4	41.7	36.7
Enjoy	43.8	25.0	39.8
Enjoy very much	13.8	22.2	15.7
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = 4.72; 3 d.f.; N.S.		
Frequency of Product Usage			
Rarely	5.4	14.3	7.3
Once a week	46.9	51.4	47.9
Two or more times a week	47.7	34.3	44.8
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = 4.23; 2 d.f.; N.S.		
Frequency of Brand Switching			
Never	22.3	41.2	26.2
Sometimes	66.2	47.0	62.2
Often	11.5	11.8	11.6
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = 5.24; 2 d.f.; N.S.		
Size of Evoked Set			
Small	46.1	60.0	49.9
Medium	31.2	17.1	28.2
Large	22.7	22.9	22.7
Total	100.0	100.0	100.0
Base	(130)	(36)	(166)
	X^2 = 3.02; 2 d.f.; N.S.		

APPENDIX IV

CORRELATION MATRIX

CORRELATION MATRIX

VARIABLES:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1. Cognitive reference age	1.00**																									
2. Chronological age	.60**	1.00**																								
3. Cognitive reference age group	.80**	.52**	1.00**																							
4. Chronological age group	.51**	.82**	.48**	1.00**																						
5. Error tolerance					1.00**																					
6. Venturesomeness	-.22**	-.26**	-.18**	-.22**	.28**	1.00**																				
7. Self Confidence							1.00**																			
8. Cognition		.14	.13	.18*				1.00**																		
9. Opinion Leadership	-.24**	-.11	-.18**			.22**			1.00**																	
10. Life Satisfaction	-.19**		-.15*				.18**	-.12	.17	1.00**																
11. Club membership		.11		.14							1.00**															
12. Telephone usage	-.15*	-.11							.14*			1.00**														
13. Television viewing				.13								.13	1.00**													
14. Radio listening	-.14*													1.00**												
15. Reading						.15*			.11	.12		.13			1.00**											
16. Educational level	-.26**	-.28**	-.21**	-.30**		.18**		-.19**					-.16			1.00**										
17. Employment status	.28**	.29**	.19**	.27**	-.12	-.12		.13			.11		.11			-.25**	1.00**									
18. Family size	.26**	.24**	.14	.19**				.13								-.29**	.22**	1.00**								
19. Product importance	-.12	-.14*		-.11		.18**			.11	.19**						.11	-.13		1.00**							
20. Product liking						.13													.26**	1.00**						
21. Product usage	-.25**	-.31**	-.22**	-.28**		.15*					-.12						-.16*				1.00**					
22. Brandswitching	-.30**	-.38**	-.21**	-.33**	.18*	.25**						.11					-.15*			-.13	.21**	1.00**				
23. Evoked Set size	-.20**	-.20**	-.13	-.16*		.21**						.12	.12									.33**	1.00**			
24. Innovativeness	-.22**	-.28**	-.14*	-.18*	.17*	.57**			.29**										.18**	.12	.13	.15*	.18*	1.00**		
25. Traditionality	.16*	.20**	.20**	.21**	-.11	-.14*		.49**		-.16*			.14*		-.12	-.20**	.15*				-.19**				1.00**	
26. Morale	-.21**		-.17*		.14*		.14*		.19**	.74**				.13					.18**			-.12				1.00**

BIBLIOGRAPHY

BIBLIOGRAPHY

Angleitner, A. "Changes in Personality Observed in Questionnaire Data from the Riegel Questionnaire on Rigidity, Dogmatism and Attitude Toward Life." In H. Thomae, Ed., Patterns of Aging: Findings from the Bonn Longitudinal Study of Aging. New York: Karger, 1976.

Atkin, C.K. "Mass Media and the Aging." In H.J. Oyer and E.J. Oyer, Eds., Aging and Communication. Baltimore, Maryland: University Park Press, 1976.

Baltes, P.B. and K.W. Shaie. Life-Span Developmental Psychology, Personality and Socialization. New York: Academic Press, 1973.

_____ and S.L. Willis. "Towards Psychological Theories of Aging and Development." In J.E. Birren et al., Eds., Handbook of the Psychology of Aging. New York: Van Nostrand Reinhold Company, 1977.

Barach, J.A. "Advertising Effectiveness and Risk in the Consumer Decision Process," Journal of Marketing Research, Vol. 6, No. 3 (August 1969), 314-320.

Bauer, R. "Consumer Behavior as Risk Taking." In R.S. Hancock, Ed., Dynamic Marketing for A Changing World: Summer Proceedings. Chicago: American Marketing Association, 1960.

_____. "Self-Confidence and Persuasibility: One More Time," Journal of Marketing Research, Vol. 7, No. 2 (May 1970), 256-258.

Bell, T. "Social Involvement and Feeling Old Among Residents in Houses for the Aged," Journal of Gerontology, Vol. 22 (1976), 17-22.

_____. "Significance of Functional Age for Interdisciplinary and Longitudinal Research in Aging," Aging and Human Development, Vol. 3, No. 2 (May 1972) 145-147.

Bellenger, D.N. and E.C. Hirschman. "Identifying Opinion Leaders by Self-report." In B.A. Greenberg and D.N. Bellenger, Eds., Contemporary Marketing Thought: 1977 Educators Proceedings. Chicago: American Marketing Association, 1977.

Bengston, V.L. The Social Psychology of Aging. New York: Bobbs Merril Company, 1973.

_____ and N.E. Cutler. "Generations and Intergenerational Relations: Perspectives on Age Groups and Social Change." In R.H. Binstock and E. Shanas, Eds., Handbook of Aging and the Social Sciences. New York: Van Nostrand Reinhold Company, 1976.

_____, P.L. Kasschau and P.K. Ragan. "The Impact of Social Structure on Aging Individuals." In Birren et al., Eds. Handbook of the Psychology of Aging. New York: Van Nostrand Reinhold Company, 1977.

Bernhardt, K. and T. Kinnear. "Profiling the Senior Citizen Market." In B. Anderson, Ed., Advances in Consumer Research, Vol. 4. Chicago: Association for Consumer Research, 1976.

Bettman, J.R., H.H. Kassarjian and R.J. Lutz. "Consumer Behavior." In G. Zaltman and T.V. Bonoma, Eds., Review of Marketing, 1978. Chicago: American Marketing Association, 1978.

Binstock, R.H. and E. Shanas. Handbook of Aging and the Social Sciences. New York: Van Nostrand Reinhold Company, 1976.

Birren, J.E. The Psychology of Aging. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1964.

_____, K.W. Schaie, J. Botwinick, S. Chown and C. Eisdorfer. Handbook of the Psychology of Aging. New York: Van Nostrand Reinhold Company, 1977.

_____ and V.J. Renner. "Research on the Psychology of Aging: Principles and Experimentation." In Birren et al., Eds., Handbook of the Psychology of Aging. New York: Van Nostrand Reinhold Company, 1977.

Blau, Z.S. "Changes in Status and Age Identification," American Sociological Review, Vol. 20 (November 1956), 198-202.

_____. Old Age in A Changing Society. New York: Franklin Watts Inc., 1973.

Block, J.E. "The Aged Consumer and the Market Place: A Critical Review," Marquette Business Review, Vol. 18, (Summer 1974), 73-81.

Bolch, B.W. and C.J. Huang. Multivariate Statistical Methods for Business and Economics. Englewood Cliffs, New Jersey: Prentice-Hall Inc., 1974.

Borland, D.C. "Research on Middle Age: An Assessment," The Gerontologist, Vol. 18, No. 4 (August 1978, 379-386.

Bower, R. Television and the Public. New York: Holt, Rinehart and Winston, 1973.

Britton, J.H. and J.O. Britton. Personality Changes in Aging. New York: Springer Publishing Company, 1972.

Bromley, D.B. The Psychology of Human Aging, 2nd ed. Harmondsworth, Middlesex, England: Penguin Books, Inc., 1974.

Brotman, H.B. "Population Projections, Part I. Tomorrow's Older Population (to 2000)," The Gerontologist, Vol. 17, No. 3 (June 1977), 203-209.

Butler, R.N. "Why are Older Consumers So Susceptible?" Geriatrics (December 1968), 83-88.

Chen, Y.P. 1971 White House Conference on Aging: Income Background. Washington, D.C.: White House Conference on Aging, 1971.

Churchill, Jr., G.A. Marketing Research, Methodological Foundations, 2nd ed. Hinsdale, Illinois: Dryden Press, 1979.

Clark, R., J. Krepps and J. Spangler. "Economics of Aging: A Survey," Journal of Economic Literature, Vol. 16 (September 1978), 919-962.

Coleman, R.P. and B.L. Neugarten. Social Status in the City. San Francisco: Jossey-Bass, 1971.

Corey, L.G. "People Who Claim to Be Opinion Leaders: Identifying their Characteristics by Self-report," Journal of Marketing, Vol. 35 (October 1971), 48-53.

Cowgill, D. and D. Baulch. "The Use of Leisure Time by Older People," The Gerontologist, Vol. 2 (1962), 47-50.

Cox, D.F. Risk Taking and Information Handling in Consumer Behavior. Boston: Division of Research, Graduate School of Business, Harvard University, 1967.

Cunningham, S.M. "The Dimensions of Perceived Risk." In D.F. Cox, Ed., Risk Taking and Information Handling in Consumer Behavior. Boston: Division of Research, Graduate School of Business, Harvard University, 1967.

Dichter, E. "How Word of Mouth Advertising Works," Harvard Business Review, Vol. 44 (November-December 1966), 147-166.

Drevenstedt, J. "Perceptions of Onsets of Young Adulthood, Middle Age and Old Age," Journal of Gerontology, Vol. 31, No. 1 (1976), 53-57.

Edwards, J. and D. Klemmack. "Correlates of Life Satisfaction: A Reexamination," Journal of Gerontology, Vol. 28 (1973), 497-502.

Engel, J.F., R.D. Blackwell and D.T. Kollat. Consumer Behavior, 3rd ed. New York: Dryden Press, 1978.

Fela, L.J. "The Elderly Consumer Market: A Psychographic Segmentation Study." Unpublished Ph.D. dissertation, Syracuse University, New York, 1977.

Frank, R., W.F. Massy and D.G. Morrison. "Bias in Multiple Discriminant Analysis," Journal of Marketing Research, Vol. 2 (August 1965), 250-258.

French, W.A. and M.R. Crask. "The Credibility of Media Advertising for the Elderly." In B.A. Greenberg and D.N. Bellinger, Eds., Contemporary Marketing Thought, Proceedings. Chicago: American Marketing Association, 1977.

Gelb, B.D. "Exploring the Gray Market Segment," M.S.U. Business Topics, Vol. 22 (Spring 1978), 41-46.

Graney, M.J. "Media Use as A Substitute Activity in Old Age," Journal of Gerontology, Vol. 29, No. 3 (1974), 322-324.

_____. "Happiness and Social Participation in Aging," Journal of Gerontology, Vol. 30, No. 6 (1975), 701-706.

_____ and E.E. Graney. "Communications Activity Substitutions in Aging," Journal of Communication, Vol. 24, No. 4 (Autumn 1974), 88-96.

Guttman, L. "A Basis for Analyzing Test-retest Reliability," Psychometrica, Vol. 10, No. 4 (December 1945), 255-282.

Hair, Jr., J.F., R.E. Anderson, R.L. Tatham and B.J. Grablonsky. Multivariate Data Analysis. Tulsa, Oklahoma: Petroleum Publishing Company, 1979.

Hendricks, C.D. and J. Hendricks. "Concepts of Time and Temporal Construction Among the Aged, with Implications for Research." In J.F. Gubrium, Ed., Time, Roles and Self in Old Age. New York: Human Sciences Press, 1976.

Houston, M.J. and M.L. Rothschild. "A Paradigm for Research on Consumer Involvement." Wisconsin Working Paper. 11-77-46. Madison, Wisconsin: Graduate School of Business, University of Wisconsin (November 1977).

Howard, J.A. and J.N. Sheth. The Theory of Buyer Behavior. New York: Wiley, 1969.

Hurlock, E.B. Developmental Psychology, 4th ed. New York: McGraw-Hill, 1975.

Jacoby, J. "Personality and Innovativeness Proneness," Journal of Marketing Research, Vol. 8 (May 1971), 244-247.

Jain, A.K. and M. Etgar. "Overlap in Retail Outlet and Product Innovator Chracteristics," Journal of Retailing, Vol. 53, No. 2 (Summer 1977), 63-74.

Jarvik, L.F. "Thought on the Psychobiology of Aging," American Psychologist, Vol. 30 (May 1975), 576-583.

Kassarjian, H.H. "Personality and Consumer Behavior: A Review," Journal of Marketing, Vol. 8 (November 1971), 409-418.

Kastenbaum, R., V. Derbin, P. Sabatini and S. Artt. " 'The Ages of Me' Toward Personal and Interpersonal Definitions of Functional Aging," Aging and Human Development, Vol. 3, No. 2 (May 1972), 197-211.

Katz, E. and P.F. Lazersfeld. Personal Influence. New York: Free Press, 1955.

Kerin, R.A. and R.A. Peterson. "The Effect of Question Form on Age Reports in A Mail Survey." In S.C. Jain, Ed., Research Frontiers in Marketing: Dialogues and Directions, Educators' Proceedings. Chicago: American Marketing Association, 1978.

Klecka, W.R. "Discriminant Analysis." In N.H. Nie, et al., Eds., SPSS, Statistical Package for the Social Sciences, 2nd ed. New York: McGraw Hill Book Company, 1975.

Kotler, P. Marketing Management, Analysis, Planning and Control, 3rd ed. Englewood Cliffs, New Jersey: Prentice-Hall, 1976.

Lane, R. "Political Personality and Electoral Choice," American Political Science Review, Vol. 49 (1955), 173-190.

Larson, R. "Thirty Years of Research on the Subjective Well-Being of Older Americans," Journal of Gerontology, Vol. 33, No. 1 (January 1978), 109-125.

Lawrence, J. "The Effect of Perceived Age on Initial Impressions and Normative Role Expectations," International Journal of Aging and Human Development, Vol. 5, No. 4 (1974), 369-391.

Lawther, U. "Social Integration and the Elderly Consumer: Unfairness Awareness, Complaint Actions, and Information Usage." In S.C. Jain, Ed., Research Frontiers in Marketing: Dialogues and Directions, Educators' Proceedings. Chicago: American Marketing Association, 1978.

Linden, F. "Consumer Markets: Age and Income - 1985," The Conference Board Record, Vol. 13 (June 1976), 8-13.

_____. "Magic Numbers - Ages 25 to 44 and Other Ages of Spending," Across the Board, Vol. 15, No. 3 (March 1978), 65-68.

Looft, W.R. "Socialization and Personality Throughout the Life Span: An Examination of Contemporary Psychological Approaches." In P.B. Baltes and K.W. Schaie, Eds., Life-Span Developmental Psychology, Personality and Socialization. New York: Academic Press, 1973.

Martin, C.R. "A Transgenerational Comparison - The Elderly Fashion Consumer." In B.B. Anderson, Ed., Advances in Consumer Research, Vol. 4. Chicago: Association for Consumer Research, 1976.

Mason, J.B. and W.O. Beardon. "Profiling the Shopping Behavior of Elderly Consumers," The Gerontologist, Vol. 18, No. 5 (October 1978), 454-461.

_____ and B. Smith. "An Exploratory Note on the Shopping Behavior of the Low Income Senior Citizen," Journal of Consumer Affairs, Vol. 7 (Summer 1973), 204-210.

Mauldin, C.R. "Communication and the Aging Consumer." In H.J. Oyer and E.G. Oyer, Eds., Aging and Communication. Baltimore, Maryland: University Park Press, 119-128.

McTavish, D.G. "Perception of Old People: A Review of Research Methodologies and Findings," The Gerontologist, Vol. 11 (Winter 1971), Part II, 90-101.

Myers, G.C. "Cross-National Trends in Mortality Rates Among the Elderly," The Gerontologist, Vol. 18, No. 5 (October 1978), 441-448.

Narayana, C.L. and R.J. Markin. "Consumer Behavior and Product Performance: An Alternative Conceptualization," Journal of Marketing, Vol. 39, (October 1975), 1-6.

Nesselroade, J.R. and H.W. Reese. Life-Span Developmental Psychology, Methodological Issues. New York: Academic Press, 1973.

Neugarten, B.L. Middle Age and Aging. Chicago: University of Chicago Press, 1968.

_____. "Personality and Aging." In Birren et al., Eds., Handbook of the Psychology of Aging. New York: Van Nostrand Reinhold Company, 1977.

_____, R. Havinghurst and S. Tobin. "The Measurement of Life Satisfaction," Journal of Gerontology, Vol. 16 (1961), 134-143.

_____ and G.O. Hagestad. "Age and the Life Course." In R.H. Binstock and E. Shanas, Eds., Handbook of the Aging and the Social Sciences. New York: Van Nostrand Reinhold Company, 1976.

Newman, B.M. and P.R. Newman. Development Through Life: A Psychosocial Approach. Homewood, Illinois: Dorsey Press, 1979.

Nie, N.H., C.H. Hull, J.G. Jenkins, K. Steinbrenner, D.H. Bent. SPSS, Statistical Package for the Social Sciences, 2nd ed. New York: McGraw-Hill, 1975.

"The Over-65 Set: A Bonanza for Business?" Nation's Business, Vol. 59, No. 11 (November 1971), 34-36.

Oyer, H.J. and E.J. Oyer. Aging and Communication. Baltimore, Maryland: University Park Press, 1976.

Peter, J.P. "Reliability: A Review of Psychometric Basics and Recent Marketing Practices," Journal of Marketing Research, Vol. 16, (February 1979), 6-17.

Peters, G.R. "Self-Conceptions of the Aged, Age Identification and Aging," The Gerontologist, Vol. 11 (Winter 1971), Part II, 69-73.

Phillips, L.W. and B. Sternthal. "Age Differences in Information Processing: A Perspective on the Aged Consumer," Journal of Marketing Research, Vol. 14 (November 1977), 444-457.

"The Power of the Aging in the Marketplace," Business Week (November 20, 1971), 52-58.

Reinecke, J. "The 'Older' Market - Fact or Fiction?" Journal of Marketing, Vol. 28 (January 1964), 60-64.

Reynolds, F.G. and W.D. Wells. Consumer Behavior. New York: McGraw-Hill, 1977.

Reynolds, F.G. and W.R. Darden. "Mutually Adoptive Effects of Interpersonal Communication," Journal of Marketing Research, Vol. 8, No. 4 (November 1971), 449-454.

Robertson, T.S. "The Effect of the Informal Group Upon Innovative Behavior." In R.L. King, Ed., Marketing and the New Science of Planning, Fall Proceedings. Chicago: American Marketing Association, 1968.

_____. Innovative Behavior and Communication. New York: Holt, Rinehart and Winston, 1971.

_____ and J.H. Myers. "Personality Correlates of Opinion Leadership and Innovative Buying Behavior," Journal of Marketing Research, Vol. 6 (May 1969), 164-168.

Rogers, E.M. and F.F. Shoemaker. Communication of Innovations. New York: Free Press, 1971.

Rokeach, M. The Open and Closed Mind. New York: Basic Books, 1960.

Roscoe, Jr., A.M., A. Le Claire, Jr. and L.G. Schiffman. "Theory and Management Applications of Demographics in Buyer Behavior." In A.G. Woodside, J.N. Sheth and P.D. Bennet, Eds., Consumer and Industrial Buying Behavior. New York: Elsevier North-Holland, Inc., 1977.

Rose, C.L. "The Measurement of Social Age," Aging and Human Development, Vol. 3, No. 2 (May 1972), 153-168.

Rosenberg, G.S. The Worker Grows Old. San Francisco: Jossey-Bass, 1970.

Rosow, I. Social Integration of the Aged. New York: The Free Press, 1967.

_____. Socialization to Old Age. Berkeley, California: University of California Press, 1974.

Samli, A.C. and F. Palubinskas. "Some Lesser Known Aspects of the Senior Citizen Market: A California Study," Akron Business and Economic Review, Vol. 3 (Winter 1972), 47-55.

Schiffman, L.G. "Communication and Experience: The Acceptance of A New Food Product by Elderly Consumers Living in Geriatric Housing." Unpublished Ph.D. dissertation, The City University of New York, 1971.

_____. "Sources of Information for the Elderly," Journal of Advertising Research, Vol. 11 (October 1971), 33-37.

_____. "Perceived Risk in New Product Trial by Elderly Consumers," Journal of Marketing Research, Vol. 9 (February 1972), 106-108.

_____. "Social Interaction Patterns of the Elderly Consumer." In B.W. Becker and H. Becker, Eds., Combined Proceedings. Chicago: American Marketing Association, 1972.

_____. "Consumer Decision Making." In B. Marcus, Ed., Modern Marketing. New York: Random House, 1975.

_____ and V. Gaccione. "Opinion Leaders in Institutional Markets," Journal of Marketing, Vol. 38 (April 1974), 49-53.

_____ and L. Kanuk. Consumer Behavior. Englewood Cliffs, New Jersey: Prentice-Hall, 1978.

Schramm, W. "Aging and Mass Communication." In M. Riley and J. Riley, Eds., Aging and Society. New York: Russell Sage Foundation, 1969.

Schulz, J.H. The Economics of Aging. Belmont, California: Wadsworth Publishing Company, 1976.

Shanas, E. "What's New in Old Age?" American Behavioral Scientist, Vol. 14 (September-October 1970), 5-11.

Sheehy, G. Passages, Predictable Crises of Adult Life. New York: Bantam Books, Inc., 1977.

Specht, D.A. and T.A. Bubolz. "Reliability." In N.H. Nie and C.H. Hull, Eds., Mathematical and Statistical Applications - SPSS Release 7. New York: The City University of New York, 1977.

Summers, J.O. "The Identity of Women's Clothing Fashion Opinion Leaders," Journal of Marketing Research, Vol. 7, No. 2 (May 1970), 178-185.

_____. "New Product Interpersonal Communication. In F.C. Allvine, Ed., Combined Proceedings. Chicago: American Marketing Association, 1971.

Thomae, H. "Theory of Aging and Cognitive Theory of Personality," Human Development, Vol. 13 (1970), 1-16.

_____. Patterns of Aging, Contributions to Human Development, Vol. 3. New York: Karger, 1976.

_____. "Background and Aims of the Bonn Longitudinal Study of Aging." In H. Thomae, Ed., Patterns of Aging, Contributions to Human Development, Vol. 3. New York: Karger, 1976.

_____. "Patterns of 'Successful' Aging." in H. Thomae, Ed., Patterns of Aging, Contributions to Human Development, Vol. 3. New York: Karger, 1976.

Towle, J.G. and C.R. Martin, Jr. "The Elderly Consumer: One Segment or Many." In B. Anderson, Ed., Advances in Consumer Research, Vol. 4. Chicago: Association for Consumer Research, 1976.

Troldahl, V.C. and F.A. Powell. "A Short-form Dogmatism Scale for Use in Field Studies," Social Forces, Vol. 44, (1965), 211-214.

"TV Is Easily the Public's Top Nightly Entertainment," Gallup Opinion Index, Report No. 105 (March 1974) 11-13.

Uhl, K., R. Andrus and L. Poulsen. "How Are Laggards Different? An Empirical Inquiry." Journal of Marketing Research, Vol. 7 (February 1970), 51-54.

Uhlenberg, P. "Changing Structure of the Older Population of the U.S.A. During the Twentieth Century," The Gerontologist, Vol. 17, No. 3 (June 1977), 197-202.

Waddell, F.E. "Consumer Research and Programs for the Elderly--the Forgotten Dimension," Journal of Consumer Affairs, Vol. 9 (Winter 1975), 164-175.

Ward, R.A. "The Impact of Subjective Age and Stigma on Older Persons," Journal of Gerontology, Vol. 32, No. 2 (1977) 227-232.

Weiss, D. and R. Davis. "An Objective Validation of Factual Interview Data," Journal of Applied Psychology, Vol. 44 (December 1960), 381-385.

Wells, W.D. and D.J. Tigert. "Activities, Interests and Opinions," Journal of Advertising Research, Vol. 11 (August 1971), 27-35.

Wenner, L. "Functional Analysis of TV Viewing for Older Adults," Journal of Broadcasting, Vol. 20 (Winter 1976), 77-88.

Wohlwill, J.F. The Study of Behavioral Development. New York: Academic Press, 1973.

Women's Cosmetics and Hair Care Products, P-21. Target Group Index (TGI). New York: Axiom Market Research Bureau, Inc., 1978.

Wood, V., M. Wylie and B. Sheafer. "An Analysis of A Short Self-report Measure of Life Satisfaction: Correlation with Rater Judgments," Journal of Gerontology, Vol. 24 (1969), 465-469.

Woodside, A.G., J.N. Sheth and P.D. Bennett. Consumer and Industrial Buying Behavior. New York: Elsevier North-Holland, Inc., 1977.

Zola, I.K. "Feelings About Age Among Older People," Journal of Gerontology, Vol. 17 (1962), 65-68.