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INTERPERSONAL ACTIVITY AND SOCIAL COGNITIVE ABILITY IN THE
ELDERLY

City University of New York

PH.D.

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INTERPERSONAL ACTIVITY AND SOCIAL COGNITIVE ABILITY
IN THE ELDERLY

by

LENISE SCHACHNER DOLEN

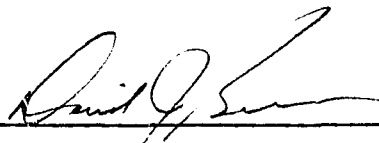
A dissertation submitted to the Graduate
Faculty in Educational Psychology in partial
fulfillment of the requirements for the degree
of Doctor of Philosophy, the City University
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1980

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

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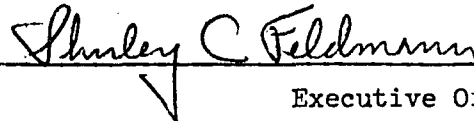
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Chairman of Examining Committee

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The City University of New York

To my husband

Michael

Abstract

Interpersonal Activity and Social Cognitive Ability in the Elderly

by

Lenise Schachner Dolen

Adviser: Professor David J. Bearison

The purpose of this investigation was to assess the relationship between levels of social interaction and social cognitive functioning in elderly persons. While traditional research in the field of cognition has been concerned with how people construct knowledge of physical relations, social cognitive abilities have to do with knowledge of people and social relations. There is increasing evidence that social knowledge has greater functional significance for the elderly than physical knowledge. There have been few studies of how the social activities of elderly people affect their ability to understand others.

A research design employing quantitative descriptors of social experience based on a self-report questionnaire and three different measures of social cognitive functioning provided the focal data of the study. The social interaction measure consisted of a series of questions regarding the magnitude and diversity of the social experience of the aging individual in interaction with the family and larger environmental network. Responses to these questions were scored so as to yield six different categories reflecting different domains of social activity. The social cognitive measures assessed

the conceptualization of other persons, conceptualization of alternative solutions in interpersonal problem solving, and coordination of multiple points of view.

The study was conducted with 122 males and females ranging in age from 65-to-89 years of age. All participants were generally healthy and capable of maintaining themselves in the community. Multiple regression analysis was used to analyze the data.

The major findings indicate a positive and significant relationship between social interaction and social cognition. The analysis also indicates that levels of participation in social interaction are more significant predictors of cognitive decline than age, and that age by itself is not a significant predictor of cognitive functioning in the elderly. The findings strongly support the hypothesis of a relationship between social experience of the individual and the maintenance of cognitive abilities. The results are discussed in terms of their implications for advancing a positive role model of aging, community planning, training programs and education of service providers of the elderly.

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Finally, I would like to thank my husband, Michael. His constant strength, his wisdom and his love made it possible for me to persevere despite all obstacles. His value in my arduous intellectual pursuits and in my life are beyond all measure. It is to him that this dissertation is lovingly dedicated.

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CHAPTER I

Introduction

Despite an underlying theoretical model of development, which posits the stability of cognitive structures (Piaget, 1950), recent studies have found developmental declines in cognitive functioning among the elderly. These declines have been generally based on correlations between age and measures of cognition that focus on concepts of the physical, impersonal realm. They involve subjects' ability to solve abstract, impersonal types of problems (Baltes & Labouvie, 1973; Bielby & Papalia, 1975; Denney, 1974b; Hooper & Sheehan, 1977; Papalia, 1972; Papalia & Bielby, 1974; Rubin et al., 1973; Storck et al., 1972). There are two major limitations to this type of research approach.

One limitation concerns the definition and measurement of cognitive functioning in the elderly. The reliance on measures of impersonal cognition follows from more traditional research on children's cognitive development and might have yielded a biased and distorted picture of the cognitive capacities of elderly people. The kinds of intellectual challenges that confront the elderly are highly interpersonal in nature, and tap their capacity to understand people, as opposed to objects, and the nature of self-other relationships, as opposed to physical relationships. Several studies have indicated that social cognition mediates a variety of prosocial behaviors including cooperation, sharing, helpfulness, (Aronfreed, 1968; Bieri & Blacker, 1956; Crockett, 1965; Duck, 1973; Piaget, 1932) and social adjustment, morale, life-satisfaction and

psychological well-being (Birren & Schaie, 1977; Havinghurst et al., 1972; Hochschild, 1973; Lowenthal et al., 1975; Maddox, 1968; Mancini, 1977; Spivack et al., 1976). Thus, it would appear that knowledge of people and social relations is a more critical aspect of intellectual competence for the elderly.

A second limitation of cognitive research with the elderly has been its tacit acceptance of age as a parameter of developmental change. According to Wohlwill (1973), "statements of a relationship of behavior to age involve a lack of control over the variables 'determining' the age difference and are consequently devoid of causal meaning or explanatory power" (p. 25). Because age is confounded with all other developmental changes in ontogenesis, it cannot be used to explain apparent declines in cognitive functioning in the elderly. Studies that have reported a negative correlation between age and cognition have led to premature speculations regarding the inevitable consequences of the deterioration of biological processes that interfere with higher mental processing. Recently, however, life-span investigators have emphasized the use of contextual variables as indices of developmental change (Bearison, 1974; Chap & Sinnott, 1978; Denney, 1974b; Hooper & Sheehan, 1977; Labouvie-Vief, 1977; Looft, 1972; Looft & Charles, 1971; Rubin, 1973, 1974). Models that stress change as a function of context instead of age not only provide a valid explanatory base for understanding change with age, they present a more useful model of aging because contexts are often subject to modification while age is

not. Thus, to the extent that we can distinguish between those contexts that correlate with intellectual decline and those contexts that appear to facilitate intellectual growth in aging, we can formulate social policies and educational practices to enhance abilities necessary to participation in family, community and national life. Recent studies of social cognitive development in children (Bearison & Cassel, 1975; Hollos, 1975; Hollos & Cowan, 1973; Nahir & Yussen, 1977; Shantz, 1976; West, 1974), and adults (Looft & Charles, 1971; Rubin, 1973; Tesch et al., 1978) have stressed the quality of social interaction as a significant contextual variable. Therefore, the significance of the present study is to examine a particularly relevant area of cognitive functioning (social understanding) in elderly people, using levels of social activity as a contextual parameter of development. The study of a relationship between social thought and social understanding has implications for formulating social and educational policies and community planning, development of counseling and training programs and curriculum for service providers for the elderly.

CHAPTER II

Literature Review

Theoretical Orientation

Certain assumptions about human development and behavior underlie the present research, and originate from Jean Piaget's cognitive - developmental approach. Piaget's theory of human development focuses on the interaction between the individual and his environment. The basic assumptions of the theory have guided the author's thinking in general and have pointed to specific testable hypotheses. The basic assumptions of cognitive developmental theory are that every individual's cognitive system for construing both the physical and social environment is constructed in interaction with the environment and can be examined and ordered into structured stages. Basic to the individual's understanding of the self, others and interpersonal relations is the underlying structure of the individual's cognitive system with which he is able to interpret his world. The structure of the system can be characterized along several dimensions which reflect the linear and stable transition from states of relative immaturity to states of advancing maturity. These include: (1) egocentrism - perspectivism, (2) centration - decentration, (3) overt, perceptual processes - abstract, internal processes, (4) undifferentiation - differentiation, and (5) simplicity - complexity (Kohlberg, 1969; Piaget, 1950, 1959; Shantz, 1976; Werner, 1948).

Recent research within a Piagetian framework reveals a stability model of development (Schaie, 1977). An assumption of this model is that once the individual reaches maturity, adult cognitive behavior

remains stable. Piaget's model contains four sequential and qualitatively different stages outlining the growth of intelligent functioning from birth through adolescence: sensorimotor (birth - 2 years), pre-operational (2 - 7 years), concrete operational (7 - 11 years), and formal operational (11 years and beyond) (Inhelder & Piaget, 1958). Most individuals will reach the stage of formal operational thought, but at different times and in different areas depending upon their particular aptitudes and professional specialization (Piaget, 1972).

Papalia and Bielby (1974) noted that, although Piaget has considered adult cognitive development, he has not specifically attended to the cognitive abilities of the middle-aged and elderly. Piaget emphasizes the stability of logical abilities and instances of regression to earlier, more primitive modes of thought are inconsistent with the theory. Flavell (1970) stated that the notion of structural regression is incompatible with a theory which posits that cognitive changes between infancy and adolescence (which stem from the biological-maturational growth process which underlies these changes) are "largely inevitable, momentous, directional, uniform, and irreversible" (p. 247). In contrast to the assumptions of the stability model, research suggests performance decrements in the aged, that is, a curvilinear pattern of development through the life-span (see Labouvie-Vief, 1977 for a recent review of earlier research which interprets cognitive changes in the elderly as inevitable decreases with advancing age). Emerging reinterpretations of cognitive performance in the elderly challenge the

conclusion of inevitable and irreversible deficits and stress that acceptance of this unnecessarily pessimistic view of cognitive decline in the elderly is premature, and may be the result of a failure to examine alternative interpretations of the ontogenetic development of cognition.(Labouvie-Vief, 1977).

Recent discussions of developmental reversals, regressions, and structural deficits in the elderly have distinguished between competence and performance factors (Bearison, 1974; Case, 1974; Flavell & Wohlwill, 1969; Hooper & Sheehan, 1977; Pascuale-Leone, 1976). Flavell and Wohlwill (1969) define competence as "the formal, logical representation of the structure of some domain," and performance as "the psychological processes by which information embodied in competence actually gets accessed and utilized in real situations" (p. 71). In contrast to what the individual knows or can do in a timeless, ideal environment, the performance component is constrained by several factors, including environmental and social variables which mediate the performance of subjects operating in a real world (Pascuale-Leone, 1976). Dealing with the problem of genuine structural regression, Bearison (1974) concluded:

An individual who is unable to conserve because of the debilitating effects of situational factors is, in a formal sense, no different than the individual who is conserving; both have attained the prerequisite structures for conservation. On the other hand, an individual who is unable to conserve because he lacks structures by which the logical necessity of conservation can be understood has, in a formal sense, not achieved the stage of concrete-operational thought. The theoretical and practical implications concerning the treatment of these two individuals are strikingly disparate, yet behaviorally, in terms of their performance on a task for conservation, they appear very similar (p. 26).

A competence-performance distinction is consistent with Piaget's structural theory which stresses a stability model of development, "whereas the notion of regression along structural levels of development is not" (Bearison, 1974, p. 27).

Empirical evidence of the distinction between structural competence and its reflection in performance is provided in several experimental training studies aimed at eliminating performance factors which inhibit logical operational abilities (Denney, 1974a; Hornblum & Overton, 1976; Schultz & Hoyer, 1976; Zaks & Labouvie-Vief, 1977, 1980). Estes (1974) noted that in order to truly advance our understanding of cognitive processes we need to direct our focus to isolating those factors that relate to variability in performance. Papalia and Bielby (1974) and Labouvie-Vief (1977), in similar fashion, emphasized that we move beyond essentially descriptive research with its implications of biological causality in the elderly and adopt a view of cognitive performance as a response to a variety of experiential variables.

Thus, the present investigation focuses attention on possible experiential factors which may influence the performance of elderly subjects in a task situation. As many have recently cautioned, premature conclusions of inevitable cognitive declines in the aged without greater attention to the impact of such factors upon performance precludes the valid assessment of cognitive changes in this population. In addition, in contrast to previous work (Papalia & Bielby, 1974) which suggested the focus of future research without specifying a theoretical framework, the present study concerns itself with basic principles from a major

cognitive-developmental tradition, and with deriving hypotheses from Piagetian theory and its related empirical evidence.

According to Piaget, interaction with and in the environment is the vehicle for cognitive growth. The cognition of others "involves a progression of assimilatory and accommodatory processes through which the child shapes and is shaped by the social situations in which he is involved" (Chandler, 1977, p. 99). Piaget (1950) stated that, "without interchange of thought and co-operation with others" the child would never "coordinate" or group mental operations (actions) accessible to him. A bidirectional process appears as Piaget noted that, on the one hand,

operational grouping presupposes social life. But, on the other hand, actual exchanges of thought obey a law of equilibrium which again could only be an operational grouping, since to cooperate is also to coordinate operations. The grouping is therefore a form of equilibrium of inter-individual actions as well as of intra-individual actions, and it thus regains its autonomy at the very core of social life....the equilibrium of his operations is dependent on an infinite capacity for interaction with other people and therefore on a complete reciprocity (1950, pp. 163-165).

Flavell (1963) similarly emphasized that it is in the course of contacts, especially conflicts and disagreements with others, that the individual is propelled to reexamine his own social concepts. Feffer (1959, 1970) and Langer (1969) have also noted the significance of social interaction as a facilitator of cognitive growth and development. The work of several researchers (Hollos, 1975; Hollos & Cowan, 1973; Nahir & Yussen, 1977) provided supportive evidence that children from environments in which there are few opportunities for social interchange have less developed social concepts than children

from environments in which there are ample opportunities for interaction. In addition, the work of Zaks and Labouvie-Vief (1977, 1980) indicated the effectiveness of a training program designed for elderly subjects who evidenced deficient social cognitive skills. These authors hypothesized that deficiencies in perspective taking, i.e., ineffective decentering abilities, would be reversible as a function of training in perspective taking. Training procedures may be conceived as experimental techniques for uncovering an individual's "competence" which may be masked or inhibited by environmental and/or experiential factors (Flavell, 1974).

Thus, the challenge to the conclusions of an inevitable decline in the aging rests upon interpretations which stress experiential variables, yet the theoretical link between social cognition and social behavior remains to be empirically confirmed. The present investigation attempts a direct test of this link to clarify the concept of age-related developmental declines and isolate the experiential factors that have a significant impact on interpersonal cognitive skills in the later years.

Egocentrism and Decentering Ability

Although social psychologists have studied social knowledge of adults, their focus has been mainly on the accuracy of judgments about others, and only recently have they attended to the processes used in making such judgments. Some of the processes include person perception, social sensitivity, role taking, social inferential ability, etc. (Flavell, 1974). In studying these processes in adults, researchers have alluded to the existence of mental structures as

part of an underlying cognitive system for construing the social sphere without, however, directly specifying the nature of these structures and the underlying system. The complexity, differentiation or maturity of social thought has been generally measured in terms of the quantity of responses given to a particular realm of stimuli (Bieri & Blacker, 1956; Crockett, 1965; Hastorf et al., 1970). Although there is an increasing interest in using concepts of structure to account for complex cognitive behavior, most research has been in a nondevelopmental context (Flavell, 1963, 1974). Discussing the lack of interchange and mutual stimulation between social psychologists who study adult social cognition and developmentalists who are interested in the ontogenesis of similar forms, Flavell (1974) pointed out that, "while developmental work is sometimes cited by the specialist in adult social cognition (e.g., Tagiuri, 1969), one suspects that, with occasional exceptions (e.g., Scarlett, Press, and Crockett, 1971) it plays little role in the thinking about the topic" (p. 67).

Investigating social concepts from a Piagetian perspective involves a consideration of the role of Piaget's cognitive structures, since he postulates that every individual's knowledge of the environment, both physical and social, is a manifestation of these underlying mental structures [see Shantz (1976) for a comprehensive review of research which considers the role and development of these mental structures]. Empirical findings support the contention that developmentally immature forms of social cognition (the logical representation of the self, others and interpersonal

relations) are characterized by their egocentric quality, that is, by their lack of decentering ability (Shantz, 1976).

The construct of egocentrism occupies a central position in Piaget's theory. The egocentric individual perceives the environment from a single viewpoint, his own, and evidences an inability to shift or decenter his attention from one aspect of an object, person or situation to another; there is an embeddedness in one's own point of view. A major characteristic of egocentric thought is its tendency to center attention on a single, salient feature of an object or situation to the neglect of other features. The individual is unable to decenter, i.e., to consider other features which could balance and compensate for distortions engendered by a single centration (Inhelder & Piaget, 1958; Piaget, 1950).

Flavell (1963) stated, "it is social interaction which gives the ultimate coup de grace to childish egocentrism" (p. 157). Throughout development egocentric thought gives way to a coordination of viewpoints. "In fact, it is precisely by a constant interchange of thought with others that we are able to decentralize ourselves...to co-ordinate internally relations deriving from different viewpoints" (Piaget, 1950, p. 164). With development, children show an increasing ability to decenter or coordinate multiple viewpoints in a variety of social domains: in order to accommodate their messages to the needs of their listener(s) (Bearison & Cassel, 1975; Flavell et al., 1968; Piaget, 1959), to predict another's visual or spatial position (Piaget & Inhelder, 1956), to arrive at a judgment of the invariance of certain properties of an object in face of perceptual

transformations performed on them (Piaget, 1950), and to take the perspective of another in interpersonal tasks (Feffer, 1959; Feffer & Gourevitch, 1960; Flavell et al., 1968; Selman & Byrne, 1974; Swinson, 1965).

While the coordination of multiple perspectives is one aspect of decentering ability, the decreasing use of overt, simple explanations and descriptions of others and interpersonal events is another aspect of this ability (Bieri & Blacker, 1956; Barenboim 1977; Crockett, 1965; Flapan, 1968; Peevers & Secord, 1973, 1974). Decentering ability is also evident in a decrease in fixation or centration on one aspect of an event or situation in problems involving social relations (Flavell et al., 1968; Looft, 1972; Platt et al., 1975; Spivack et al., 1976; Spivack & Shure, 1974).

In sum, decentering ability, and its lack (egocentrism), have been extensively examined in the realm of physical cognition and more recently, but to a lesser extent, in the interpersonal sphere. The following review of the literature deals with investigations of the ability to decenter in the aged.

Egocentrism in the Aged

The gerontological literature reveals only a small body of studies that consider egocentric behavior in the elderly (from either a physical or social cognitive perspective). Existing research focuses on (1) spatial perspective-taking ability (Bielby & Papalia, 1975; Rubin 1973, 1974; Rubin et al., 1973; Schultz & Hoyer, 1976; Storck et al., 1972), (2) spatial and communicative perspective-taking ability (Looft & Charles, 1971; Rubin, 1974; Tesch et al.,

1978; Zaks & Labouvie-Vief, 1977, 1980), and (3) interpersonal problem-solving skills (Spivack et al., 1978).

1. Spatial Perspective-Taking

Assessments of spatial egocentrism typically require the subject to construct a matrix of simple objects as it would appear from a number of different spatial viewpoints. Rubin, Attewell, Tierney and Tumolo (1973) studied the development of spatial egocentrism and conservation in subjects ranging in age from 7 years to about 76 years. College-age and middle-age adults performed significantly better than elderly subjects. No significant sex differences were found on the spatial egocentrism and conservation measures. Amount of education did not significantly correlate with either measure, supporting earlier research (Papalia, 1972) which indicated that Piagetian type skills developed independently of educational level achieved.

Schultz and Hoyer (1976) trained 36 community-living elderly adults, ranging in age from 61 to 88 years, on measures of spatial egocentrism and volumn conservation. The subjects were administered word fluency subtests of the Primary Mental Abilities Test; also included were the Identical Pictures Test and the RPMT. Subjects were assigned to one of three training conditions: corrective feedback, control and practice without feedback groups. Subjects assigned to the feedback condition showed significant improvement on the spatial egocentrism task. No difference was reported between subjects in the practice and control conditions. The effectiveness of the training program was discussed in terms of

age-related environmental factors impacting on performance as opposed to explanations of structural decline to account for apparent deficits.

Storck, Looft and Hooper (1972) tested 24 community-living elderly from 55 to 79 years, on several measures of logical reasoning and egocentrism. The authors reported that seven of the 24 subjects failed, completely, the egocentrism task. Performance on the egocentrism tasks for the remaining 17 subjects was considerably poorer than performance on the other measures of logical reasoning.

In an investigation of the relationship between development of moral judgments and spatial egocentrism in subjects ranging from age 10 to over 65, Bielby and Papalia (1975) reported age trends similar to those of Rubin, Attewell, Tierney and Tumolo (1973). A curvilinear relationship between performance on the spatial egocentrism task and age was reported, as well as a curvilinear relationship between moral development and age.

Rubin (1973) compared community-living and institutionalized elderly adults ranging in age from 70 years to 85 years on tasks measuring conservation ability and spatial egocentrism. There was little variability in the age and educational level of the two groups. Results indicated significant differences in the two groups on the conservation measure but not on the decentration task. Institutionalized elderly performed more poorly on the two tasks than did noninstitutionalized elderly of similar age and educational level. Rubin interpreted the overall results of the study as due to social isolation factors. Because there was no direct assessment of

differences in the frequency of social interaction of these two groups, Rubin's conclusion, regarding the cause of differences in performance as being due to social isolation (by virtue of residence) is highly speculative. The author suggested, however, that future studies would do well to observe the diversity and levels of social interaction of the subjects under study.

2. Spatial and Communicative Perspective-Taking

Zaks and Labouvie-Vief (1977, 1980) cited social context explanations for poor performance levels of elderly nursing home patients on spatial and communicative egocentrism tasks. Investigations which assess the ability to assume perspectives of another in a communicative task often involve pairs of subjects seated on opposite sides of a table with a screen between them. One member of the pair is required to describe some sort of display of objects or some design in such a way that the other member can either identify it from a set that he has, or he can erect a duplicate set.

Zaks and Labouvie-Vief described a program designed to train perspective-taking skills in 36 elderly subjects. The subjects were randomly assigned to one of three conditions: perspective-taking training, placebo and control conditions. The training condition provided subjects with the opportunity to take the role of another in structured social problem solving situations and in communicative exercises. Subjects in the placebo condition were not provided with an opportunity to role play during discussions of social problem situations and were asked to take only one role (speaker or listener) in the communicative exercise. Subjects in the control condition took

part only in the immediate post-test phase of the study. The findings supported the hypothesis that the experience of taking the role of another in structured social situations and in referential communicative exercises would facilitate subjects' social cognitive skills.

Loofth and Charles (1971) administered both a spatial and a communicative perspective-taking task to groups of young and old adults. Subjects involved in the communicative task had the opportunity for verbal interchange, and quickly brought into focus any conflict in viewpoints resulting in the resolution of any disparities in the reconstruction of a display. Performance on the perspective-taking condition which involved social interaction was significantly better in contrast to the condition in which no feedback was provided. The finding that older adults were as effective as younger adults in the social interaction condition was interpreted in terms of the possible constriction in the interpersonal sphere of the elderly which may mask or inhibit cognitive abilities.

Rubin (1974) administered measures of communicative and spatial egocentrism to subjects ranging in age from 7 years to above 76 years. The communicative measure used in this study required that two persons who cannot see each other, communicate with each other about several low-encodable designs. The descriptions of each design were scored according to how many distinctive features per item were given. The results revealed a curvilinear pattern of development. No significant sex differences on the two measures were found and education was not related significantly to success on either measure for the elderly subjects.

Tesch, Whitbourne and Nehrke (1978) also used communicative and spatial perspective measures to study the performance of 80 institutionalized males ranging in age from 33 years to 83 years. Subjects were from a single environment in which social isolation was assumed and education was controlled. The Piagetian position of maintenance of operational level through the life span was supported. The authors found greater variability in egocentrism within the different age groupings than between them, indicating individual differences due to variables other than age. They stated that, "a possible explanation for such a finding may be derived from Flavell (1970), who maintained that adulthood cognitive changes are more affected by experiential factors than by maturational variables. Piaget (1972) states a similar position in reference to formal operational thinking, and it is likely that his discussion of the influence of aptitudes, training and experiential factors on the use of formal operations may also be applicable to the concrete operational skill of decentration" (p. 550).

3. Interpersonal Problem-Solving Skills

A pilot study of interpersonal cognitive problem-solving abilities in the elderly was reported by Spivack, Standen, Bryson and Garrett (1978, unpublished). The subjects were 44 foreign born and educated men and women aged 71 to 95 years. The comparison group consisted of psychiatric hospital employees whose mean age was reported as 36 (SD = 14). The authors noted the difference in cultural background of the two groups and cautioned against using the data in any comparison with others who are American born and educated.

Included in a series of tasks measuring thought processes involved in interpersonal problem solving was a task designed to measure means-ends thinking. The Means-Ends Problem-Solving Procedure (MEPS) (Platt & Spivack, 1975) requires the subject to complete a story by filling in events which might have occurred between the arousal and resolution of a story character's need. Scores were based on the number of effective means generated by the subject. The data indicated that the elderly group exhibited poorer performance than the younger, control group. A brief assessment was made of social activity levels of the elderly subjects. This factor did not correlate significantly with the measure. The lack of a significant relation between the experiential variable and the social cognitive variable does not negate the influence of experiential factors; rather, as Hooper and Sheehan (1977) urged, "it highlights the need for more precise environmental measures" (p. 234).

In a related area, although not directly investigating egocentrism, Sheehan (1976) examined the impact of selected performance factors and social role participation upon cognitive functioning in females ranging in age from 62 years to 88 years. Levels of social role participation predicted performance on several cognitive tasks (conservation of weight and classification skills). Further, the number of role contacts subjects had in previous years was found to relate to performance on a class inclusion task. A factor analysis of the measures revealed a social participation factor. Classification and class inclusion scores significantly loaded on this factor. Educational level was not consistently related to performance.

Sheehan concluded that the variable nature of the relationship between social involvement and Piagetian performance suggests the need for close examination of the possible environmental supports for certain tasks, and for the maintenance of cognitive abilities, in the later years. Looft and Charles (1971) also suggested that different skills may be differentially affected by experiential variables.

This point of view has also been empirically supported in the literature dealing with children. Nahir and Yussen (1977) investigated the effects of dramatically different social environments on social and physical egocentrism. Their prediction, that greater peer interaction experienced by children in a kibbutz would enhance their decentering abilities as compared to city dwelling children, was confirmed. Nahir and Yussen concluded that it is likely that social cognitive tasks would be more highly susceptible to social setting influences than impersonal cognitive tasks. Further support for the hypothesized relationship between experiential factors and social knowledge has also been provided by Hollos and Cowan (1973) and Hollos (1975). Yet these studies did not measure specific aspects of the social environment that correlate with social cognitive functioning.

Summary

The sparsity of the literature in this area makes any attempt at integration of findings exceedingly tentative. What is indicated is that the study of decentering ability has been limited to investigations of spatial egocentrism and, in fewer instances, to

social egocentrism as measured only by a communication task and an interpersonal problem-solving task. Clearly, there is a need for studies which tap different aspects of social cognition. Both Papalia and Bielby (1974) and Hooper and Sheehan (1977) stressed the need to conduct studies which utilize more than a single measure of decentering ability. Until this is done any definite understanding of this construct in old age is not possible.

With the exception of the Looft and Charles (1971), Tesch et al., (1978) and Spivack et al. (1978) studies, there has been no systematic analysis for differences in performance on egocentrism tasks due to experiential factors. In general, investigations dealing with environmental variables have been limited by specifying only global social interaction variables. Frequently, social isolation and institutionalization have been confounded. Clarification of the impact of institutionalization may very well rest upon a detailed examination of social interaction levels and patterns. Global variables such as housing style, geographical location and institutionalization do not provide us with information about the particular aspects of interpersonal activity which enhance, maintain or retard cognitive functions in the elderly (Hollos & Cowan, 1973; Hooper and Sheehan, 1977).

What does seem to be indicated in the few studies specifically assessing social cognition, is that when contextual variables are taken into account, decrements are not inevitable. These findings support the notion that the effect of social interaction upon the performance of the elderly must be taken into account before any

conclusions can be made regarding apparent declines in social cognitive abilities in this age group.

Social Interaction in the Elderly

Previous research in the gerontological literature has considered the importance of social isolation and environmental complexity in relation to morale (Bell, 1976; Graney, 1975; Mancini, 1977; Wylie, 1970), psychological well-being (Johnson & Bursk, 1977; Lowenthal & Haven, 1968; Muhs, 1977) and life-satisfaction (Havighurst et al., 1968, 1972; Edward & Klemmack, 1973). Havighurst (1957) and his colleagues (1972) have discussed categories of possible social interaction that were relevant to the aged: leisure, association membership, church, citizen, friend, neighbor, homemaker, parent, spouse, relative, etc. Their focus generally did not include the work role, as it was noted that this role loses its general importance and additional roles gain significance.

Diverse levels and patterns of interaction occur among the aged. Constriction in involvement in one domain is often counterbalanced by increasing involvement in another domain. Several authors have pointed out that family and friends serve as distinctly different domains of activity for the elderly. For example, Rosow (1970) found familial relations to be independent of relations with friends. He noted that the frequency of contact between the elderly and their families has no effect on the contact between the elderly and their informal social contacts. He concluded that familial and informal relations function as separate social arenas in the aged individual's life.

Similar results have been found by Arling (1976). He investigated the interpersonal activities of elderly widows and reported that relationships with friends and neighbors were an important source of well-being and that involvement with children did not effectively substitute for having social relations with neighbors and friends.

Babchuk (1965) studied the interactions that middle-class couples have with friends and relatives. He reported similar results; that is, each group provided a distinct contribution to the total system of social relations that the couples had. Booth (1972) and Powers and Bultena (1976) reported that males mentioned more friends and group involvement than females but females had more emotionally close relations with their friends. In addition, females had less frequent overall social interactions than men but their interactions occurred over a wider range of participants (Powers and Bultena, 1976).

What is indicated by this research is that levels and patterns of social experience of the elderly have been found to vary. However, it is not known how the diversity and magnitude of social interaction contribute to older individuals' knowledge of others and their knowledge of interpersonal relationships. Studies of social interaction among the elderly have focused on the following sources of affiliation: (1) family, (2) friends, and (3) community organizations.

1. Family Roles

It has been recently noted that the family is the best resource of the elderly for regular social interaction (Bild & Havighurst,

1976; Gibson & Ludwig, 1968; Havighurst et al., 1972; Kerckhoff, 1965; Reiss, 1962; Rosenmayer & Kocheis, 1963; Sussman & Burchinal, 1962). The literature reveals that in contrast to the years in the individual's life when the work role has centrality, family interaction tends to become intensified during the later years. Older family members have considerable contact with their children and relatives in spite of spatial separations. It has also been noted that couples are prevalent among the elderly, and marriage is a focal point among those who have a living spouse (Atchley, 1972). Riley and Foner (1968) reported that older couples tend to share activities more than when children still lived at home. Mc Kain (1969) stated that the most frequent reason cited for marrying late in life was companionship.

2. Friendship Roles

In addition to the family, friends and neighbors are important sources of primary relationships among the aged (Atchley, 1972; Clark & Anderson, 1967; Havighurst et al., 1972; Riley and Foner, 1968; Rosow, 1967, 1974). Atchley (1972) noted that friendship roles are flexible, and "long after the roles of worker, organization member, or even spouse have been lost, the friend role remains" (p. 316).

Several researchers have been concerned with the influence that age-segregated vs. age-integrated housing has on the elderly. Rosow (1967, 1974) argued that age-segregation is conducive to increased social contacts and interaction. He pointed out that the status

similarities that exist in age-segregated housing provide a substantial basis for solidarity and friendship, thus increasing support systems that contribute to the well-being of the elderly. These support systems are essential and "provide care for people most in need when the traditional sources of care are weak or missing" (1967, p. 309).

Bultena and Wood (1969) cited evidence that environmental settings such as a retirement community provided greater opportunity for friendship and the presence of similar-age peers. They pointed out that retirement communities have been shown to be effective and supportive for those who choose them. Montgomery (1972) reviewing the literature concerning residential setting and the elderly stated "research to date seems to tip the scale in favor of age-concentration in that age-homogeneous environments appear to increase the number of friends and the extent of social interaction..." (p. 42).

3. Formal Social Relations

Another type of involvement includes participation in groups and organizations, volunteer work, participation in community events and the general use of leisure time. In terms of the amount of nonwork time the years following retirement provide the greatest opportunity for the development of the use of leisure time.

Neulinger and Raps (1972) suggest that, "As we have been taught to work, not just by acquiring certain skills but, by acquiring the 'right' work attitude, so perhaps must we now learn to leisure by acquiring the 'right' leisure attitude" (p. 206). In general, investigations focusing on participation in groups and organizations

have been concerned with the relationship between such participation and the life-satisfaction and morale of the elderly. Participation has been reported to be associated with increases in both areas (Martin, 1973; Wylie, 1970).

Summary

In sum, the review of the literature indicates what is presently known about the elderly as they interact in several social role categories. There is evidence that individuals vary widely in terms of the frequency of contact that occurs with family, friends and participation in group organizations. It has also been noted that interaction in the different role categories contribute differentially to the aged individual's satisfaction with life, well-being and patterns of mutual support. Finally, in order to understand the influence of environments that support and maintain social cognitive functioning, it would be fruitful to examine several specific aspects, suggested by the literature, of the individual's social interactions. Thus, this study will consider several variables, namely, the total level of role participation based on 12 mutually exclusive role categories, the range of role contacts, the range or diversity of activities involving others, the range or diversity of activities in which others are vicariously involved (such as TV and reading), the level of participation in an array of activities, and the psychological involvement in the 12 role categories, i.e., thinking, worrying or planning.

CHAPTER III

Statement of the Problem

Despite an underlying model of development which posits the stability of cognitive structures, recent evidence suggests apparent developmental reversals of cognitive abilities in elderly individuals. Although attention has been focused on noncognitive performance factors which may affect cognitive functioning, few researchers have undertaken a systematic or comprehensive exploration of factors presumed to be related to apparent declines. Investigations that have attended to the influence of contextual factors, have in general, confounded social isolation and institutionalization. Thus, while theory predicts and research suggests a relation between experiential variables and cognitive thought the gap between theoretical prediction and empirical validation remains to be filled.

The major purpose of the proposed study is to determine the effects of specific aspects of social interaction upon social cognitive concepts. The second purpose is to assess the quality of social cognitive thought in the elderly, an area that has been virtually neglected despite its implication for a variety of prosocial behaviors, psychological well-being and general constructive interpersonal relationships.

The following general hypotheses will be tested:

1. Levels of social interaction will significantly and positively correlate with levels of social cognitive abilities.

2. Levels of social interaction will account for significantly greater amounts of variance in scores of social cognition than age of subjects.

Multiple regression analyses will be used to determine which of the social interaction indices, either alone, or in linear combination with each other, will account for a significant proportion of the variance in social cognition. Age will be entered in the regression equation as an independent variable to test the hypothesis that levels of social interaction will account for significantly greater amounts of variance in the social cognition measures than that contributed by age of subjects. To assess age-related differences, adults will be selected from two age levels; those aged 65 to 74 will be designated as the "young-old" and those 75 and over as the "old-old". Neugarten (1975) has suggested this recent age-group dichotomy, in our society, is a meaningful one in studies with the elderly. She noted differentiation between the young-old and the old-old in health status, marital status, educational level and economic factors, and pointed out that program planners need data on these two age groups to formulate social policy.

While there is no justification for expecting a difference between males and females in the relation between social interaction and social cognition, sex of subject will be entered as an independent variable to assess the influence of this variable on social cognitive thought.

CHAPTER IV

Method

A research design employing quantitative descriptors of social experience based on a self-report questionnaire and three different measures of social cognitive functioning provided the basic data for this study.

Subjects

The sample consisted of 122 adults with 51 males and 71 females, ranging in age from 65-to-89 years of age. The mean ages by sex and age group were: under 75/females- 69 years, under 75/males- 69 years, over 75/females- 78 years, and over 75/males- 77 years. All subjects resided in the Westchester County and Queens County areas of New York. Of these 122 individuals, 40 per cent were from Westchester and 60 per cent were from Queens County. Participants were contacted through two sites serving individuals who live in apartments for senior citizens, private homes and apartments with no age restrictions. The socioeconomic status of the participants in the research is predominantly middle-class. With regard to educational level, 3 per cent reported less than 7 years of formal schooling, 36 per cent reported 7-9 years of education, 38 per cent reported 10-12 years of schooling, and 11 per cent indicated formal schooling beyond 12 years. Participants were generally healthy and capable of maintaining themselves in the community.

General Procedure

The investigator met with each subject on three separate occasions. The introductory meeting was for the purpose of acquainting individuals with the nature of the study and soliciting

participants. During the second meeting the questionnaire dealing with demographic and health factors and the Social Interaction Questionnaire was administered (Appendices A and B). From six to ten participants met with the investigator on any occasion. The investigator read the instructions and items aloud to facilitate completion of the questionnaire. This phase of the investigation took approximately 40 minutes per group.

The third meeting, generally a week to two weeks later, involved the administration of the social cognitive tasks (Appendix C). Again, the administration of these tasks was in a group setting and instructions and items were read aloud by the investigator as participants read them from the distributed packet (Appendix C) which included lined paper for writing responses. Administration of this measure took approximately 45 minutes per group, including three minute rest periods after the completion of tasks one and two.

Measures

Social Interaction Measure

The Social Role Rating Scale (Havighurst et al., 1972) was the basis of the Social Interaction Questionnaire (Appendix B). The scale

is based on the proposition that the individual's social universal (his social life space) can be divided into the areas of social interaction or roles...these are assumed to be...the major areas of behavior that reflect social engagement. The rating scales represent attempts to measure the individual's performance in these roles. It is assumed that individuals are maximally engaged in some roles and minimally engaged in others...the roles are categories of possible interaction which may be used in comparing the social performance of one individual to another, or one group of individuals with another group (Havighurst et al., 1972, p. 7).

Following Havighurst, a rating scale has been defined for each of twelve role categories. Each scale may be considered a continuum from no participation to high participation. For each of the roles participation is quantified in terms of amount and regularity of interaction, and participation is defined in terms of the amount of time, contact, communication, activity and effort in a role.

A copy of the complete social interaction instrument is found in Appendix B. The measure consisted of a series of questions regarding the magnitude and diversity of the social experience of the aging individual in interaction with the family and larger environmental network. Subjects' responses to these questions were scored so as to yield six different categories reflecting different domains of social activity.

1. Level of role participation. Scores were based on subjects' ratings of their involvement in twelve mutually exclusive role categories: spouse, parent, grandparent, kin, neighbor, friend, worker, club/association member, homemaker, church member, acquaintance, and civic/political member. Scores on each level of role participation ranged from zero to eight reflecting no activity to high activity. The total range for the measure was zero to 96 or zero to 64, depending on the number of roles that were potentially available to a given subject. For example, if a given subject was not a spouse, parent, grandparent or churchmember, the subject did not have an opportunity for activity in these roles. It should be kept in mind that rating was based upon activity, not formal status. The subject may have been a grandparent, parent, etc., but if there was no time, effort or contact in the role, the subject was rated

zero (Havighurst et al., 1972). If the subject checked "yes" to the above four roles (see Appendix B, items 1, 3, 6 and 8) then his total possible score was 96 (12 x 8). If the subject checked "no" to these items, then his total possible score was 64 (8 x 8). Thus, subjects' participation level scores were a proportion of the sum of the participation levels within each role category divided by the number of potential roles available to a given subject.

2. Level of participation in an array of activities. This score was based on subjects' ratings of their levels of participation in 22 mutually exclusive social activities. Similar to the scoring procedure for the first scale, ratings were summed within each activity and divided by the number of activities available to a given subject. Ratings for each item ranged from zero to five. The total range for the measure was zero to 110.

3. Psychological involvement in role categories. Scores were based on the amount of time subjects indicated that they spent in planning, thinking, or worrying about their involvement in each of the twelve social roles identified in the first scale. These scores were also a proportion of the sum of ratings within each role divided by the number of potential roles available to a given subject. Ratings for each item ranged from zero to three. The total range for the measure was zero to 36.

4. Role membership range. This score reflected the number of different role categories in which the subject was an interactant. This scale was patterned after the Role Scope of Lowenthal, Thurnher

and Chiriboga (1975). Subjects' scores were the number of roles they had at the time of the interview. The total range was zero to 12.

5. Range of activities involving other persons. This score reflected the number of different interpersonal activities in which subjects participated. The range for such activities was zero to 18.

6. Range of activities involving vicarious social interaction. This score reflected the number of activities in which subjects participated that involved vicarious social experience, including reading, television, radio and movies. The range was zero to four.

Scales one, two, and three reflected the magnitude of subjects' social participation. These scales were adapted from those of Havighurst and his colleagues (1972) and Vanderplate and Fitzgerald (1976). Scales four, five, and six reflected the diversity of subjects' social participation. These scales were adapted from those of Lowenthal, Thurnher and Chiriboga (1975).

The present investigation has a methodological advantage over previous work in providing an in-depth measure to assess specific aspects of social experience rather than relying on global variables such as institutionalization, housing style and geographic location (Holloos & Cowen, 1973; Hooper & Sheehan, 1977).

Validation of Self-Report Questionnaire

Although self-report questionnaires are common in the psychological literature, validation of the self-report technique used in the social interaction scale was undertaken. After the social cognition measures were completed every fifth or sixth respondent was asked to complete the social interaction questionnaire

for another subject who the respondent had indicated was a friend and with whose activities the respondent was familiar. These subjects were told: "We are interested in your perception of your friend's activities, will you please complete the social interaction questionnaire for _____" (the investigator provided the name of the subject in the study whom the respondent had indicated was a friend and with whose activities the subject was familiar). For the self-report and the friend's report the means were 89.3 and 87.9 respectively. A t test of the difference between self reports and friends' reports of the total level of participation scores indicated no significant differences ($t(38) = .23$, n.s.). Thus, concurrent validity was empirically established for the social interaction measure.

Social Cognition Measures

A methodological limitation in previous studies on social cognition has been the use of only a single measure of social cognition or the assessment of only one social cognitive skill (Looft & Charles, 1971; Rubin, 1974; Spivack et al., 1978; Tesch et al., 1978). As Hooper and Sheehan (1977) have stressed, more than a single measure of cognition must be used for a clear understanding of this factor in the elderly. Communicative egocentrism is only one aspect of perspective taking ability. Therefore, three measures of social cognition were used in the study.

Assessment of social cognition involved (1) conceptualizing other persons, (2) conceptualizing alternatives in interpersonal

problem solving, and (3) coordinating multiple perspectives. Each measure tapped different aspects of social cognitive functioning.

1. Person Perception Measure

Cognitive-developmental theory suggests the way in which perceptions of others change with age (Piaget, 1926; Werner, 1957). Development of understanding of others involves a shift from concrete to abstract modes of conceptualization. With development, descriptions of others shift from concrete references of others' physical characteristics to the inference of internal psychological states.

On a measure of person perception, from which the proposed social cognitive measure was derived, Peevers and Secord (1973) reported inter-judge agreement as 87 per cent and test-retest reliability as .81 with a sample of adult college subjects. Crockett (1965) reported test-retest reliability of a similar measure as .95 as a result of two testings four months apart. In addition, no significant correlation was found between person perception scores and measured IQ.

Procedure. The person perception measure was administered in group sessions (six to ten subjects per group). Subjects were asked to select two individuals whom they knew well and to tell what each person was like. The subjects were read a set of standard instructions which appeared on the first page of the instrument (Appendix C. p. C-1). The instructions were as follows: "Please select two individuals whom you know very well and tell what kind of person each is. The persons you select are not to be members of

your family. Please give only the first name of each person you have selected."

Scoring. The scoring categories were patterned after that of Peevers and Secord (1973). Subjects' descriptions were divided into statements, each consisting of one discrete bit of information concerning the persons written about. The following categories were used in coding subjects' statements:

1. Undifferentiating. The person is not differentiated from his environment, but is described in terms of his possessions or his social setting. (Examples: "Sally lives in a small apartment" and "Ben has a nice wife.")
2. Simple differentiating. The person is differentiated as an individual, but is described in terms of simple, superficial characteristics, global judgments, or his relationship to the perceiver. Included at this level are the following: appearance, global dispositions, like-dislike, and role category. (Examples: "Rita is nice" and "Al is 68 years old.")
3. Differentiating. The person is described in terms of fairly specific personal characteristics, such as interests, abilities or beliefs, or temporary states or conditions. (Examples: "Joe is a hardworking guy" and "he likes to go bowling.")
4. Dispositional. The person is described in terms of traits which have implications for his behavior in a wide range of situations, or which make reference to his thoughts and feelings. (Example: "Ruth is very generous" and "John is really stubborn.")

Categories three and four reflect the expression of inferred statements of psychological attributes of others while concrete or overt attributes are reflected in categories one and two. The total number of statements were computed by category for each subject. The Person Perception Score was a proportion of a subject's total number of differentiating and dispositional statements (categories

three and four) divided by the total number of statements. The range of scores was zero to 1.00.

Reliability of the categorization of items was assessed by calculating the percent of inter-rater agreement. Twenty protocols were selected at random and a second judge (a graduate student in psychology) independently categorized the responses of these subjects. The inter-rater agreement on 178 items was 95 per cent.

2. Interpersonal Problem Solving Measure

This measure involved the cognitive ability to solve social types of problems encountered in everyday living. It was patterned after the Means-End Problem-Solving (MEPS) Procedure of Platt & Spivack (1975). The MEPS tapped the types of changes that interpersonal problem solving undergoes with development. For example, declines in dwelling on one aspect of a situation are noted, as well as modifications and coordinations of alternative solutions in the light of anticipated outcomes.

Platt and Spivack (1975) presented a full discussion of studies of construct validity, discriminant validity, the relation of intellectual factors, content validity, predictive validity and concurrent validity of the MEPS instrument. In general, they reported that scores on the MEPS reflected the quality of means-end thinking, and adequately described differences among persons tested. The procedure was found to consistently discriminate between groups of individuals who differed grossly in levels of adjustment, as well as within homogeneous groups who differed only in the degree of their effectiveness with respect to planning in key life areas. These authors

noted that MEPS scores are mainly independent of measured IQ, socioeconomic status, educational level and sex of subject. They cited evidence that interpersonal problem-solving was considered as a domain separate from general ability to think abstractly, and that it appeared to be specific to thinking in the interpersonal domain. Platt and Spivack (1975) reported test-retest reliability on the MEPS to be .64 on a sample of college males. Internal consistency was .84 with a sample of adult psychiatric patients. The correlation between the scores on the MEPS and the Coordinating Perspectives task with a sample of normal adults was .38.

Procedure. Subjects were administered the Interpersonal Problem Solving measure by the investigators in group sessions (six to ten subjects per group). The procedure involved the administration of stories portraying simulated real-life problems. Subjects were supplied with story stems portraying situations in which a need is aroused in the protagonist at the beginning of the story, and is satisfied by him or her at the end of the story. The subject was required to complete the story by filling in those events which might have occurred between the arousal and the satisfaction of the story character's need. The subjects were read a set of standard instructions which appeared on the second page of the instrument. The directions for administering this measure and story protocols are contained in Appendix C, pages C-2 and C-3. The instructions were as follows:

We are interested in your imagination. On the next page there are two stories, for each story you will be given the beginning of the story and how the story ends. We would like you to make up a story that connects the beginning that is given to you with the ending given you. In other words, you will make up the middle of the story.

Please write at least one paragraph for each story.
Thank you very much.

Subjects were requested to respond to the male target character in the story if the subject was a male, and to respond to the female target character in the story if the subject was a female. The stories were presented in a fixed sequence as suggested by Platt and Spivack (1975). The following stories were presented:

Mr. A/Mrs. A/Ms. A. was listening to the people speak at a meeting about how to make things better in the neighborhood. He/she wanted to say something important and have a chance to be a leader too. The story ends with him/her being elected leader and presenting a speech. Please begin the story at the meeting where he/she wanted to have a chance to be a leader.

Mr. P/Mrs. P/Ms. P. had just moved in that day and didn't know anyone. He/she wanted to have friends in the neighborhood. The story ends with him/her having many good friends and feeling at home in the neighborhood. Please begin the story with Mr. P/Mrs. P. or Ms. P. in his or her room immediately after arriving in the neighborhood. (Platt & Spivack, 1975, p. 17).

Scoring. The stories were scored according to the following categories:

1. Relevant means. A means is defined as any new relevant unit of information or instrumental act designed to reach the stated goal or to overcome an obstacle. When the strategy involves one plan with several steps within that plan, credit is given for each step. When statements of different plans are used, whether or not step-by-step elaboration is offered, credit is given for each different plan.
2. Enumerations of means. If the subject explained or gave some additional details concerning a particular means in the story, the additional explanation was scored as one or more enumerations of a means. (Platt & Spivack, 1975, p. 25; Shure & Spivack, 1972, p. 349-350).

Examples of relevant means were "offer a plan to set up committees" and "ring your neighbor's bell." Each means was categorized in one of many categories empirically developed by the authors of the manual.

Their list was not meant to be exhaustive, and additional categories were added by the investigator during the scoring phase. To keep the number of categories of means as small as possible each category is broad enough to include several different means which are similar. For example, "give a presentation," "give a campaign talk to the group," and "make a speech," are responses that can be placed in the category of campaign speech. The following is an example of a subject's response provided by Platt and Spivack (1975) and how it is scored:

Mr. A. thought about what he could do to get elected leader. He decided to give a speech. He told the people what he would do to improve the neighborhood. He told them, for instance, how he would have the garbage picked up more often. The people liked his ideas and elected him leader (p. 27).

The means provided by the subject to reach the goal are: (1) think about what to do to get elected (categorized as "introspection"), (2) give a speech (categorized as "campaign speech"), and (3) tell the people what he would do to improve the neighborhood (categorized as "offer plans or ideas"). Thus, there are three means. The phrase "he would have the garbage picked up more often" is an enumeration of the third mean, that of improving the neighborhood. Therefore, it is scored as an enumeration. A total score was composed of the accumulation of means and enumeration of means for the two story stems.

Reliability of the scoring procedure of the total number of means and enumerations per subject was assessed by calculating the percent of inter-rater agreement. Twenty protocols were selected at random and a second judge independently scored the responses of these subjects.

The second judge, a doctoral student in psychology, had become totally familiar with the scoring procedures as described in the manual (Platt & Spivack, 1965), and practiced categorizing means and enumerations on ten stories, with the investigator, prior to the independent scoring of responses. The inter-rater agreement on the total score for 20 subjects was 90 per cent. Discrepancies that remained were discussed and resolved.

3. Coordinating Perspectives Measure

A projective technique, patterned after the role-taking task (RTT) developed by Feffer (1959), was used to assess subjects' ability to coordinate multiple perspectives. This measure focused on the individual's ability to decenter, i.e., to assume different perspectives of other individuals while maintaining consistency between the different perspectives initially stated. The procedure used in the present study involved two situations, each based on a Thematic Apperception - type picture. For each picture, the subject was read a short story. After completion of each story, attention was focused again on each picture and the subject was asked to sequentially retell the story from the viewpoint (perspective) of each character.

With regard to validity requirements for the Feffer task, Feffer and Gourevitch (1960), considering mental age as a rough index of cognitive development, reported a relationship between mental age and the RTT. In addition positive correlations between Piagetian decentering in the impersonal, physical realm and the Feffer task were reported

when chronological age and verbal intelligence were controlled. Similar results were reported in a study with mental retardates (Feffer, 1970). In addition, scores on this measure have been reported to correlate with chronological age (Feffer & Gourevitch, 1960; Chaplin & Keller, 1974); effectiveness of social interaction (Feffer & Suchotliff, 1966) and interpersonal cognitive problem solving (Platt et al., 1974). Feffer and Jahelka (1968) reported interjudge reliability of the scoring procedure as .69. Two judges scored a random selection of written protocols of second year college students. With a sample of 35 male adults, Feffer (1959) reported inter-judge reliability as .89.

Procedure. Subjects were administered the Coordinating Perspectives measure by the investigators in group sessions (six to ten subjects per group). Two 18 x 26 inch pictures were used, each displayed separately. Copies of these pictures appear in Appendix C (pages C-5 and C-7). Smaller copies were also given to each subject to eliminate any difficulty subjects might have had viewing the larger picture. The first scene depicted a man and a woman standing in a living room. A third person is seen entering the room through a doorway. The second scene depicted a man holding a bundle in a supermarket checkout counter. A third person is seen approaching the man holding the package as the cashier looks on. The subjects were read a set of standard instructions which appeared in written form in the test instrument (Appendix C, pages C-4 and C-6). As each picture was presented the subjects were told:

We are interested in what you think about others' thoughts, feelings, actions and intentions. In this picture a man and a woman are engaged in an argument. They have just come home from an afternoon outing. During their conversation a man appears at the doorway having heard the sound of their voices...we would like you to make believe that you are: (pointing to character)

1. The man who is talking to the woman, and that you are right in the situation. Retell the story from the point of view of the man. ("you will not need more than a few minutes"). After three minutes:
2. Now make believe that you are the person in the doorway. Tell the story as though you really were this person. (pointing to character). After three minutes:
3. Now make believe that you are the woman and that you are right in the situation. How do you as the woman feel, what are your thoughts? Retell the story as though you were this person. Thank you.

The same procedure was used for the second picture. The subjects were told: "This card shows three people in a supermarket. The man at the counter is having some difficulty with the cashier. Someone who seems to know him is approaching and appears to be saying something." The order of presentation of the two pictures was balanced between groups of subjects.

Scoring. Detailed procedures for scoring protocols were provided by Schnall and Feffer (1970) and modified during preliminary work. Subjects' responses were transcribed onto scoring sheets (Appendix D). The various characters presented in the initial story are called actors. Each column of the scoring sheet represents the story as seen "by ____." (actor 1, actor 2, actor 3). Looking down each column, one can see the way in which different actors are described from a given viewpoint and, by looking across the rows, the way in which a

particular actor is described from the different viewpoints. All scoring was based upon the amount and type of material given about each actor from the different roles, i.e., by reading the entries across from where the actor's title appears on the left-hand side of the sheet. Thus, the different roles represent different perspectives or points of view, and the actor is the object upon which refocusing takes place from these perspectives. The scoring procedure measures the extent to which the subject is able to shift from his initial orientation in refocusing upon his actors from different roles, while at the same time maintaining continuity between his various versions of the initial story. Classes of scores, which can be achieved, reflect increasing subtlety of coordination between the subject's versions of the initial story. The two classes of scores to be utilized here have been analyzed into a total of fourteen levels. These have been ordered according to the developmental rationale underlying the task (Schnall & Feffer, 1970). The two classes of scores were as follows:

1. Perspective elaboration. In order to be classified under this category there must be change yet consistency between the descriptions of a given actor from the various perspectives. In addition, these descriptions should differ appropriately from role to role in the sense that the description of an actor in his own role should have an "inner" orientation as contrasted to an external description of that actor from a viewpoint other than his own. Different levels (5 levels) are based upon the subtlety and fineness of coordination between inner and outer descriptions.
2. Change of perspective. To achieve a score in this category, the subject must have two perspective elaborations involving the same two actors. That is, the two roles must have a particular relationship to each other such that the internal orientation of one is appropriately reflected in the external orientation of the other, and vice versa.

Different levels of change of perspective (9 levels) are based upon the combinations of Perspective Elaboration scores reflecting increasing subtlety of coordination between inner and outer descriptions (Feffer & Suchotliff, 1966, Schnall & Feffer, 1970).

Appendix D provides an example of a subject's score on the first story. With regard to each of the stories the range of scores for each scene was zero to 14. Performance in each story was evaluated independently, each subject's final score was the mean of the two stories.

Reliability of the rating of entries describing a single actor was assessed by calculating the percent of inter-rater agreement. Thirty protocols were selected at random and a second judge (a graduate student in psychology) independently categorized the responses of these subjects. The inter-rater agreement on 99 individual entries was 91 per cent. Due to the complexity of the scoring system it was necessary for the second judge to totally familiarize herself with the manual and practice with the first judge prior to coding subjects' protocols. Discrepancies were discussed, scoring was refined, and discrepancies that remained were further discussed and resolved.

Pilot Study

A pilot study was conducted to test the validity of the format of having subjects write out responses to the social cognitive measures. Previous investigators have used both oral and written methods of administering each of the three social cognitive measures (Bieri & Blacker, 1956; Crockett, 1965; Feffer & Jahelka, 1968; Feffer & Suchotliff, 1966; Lowenherz & Feffer, 1969; Platt & Spivack, 1975). Oral procedures were based on subjects' responses to an individual interview while written responses were based on group

administration of the measures. While both written administration and oral administration of the instruments have been used with adults aged 19 to over 64 years, a pilot test was undertaken to ascertain comparability of responses under the two methods of administration. Platt and Spivack (1975) have indicated no significant differences in mean story length or scores on interpersonal problem solving tasks as a result of the two methods of administration.

It was hypothesized that performance on three social cognitive tasks under the two administration conditions (oral and written) would not be significantly different.

Subjects

Five male and five female subjects, ranging in age from 65 to 78 years old were drawn from a senior center population and asked to participate in a study concerning their thoughts and feelings about others and interpersonal relationships.

Procedure

Five subjects were administered one of the two parts of each of the social cognitive measures in a one-to-one interview in which the interviewer posed the questions and the subjects responded orally. Their responses were written verbatim by the interviewer. Another group of five subjects were administered one of the two parts of each of the three social cognition measures in written form. The five subjects met as a group and were collectively read the instructions and questions and then wrote out the responses themselves.

Results

A t test of the difference between the two means for each dependent measure was performed [$t(8), p < .05$]. No significant differences in the mean levels were found as a result of the two methods of administration. For the individual condition and the group condition for the person perception measure the means were .54 and .49 respectively ($t = .36$, n.s.). For the interpersonal problem solving task the means for the individual and group conditions were 3.60 and 4.80 respectively ($t = -1.54$). The means for the individual and group conditions for the coordinating perspectives measure were 5.60 and 6.00 respectively ($t = -.39$). Thus, the data supported the hypothesis, and group administration of the social cognitive measures was undertaken.

CHAPTER V

Results

Initial Considerations

The primary independent variables of the study were: (1) total level of participation in twelve role categories, (2) role membership range, (3) range of activities involving other persons, (4) range of activities involving vicarious social interaction, (5) level of participation in an array of activities, and (6) psychological involvement in role categories. The three dependent variables were: (1) perceptions of other persons, (2) interpersonal problem solving and (3) coordination of multiple perspectives. Where there were missing data, the mean of the variable was used. The worst case was the coordinating perspectives measure, in which four subjects did not respond to both parts of the measure. According to Cohen and Cohen (1975) this approach has been shown to be legitimate where the proportion of missing cases is small.

The results are presented in two sections. The first reports summary descriptive statistics of the independent and dependent measures, and information concerning the interrelationships between the independent and dependent measures. The second section presents the results of the multiple regression analyses used to test the hypotheses, and information concerning the relationship between sex of subjects and social cognition.

Summary Descriptive Statistics

The means and standard deviations for independent and dependent variables are presented in Table 1. Table 2 and Table 3 list the means and standard deviations by sex and age group respectively.

Interrelationships Between the Independent Variables

Correlations of the six social interaction variables were calculated with each other. The resulting correlation matrix is presented in Table 4. It is clear that none of the correlations were extreme. The lowest correlation was between the measures of range of activities involving vicarious others and psychological involvement in roles (.15, n.s.). The largest correlation was between the measures of range of activities involving others and level of participation in activities (.67, $p < .001$). The average correlation was .42.

The values of the intercorrelations were expected since the six indicators of social interaction were in some cases interdependent. For example, for the range of roles indicator, in order to be considered as an interactant in any of the 12 role categories, one must have had a score greater than zero in the level of participation indicator. Similarly, this restriction applies to the range of activities and level of participation in activities indicators.

Interrelationships Between the Dependent Measures

It was of some interest to find out whether any evidence of convergent validity existed among the three social cognitive measures. Correlations among the three social cognitive tasks indicated moderately high and significant correlations between person perception and interpersonal problem solving ($r = .56$, $p < .001$); person

TABLE 1
Mean Levels and Standard Deviations for Independent and
Dependent Variables

Variables	Mean	SD
Independent Variables		
Total Level of Role Participation	4.24	1.16
Role Membership Range	9.59	1.67
Range of Activities Involving Others	12.66	3.20
Range of Activities Involving Vicarious Others	3.70	.48
Level of Participation in Activities	2.18	.60
Psychological Involvement in Roles	1.75	.48
Dependent Variables		
Person Perception	.57	.28
Interpersonal Problem Solving	5.97	2.76
Coordinating Perspectives	8.36	3.56

TABLE 2
Mean Levels and Standard Deviations for Independent and
Dependent Variables by Sex of Subject

Variables	Sex			
	Males (N = 51)		Females (N = 71)	
	Mean	SD	Mean	SD
Independent Variables				
Total Level of Role Participation	4.28	1.15	4.21	1.18
Role Membership Range	9.98	1.39	9.31	1.80
Range of Activities Involving Others	13.24	3.12	12.25	3.22
Range of Activities Involving Vicarious Others	3.73	.49	3.68	.47
Level of Participation in Activities	2.11	.55	2.24	.64
Psychological Involvement in Roles	1.79	.50	1.72	.47
Dependent Variables				
Person Perception	.68	.21	.48	.30
Interpersonal Problem Solving	6.39	2.54	5.66	2.88
Coordinating Perspectives	8.87	3.21	7.98	3.76

TABLE 3
Mean Levels and Standard Deviations for Independent and
Dependent Variables by Age Group

Variables	Age			
	Under 75 (N = 77)		Over 75 (N = 45)	
	Mean	SD	Mean	SD
Independent Variables				
Total Level of Role Participation	4.31	1.24	4.12	1.02
Role Membership Range	9.70	1.72	9.40	1.57
Range of Activities Involving Others	13.19	2.92	11.76	3.49
Range of Activities Involving Vicarious Others	3.71	.48	3.67	.48
Level of Participation in Activities	2.20	.54	2.15	.70
Psychological Involvement in Roles	1.72	.50	1.78	.45
Dependent Variables				
Person Perception	.55	.30	.59	.24
Interpersonal Problem Solving	5.87	2.98	6.13	2.35
Coordinating Perspectives	8.23	3.81	8.57	3.10

TABLE 4
Correlations Among Independent Variables

Variables	2	3	4	5	6
1. Total Level of Role Participation	.46***	.54***	.27**	.59***	.59***
2. Role Membership Range		.33***	.20*	.26**	.39***
3. Range of Activities Involving Others			.44***	.67***	.46***
4. Range of Activities Involving Vicarious Others				.46***	.15
5. Level of Participation in Activities					.53***
6. Psychological Involvement in Roles					

* $p < .05$

** $p < .005$

*** $p < .001$

perception and coordinating perspectives ($r = .63$, $p < .001$), and coordinating perspectives and interpersonal problem solving ($r = .66$, $p < .001$). Each of the social cognitive measures consisted of two parts. Correlations were computed between each of the two parts of each of the social cognitive measures. The correlations ranged from .57 to .62 ($p < .001$).

In sum, these data provide evidence for convergent validity among the three social cognitive tasks, as well as between the parts of each task.

The Multiple Regression Analysis

The major portion of the analysis was concerned with investigating the nature of the relationship between the six social interaction predictors and each of the three social cognitive variables. Therefore, multiple regression analyses were performed to (1) determine the extent to which the social cognitive variables could be represented in terms of linear combinations of the social interaction predictors, (2) determine the unique contribution of each of the particular social interaction predictors above and beyond the influence of the remaining five predictors, and (3) determine which subset of the social interaction variables were most important as predictors of social cognition. The third stage of the analyses were performed using the maximum R^2 improvement regression technique. This procedure is basically a variation on a forward selection stepwise procedure. For a complete description of this procedure the reader is referred to the SAS User's Guide (SAS Institute, Inc., 1979). This procedure identified the subset of social interaction

predictors that accounted for the most variation in each of the three social cognitive variables.

Social Interaction and Social Cognition

1. Person Perception

Table 5 presents results of multiple regression analyses predicting social cognition from the six social interaction variables. Table 5 indicates that approximately 19 per cent of the variance in person perception was accounted for by the linear combination of the six social interaction variables. The accompanying F statistic indicated that this proportion of variance accounted for by the social interaction variables was significant ($F = 4.39$, $p < .001$).

The second stage of the analysis was concerned with identifying the specific social interaction variables that accounted for variance in person perception scores above and beyond the influence of the remaining five variables. The results with respect to individual social interaction variables which made a unique contribution to variance accounted for are shown in Table 6. The squared semipartial correlation (which equals the increase in the squared multiple correlation which occurs when the variable is added to an equation already containing the other five variables) indicated that scores on the total level of role participation predictor significantly accounted for five per cent of the variance on the person perception scores above and beyond the remaining five variables. None of the other social interaction predictors significantly accounted for unique variance in person perception scores.

TABLE 5
Multiple Regression Results Predicting Social Cognition
from Social Interaction Variables

Social Cognition Measures	Multiple R*	Percentage of Variance Explained (R ²)*
Person Perception	.43	18.6%
Interpersonal Problem Solving	.47	22.2%
Coordinating Perspectives	.67	44.7%

*p < .001

TABLE 6
Unique Contribution of Social Interaction Variables
to Social Cognition

Social Cognition Measure	Social Interaction Variable(s)	Unique Contribution of Social Interaction Variables (sr^2)*
Person Perception	Total level of participation	4.8%
Interpersonal Problem Solving	Total level of role participation	6.0%
Coordinating Perspectives	Total level of role participation	8.9%
	Range of activities involving others	2.5%

* $p < .05$

The previous two stages of the analysis addressed the questions of how well the group of six social interaction predictors predicted person perception and the extent to which any single variable added to the prediction of person perception above that already accomplished by the other variables. The third stage of the analysis identified the specific subset of social interaction predictors that made the strongest contribution in accounting for variation in person perception scores. In other words, given the problem of predicting the social cognitive measures from six social interaction predictors it may not be necessary to collect information on all six variables. The question then becomes, can one identify a subset of the six social interaction variables that produces a multiple correlation that is not significantly different from the multiple correlation based on all six social interaction predictors. This question was addressed using the maximum R^2 stepwise selection procedure previously mentioned. The results of this analysis are presented in Table 7. The results in Table 7 show the order in which the variables were included in the regression model. With respect to the person perception measure the analysis shows that the first variable to enter the regression model was the total level of role participation predictor. Table 8 presents correlations between the six social interaction predictors and the three social cognitive measures. Table 8 indicates that the correlation achieved for this variable and person perception (.37) is almost as large as the overall multiple correlation shown in Table 5 based on all six social

TABLE 7
Multiple Regression Results Predicting Social Cognition From
Major Regressors

Variable	Multiple R	R ²	R ² Increase
Person Perception			
Total Level of Role Participation	.37*	.14*	.14
Range of Activities Involving Others	.41*	.17*	.03
Interpersonal Problem Solving			
Total Level of Role Participation	.45*	.20*	.20
Coordinating Perspectives			
Total Level of Role Participation	.63*	.39*	.39
Range of Activities Involving Others	.66*	.44*	.05

*p < .001

TABLE 8
Correlations Between Independent and Dependent Variables

Social Interaction Variables	Social Cognitive Variables		
	Person Perception	Interpersonal Problem Solving	Coordinating Perspectives
Total Level of Role Participation	.37***	.45***	.63***
Role Membership Range	.17	.27**	.34***
Range of Activities Involving Others	.34***	.32***	.52***
Range of Activities Involving Vicarious Others	.24*	.23*	.26**
Level of Participation in Activities	.24*	.32***	.48***
Psychological Involvement in Roles	.23*	.30***	.45***

* $p < .01$

** $p < .005$

*** $p < .001$

interaction predictors (.43). At the second stage of the stepwise regression procedure the range of activities predictor was entered and this produced a multiple correlation of .41. No other social interaction predictors significantly added any variance beyond the total level of role participation and range of activities predictors. One can interpret this analysis as showing that the "major" predictors of person perception are total level of role participation and range of activities. Once these variables are known the addition of the remaining social interaction variables does not significantly add to our knowledge of person perception.

2. Interpersonal Problem Solving

Table 5 indicates that the social interaction variables collectively accounted for 22 per cent of the variance in the scores of interpersonal problem solving. The accompanying F statistic indicated that this proportion of variance accounted for by the linear combination of social interaction variables was significant ($F = 5.46, p < .001$).

The second step in the analyses revealed that total level of role participation made a unique contribution in accounting for variance in interpersonal problem solving above and beyond the influence of the remaining five social interaction variables (Table 6). The squared semi-partial correlation shows that the amount of explained variance would be significantly increased by six per cent with the addition of total level of role participation to an equation already containing the other five social interaction variables.

The third step of the analysis concerned the identification of the "major" predictors of interpersonal problem solving. The results of the analysis are presented in Table 7. With respect to the interpersonal problem solving measure the analysis shows that the first variable to enter the regression model was the total level of role participation predictor. Table 8 indicates that the correlation achieved for this variable and interpersonal problem solving (.45) is almost as large as the overall multiple correlation shown in Table 5 based on all six social interaction predictors (.47). No other social interaction predictors significantly added any variance beyond the total level of role participation predictor. One can interpret this analysis as showing that the "major" predictor of interpersonal problem solving is the total level of role participation. Once this variable is known the addition of the remaining social interaction variables does not significantly add to our knowledge of interpersonal problem solving.

3. Coordinating Perspectives

Table 5 indicates that approximately 45 per cent of the variance in coordinating perspectives scores was significantly accounted for by the combination of the six social interaction variables. The F statistic indicated that this proportion of variance accounted for by the variables was highly significant ($F = 15.48, p < .001$).

Results of the second phase of the analysis indicated that two variables made a unique contribution in accounting for variance in coordinating perspectives scores above and beyond the influence of

the remaining five social interaction variables (Table 6). Total level of role participation accounted significantly for nine per cent of the variance in coordinating perspectives. The number of activities involving other variables significantly accounted for three per cent of unique variance.

The third phase of the regression analysis concerned the identification of the "major" predictors of coordinating perspectives. The results of this analysis is presented in Table 7. With respect to the coordination of perspectives measure the analysis shows that the first variable to enter the regression model was the total level of role participation predictor. Table 8 indicates that the correlation achieved for this variable and coordinating perspectives (.63) is almost as large as the overall multiple correlation shown in Table 5, based on all six social interaction predictors (.67). At the second stage of the stepwise regression procedure the range of activities predictor was entered and this produced a multiple correlation of .66. No other social interaction predictors significantly added any variance beyond the total level of role participation and range of activities predictors. One can interpret this analysis as showing that the "major" predictors of coordinating perspectives are total level of role participation and range of activities. Once these variables are known the addition of the remaining social interaction variables does not significantly add to our knowledge of coordinating perspectives.

Relationship Between Age and Social Cognition

To determine whether the contribution of age would add significantly to the variation accounted for in each social cognition measure

beyond that accounted for by the six social interaction variables, two regression equations were examined for each social cognition measure. The first contained the six social interaction predictors along with age, and the second contained only the six social interaction predictors. The squared semipartial correlations between age and the social cognitive measures (the difference between the two R^2 values) were then determined.

1. Person Perception

Results of the regression analysis predicting person perception scores from a linear combination of the six interaction variables and age indicated that age did not contribute unique variance to person perception beyond that explained by the social interaction variables. The squared semipartial correlation between age and person perception was .02 (n.s.). The total amount of variance accounted for by the combination of social interaction variables and age was 21 per cent, and 19 per cent for the equation containing only the social interaction variables.

Table 9 contains correlations between age and the social cognitive variables. It indicates that the correlation between age and person perception was not significant. Knowing whether the subject was under 75 years of age or over 75 years of age was of little consequence in predicting performance on the person perception measure.

2. Interpersonal Problem Solving

The results of the regression analysis predicting interpersonal problem solving from a linear combination of the six social

TABLE 9
Correlations between Age Groups¹ and Sex and Dependent Variables

Variables	Age Groups	Sex
Person Perception	-.07	-.34*
Interpersonal Problem Solving	-.05	-.13
Coordinating Perspectives	-.05	-.12

* $p < .001$

¹ Correlations were also computed with age as a continuous variable. The correlations between age and person perception, interpersonal problem solving and coordinating perspectives were .04, .003, and -.04 respectively. The correlations were all insignificant and more closely approached zero than the correlations reported in the table. This finding indicates that the relationship between age and the dependent measures was not underestimated by using age as a dichotomous variable; rather, the correlations with age as a continuous variable emphasize the notion that small age differences at this level were trivial. Therefore, age was used as a dichotomous variable in the regression analyses.

interaction variables and age indicated that age did not contribute significantly in accounting for variation in interpersonal problem solving scores above and beyond that accounted for by the social interaction variables. The R^2 for the equation containing the six social interaction variables and age was .232. The R^2 for the equation containing only the six social interaction variables was .222. The squared semipartial correlation between age and interpersonal problem solving was .01 (n.s.), indicating that age did not add a significant increment to variation already accounted for by the social interaction variables.

Table 9 indicates that age did not significantly correlate with interpersonal problem solving scores. Thus, age of subjects did not contribute to predicting performance on the interpersonal problem solving measure.

3. Coordinating Perspectives

The results of the regression analysis predicting coordinating perspectives from a linear combination of the six social interaction variables and age indicated that age made a small, but significant, contribution to variance accounted for in coordinating perspectives scores above and beyond that accounted for by the social interaction variables. The R^2 for the equation containing the six social interaction variables and age was .466. The R^2 for the equation containing only the six social interaction variables was .447. The squared semipartial correlation between age and scores of coordinating perspectives was .019 ($p < .04$). The t statistic (-2.03), which tests the significance of the departure of the semipartial

correlation from zero carries the same sign as the semipartial correlation between age and coordinating perspectives. The negative sign indicates the direction of the relation, and with variables such as age or sex coded zero and one, shows that the mean of the Y variable is larger for the group assigned the lower (zero) value. In this case the group assigned the zero value was the 75 year old and older group. Thus, the negative correlation indicated that higher scores on the coordinating perspectives measure (Y variable) were obtained by those 75 years of age and older. An inspection of the means of the two age groups (Table 3) indicated the slight tendency for scores to be higher for this group than for the group under the age of 75. The means for the group 75 years of age and older and the group under 75 were 8.57 and 8.23 respectively.

In sum, the contribution of age to the three dependent measures, either alone or in conjunction with the social interaction variables was rather trivial. Although age contributed unique variance to the coordinating perspectives measure the amount it contributed was small.

The next phase of the analysis assessed the contribution of sex to explained variance in scores of social cognition.

Relationship Between Sex and Social Cognition

While no specific hypothesis was made concerning the relationship between sex of subjects and social cognitive ability, an assessment was made of the relationship between sex of subjects and social cognition, as well as the contribution of sex of subjects to a regression equation containing the six social interaction variables.

Table 9 contains correlations between sex of subjects and the three social cognitive measures. Table 9 indicates the significant correlation between sex of subjects and person perception. Sex of subjects did not significantly correlate with interpersonal problem solving or coordinating perspectives. Sex of subjects did not significantly contribute in accounting for variance in interpersonal problem solving or coordinating perspectives beyond that accounted for by the social interaction variables. However, sex of subjects made a unique contribution in accounting for variance in person perception scores above and beyond the influence of the social interaction variables. The squared semipartial correlation between sex and person perception was .094 ($t = -3.85$, $p < .001$), indicating that nine per cent of the variance accounted for was due to the addition of sex to the regression equation containing the six social interaction variables. The t value carries the same sign as the semipartial correlation ($-.30$) indicating that higher scores on the person perception measure (Y variable) were obtained by males (zero value code). The means for male subjects and female subjects were .68 and .48 respectively. The R^2 for the regression equation between sex and person perception containing the social interaction variables and sex was .280. The R^2 for the equation containing only the six social interaction variables was .186.

In sum, sex of subject contributed to the prediction of person perception scores, both alone, and in conjunction with the social interaction variables, but did not contribute to variance accounted for in scores of interpersonal problem solving or coordinating perspectives.

Hypotheses

1. It was predicted that levels of social interaction would positively and significantly correlate with levels of social cognitive abilities. The analyses indicated that the six social interaction variables, in linear combination, accounted for a significant amount of the variation in each social cognitive measure. The analyses also indicated that a major portion of the variability in the social cognitive scores could be accounted for by one specific variable, most notably by the total level of role participation. Thus, hypothesis one was supported by the data.

2. It was predicted that levels of social interaction would account for significantly greater amounts of variance on scores of social cognition than age of subjects. Age of subjects did not significantly contribute to the overall variance in person perception and interpersonal problem solving, and added little to the overall variance in coordinating perspectives. Thus, hypothesis two was supported by the data.

CHAPTER VI

Discussion

The purpose of this investigation was to assess the relationship between levels of social interaction and social cognitive functioning in elderly persons. While traditional research in the field of cognition has been concerned with how people construct knowledge of the physical, impersonal realm, social cognition has to do with knowledge of people and interpersonal relations.

Recent evidence has suggested apparent developmental reversals of cognitive abilities in elderly individuals, but there is little evidence to account for these reversals. Few researchers have undertaken a systematic exploration of contextual factors presumed to be related to apparent declines. The present study investigated the relationship between six specific aspects of social interaction and three measures of social cognition. The contextual factors reflected the magnitude and diversity of the social experience of the elderly individual in interaction with the family and larger environmental network. The measures of social cognition focused on concepts of people, interpersonal problem solving and coordinating multiple points of view.

The major findings of the present investigation indicated that the combination of the six social interaction predictors were positively and significantly related to each of the three social cognitive measures. A major portion of the variability in the social cognitive scores was accounted for by one specific social

interaction variable, the total level of participation in twelve role categories. The social interaction predictors accounted for significantly greater amounts of variance in scores on social cognitive measures than did the age of the subjects. The findings indicated no significant relationship between age and cognitive ability.

The results of this investigation supported (1) the hypothesis of a positive and significant relationship between levels of social interaction and social cognitive functioning in elderly persons, and (2) the hypothesis that social interaction is a more powerful predictor of cognitive functioning in the elderly than their age. It was concluded that it was not the age of individuals that accounts for declines in cognitive ability, rather, cognitive declines are related to a decrease in social interaction. Such a conclusion supports a more positive model of aging based on social contextual factors than one based on age.

Cognitive Decline in the Elderly

The finding that levels of participation in social interaction is a more significant predictor of cognitive decline than age, together with the finding that age by itself is not a significant predictor of cognitive functioning in the elderly stands in contrast to previous research that indicated declines in cognitive abilities of the elderly. The reader is referred to the work of Labouvie-Vief (1977) and Hooper and Sheehan (1977) for extensive evaluative reviews of earlier work in adult cognitive performance. These authors pointed out that although previous descriptive evidence points to performance deficits

in the elderly, direct evidence of "presumed causal relationships receive rather little support. Instead, the overly simplistic formula biology → behavior has been conceptually superimposed upon descriptive evidence - particularly in those instances where research suggested age-correlated decline" (Labouvie-Vief, 1977, p. 236).

Interpretations and explanations of data are in part a function of the particular model of aging to which the researcher subscribes, and until recently most researchers subscribed to a "decremental viewpoint" with its associated emphasis on the biological basis of aging, that is, impaired neurophysiological functioning (Hooper & Sheehan, 1977, p. 206). Adherence to "decremental" models of aging, which postulate inevitable declines of cognitive functioning with age, disregards contextual factors that may influence the cognitive abilities of elderly adults.

A major limitation of cognitive research that viewed age as a primary explanatory determinant of declines in performance has been its tacit acceptance of age as a parameter of developmental change. The findings of the present investigation are in accord with accumulating evidence which views age as an artificial developmental index. Neugarten (1977) noted that age is an empty variable. Similarly, Birren (1959) argued that age changes "are inevitably in transition to be explained by other variables without recourse to the use of the term age" (p. 8), and Wohwill (1973) emphasized that "statements of a relationship of behavior to age involve a lack of control over the variables 'determining' the age difference, and are consequently devoid of causal meaning or explanatory power" (p. 25). Therefore,

age as a parameter of developmental change is misleading; because age is confounded with all other developmental changes in ontogenesis, it cannot be used to explain changes in cognitive functioning among the elderly.

Research that has reported a negative correlation between age and cognition has led to premature speculations regarding the inevitable consequences of the deterioration of biological processes that interfere with higher mental processing (Denney, 1974b; Hooper & Sheehan, 1977; Labouvie-Vief, 1977; Papalia & Bielby, 1974). Models of aging that have posited an inevitable decline of cognitive abilities and irreversible decrements have neglected the impact of experiential factors on cognitive functioning. In contrast, models that stress change as a function of context instead of age, not only provide a valid explanatory base for understanding change with age, they present a more useful and positive model of aging because contexts are often subject to modification while age is not. The present research has identified a relationship between high levels of social participation and the maintenance of cognitive abilities in the elderly. In contrast to previous research which neglected experiential factors, this investigation found that when such factors were considered, they were more significant predictors of cognitive functioning in the elderly than age.

In sum, many researchers have suggested that we may further our knowledge of cognition in the elderly when we move away from essentially descriptive studies and turn to examining contexts in which individuals grow and age to explain developmental changes.

Consistent with this suggestion, understanding of the cognitive processes of the elderly has been advanced by directing attention to contextual parameters that relate to variability in performance, rather than attending solely to a descriptive investigation with its accompanying implication of biological causality.

Theoretical Framework

The present study was conducted within a Piagetian framework. Piaget's theory of human development focuses on the interplay between organismic and environmental factors. In such an orientation, the human organism constructs his view of both the physical and social world in interaction with the external world. According to Piaget, developmentally early forms of cognition are marked by their egocentric quality. The egocentric individual perceives the environment from a single perspective, his own, and evidences an inability to shift, refocus or decenter attention from one aspect of a situation, object or person to another; as such, there is an embeddedness in one's own point of view. As development proceeds, the transition from relative states of egocentrism to advancing states of perspectivism is a function of emerging cognitive structures in interaction with the external environment. As social interchanges expand, the child constructs increasingly more complex social relationships, which in turn, lead to increasingly more complex cognitive changes. It is through this process that the child shapes and is shaped by the social situations in which he or she is involved (Chandler, 1977; Flavell, 1963; Piaget, 1932, 1950).

Flavell states, "it is social interaction which gives the ultimate coup de grâce to childish egocentrism" (1963, p. 157). Throughout development egocentric thought gives way to a coordination of viewpoints. According to Piaget (1950) ". . . it is precisely by a constant interchange of thought with others that we are able to decentralize ourselves . . . to coordinate internally relations deriving from different viewpoints" (p. 164). With development, children show an increasing ability to decenter or coordinate multiple viewpoints in a variety of cognitive activities: in order to accommodate their messages to the needs of their listener(s) (Bearison & Cassell, 1975; Flavell et al., 1968; Piaget, 1959), to predict another's visual or spatial point of view (Piaget & Inhelder, 1956), to arrive at a judgment of the invariance of certain properties of an object in face of perceptual transformations performed on them (Flavell, 1963; Piaget, 1950), to make inferences about another's thoughts and feelings (Shantz, 1976); to describe other persons (Peevers & Secord, 1973, 1974); to conceptualize solutions in interpersonal problem solving (Flavell et al., 1968; Looft, 1972; Spivack et al., 1976; Spivack & Shure, 1974), and to coordinate multiple points of view in interpersonal tasks (Feffer, 1959; Feffer & Gourevitch, 1960; Flavell et al., 1968; Selman & Byrne, 1974; Swinson, 1965).

The significance of the social environment for the growth and maintenance of cognitive functioning rests on the premise that social interaction is a necessary condition for transition from immature

forms of thought, with their characteristic egocentric quality, to progressive states of perspectivism. Thus, for Piaget, understanding begins with social interaction in which individuals compare, contrast, verify and confront one another with their own thought processes, such that rationality in thought "appears as the fruit of mutual engagement. And what is this rational rule but the primitive motor rule freed from individual caprice and submitted to the control of reciprocity" (1932, p. 88).

According to Flavell (1970), most adult cognitive changes are social interpersonal in nature and due primarily to experiential factors. The greater the variety of social interaction situations the individual is exposed to the more opportunities exist for environmental press, practice and verification of one's own point of view (Looft & Charles, 1971). It is the potential conflict inherent in social interaction, and its dynamic quality, that forces one to examine others and others' perspectives. "Without interchange of thought and co-operation with others" the individual would never "coordinate" different viewpoints (Piaget, 1950, p. 164). Thus, as Looft (1972) suggested, changes that result in a reduction and constriction in social experience may create a lack of environmental demand for utilizing an individual's cognitive abilities.

The findings of the present study are consistent with the theoretical formulations of Piagetian theory regarding the relationship between social interaction and cognitive development. Individuals who indicated lower levels of social interaction were less able to make psychological inferences about others, less

able to solve interpersonal problems, and less able to coordinate multiple points of view in interpersonal situations. The findings are also consistent with social disengagement theory (Cumming & Henry, 1961). Social disengagement theory suggests cognitive decline under conditions of decreased social involvement. In the present study a positive correlation was found between social involvement and cognitive functioning.

Social Cognition in the Elderly

There have been very few studies assessing social cognitive development in the elderly. Only recently have developmental psychologists been concerned with development through the life-span. This is due, in part, to the traditional concerns of developmental psychologists with children's intellectual functioning. Recent studies that have reported developmental declines in cognitive abilities among the elderly have focused on their knowledge of the impersonal, physical environment (for reviews see Baltes & Labouvie, 1973; Hooper & Sheehan, 1977; Labouvie-Vief, 1977). Therefore, most research with the elderly has been with object relations rather than social relations. However, knowledge of the social world has more salience for the elderly than knowledge of the physical realm. Old age is a time when there are extensive social exchanges, substitutions and adjustments linked to the loss of a spouse, health, the work role and changing familial and community relationships (Trela & Jackson, 1979). These types of changes involve intellectual abilities that are highly interpersonal in nature.

There is ample evidence that social cognitive abilities are implicated in a variety of prosocial behaviors including cooperation, sharing, helpfulness, social adjustment, morale, life-satisfaction and psychological well-being (Aronfreed, 1968; Crockett, 1965; Birren & Schaie, 1977; Havinghurst et al., 1972; Hochschild, 1973; Maddox, 1968; Mancini, 1977; Spivack et al., 1976). Although social cognitive abilities mediate the quality of interpersonal relations throughout the life-span they take on special significance for the elderly adult, and have more salience for the elderly than cognitive strategies related to purely abstract, impersonal phenomena. It can be concluded from the above findings that functional intelligence of the elderly can be viewed in terms of their social competence.

Different assessment procedures have been developed for the purpose of assessing social cognitive skills. Studies of social cognition in the elderly (described in the review of the literature) have generally used measures which required subjects to coordinate speaker and listener perspectives in referential communication tasks or to coordinate spatial perspectives. The following criteria guided the choice of measures of social cognition used in the present study: (1) measures were relevant and meaningful to the concerns of the population being studied, (2) measures were high in motivation, thereby retaining the interest of the elderly subjects, which is an important factor in assessment procedures with all age groups, and (3) measures were an expansion of the conception of social egocentrism to an interpersonal context by their direct involvement of concepts of other persons, interpersonal problems and personal relations.

The three social cognitive measures used in this investigation were considered to be three aspects of social cognition. It was, therefore, of some interest to explore the interrelationships among these tasks. The findings provided evidence that performance relationships existed among the three measures. There were significant intercorrelations between the tasks. The correlations ranged from .55 to .66. Based on the size and significance of the correlations among the three measures it seems reasonable to conclude that the three measures were tapping similar underlying abilities.

Platt and Spivack (1975) also reported a significant relationship between the interpersonal problem solving measure and the coordinating perspectives measure for a younger sample of adult males.

In sum, the present research has provided a base for the development of measures that will enable investigators to more adequately describe social cognitive concepts that are implicated in adjustment, well-being, cooperation, sharing and life-satisfaction.

The Relationship Between Social Interaction and Social Cognition

It was previously noted that biological models of aging presumed causal relationships between age and cognitive decline (Labouvie-Vief, 1977). In accordance with Piaget's theory statements of cause-effect relations are not being advanced. Piaget contends that social interaction and social cognition are indissoluble in context, such that the effects of one cannot be tested against the other. For Piaget, cognition is "simultaneously individual and social,

individual insofar as it is general or common to every individual, and likewise social insofar as it is common to every society" (1973, p. 149). Thus, it is impossible to establish a causal connection between the progress of "social logic" and the progress of "individual logic". "Since both sorts of progress go hand-in-hand, the problem seems without solution, except to say that they constitute two inseparable aspects of a single reality at once social and individual" (Piaget, 1965, p. 158).

A strong, positive relationship between the combination of six social interaction predictors and the three measures of social cognition was found, confirming the major hypothesis of the present investigation. These results are consistent with a small body of findings from children and adults. Several investigators (Hollos, 1975; Hollos & Cowan, 1973; Nahir & Yussen, 1977; West, 1974) of social cognition in children provided evidence that children from environments in which there were few opportunities for social and verbal interchange had less developed social concepts than children from environments in which there were ample opportunities for interaction.

Chap and Sinnott (1975) investigated physical cognitive abilities in community active and institutionalized elderly subjects. Community active subjects performed significantly better than institutionalized elderly. Similarly, Rubin (1973) compared the performance of institutionalized and community living subjects on measures of physical cognition and coordination of spatial perspectives. Institutionalized elderly performed more poorly than the community living group. Although these researchers interpreted their results as due to

decreased social experience caused by institutionalization, their conclusions were tentative, at best, since no analysis was made of the social interaction levels of the subjects to support such interpretations.

One problem with studies that have considered the effects of institutionalization upon performance is that they often confound social isolation, pathology and institutionalization (Hooper & Sheehan, 1977). Therefore, it is impossible to clearly isolate the crucial variables that may be related to poor levels of cognitive functioning. In contrast to the above studies, which measured changes in social interaction by relying upon the global variable of institutionalization, the present research directly examined levels of social interaction. Thus, it was possible to identify specific aspects of the environment which were linked to the maintenance of cognitive abilities in the elderly.

Looft and Charles (1971) reported that older adults were as effective as younger adults in a verbal communication task. Schultz and Hoyer (1976) found that when older people were given corrective feedback training on a measure of spatial egocentrism they showed significant improvement in performance. Zaks and Labouvie-Vief (1977, 1980) reported strong effects of training in coordinating perspectives on spatial perspective taking and referential communication skills. In addition, they reported that participation in social discussions facilitated performance in the coordination of spatial perspectives. These findings are consistent with the results of the present investigation. The opportunity for feedback and for correction inherent

in social interaction situations, whether in tasks of cognitive ability such as the above or in real-life situations, quickly brings into focus any conflict in viewpoints, and the resulting interchange resolves the disparity (Looft, 1972). In line with this point of view, it is reasonable to conclude that decreases in social interaction decrease the opportunity for feedback, verbal exchange, contrasts and comparisons. Thus, there appear decrements in cognitive functioning.

Subsidiary Findings

In addition to the major findings of a relationship between social interaction and social cognition in the elderly above and beyond that that accounted for by age of the individual, the present study also investigated the relationship between levels of social interaction and age and sex. With the exception of the number of activities in which the individual was engaged, no significant differences were found between those aged 65 to 74 and those individuals 75 years of age and older. The number of activities engaged in by the under 75 year old group exceeded the number engaged in by the over 75 year old group. Although the correlation was statistically significant, the effect size was small ($r = .22$, $p < .02$). This finding is supported by previous research which indicated a slight diminution of activities as the individual ages (Cowgill & Baulch, 1962; Cunningham et al., 1968; Havighurst et al., 1972, Looft, 1972). Also in agreement with the finding that the two age groups resembled each other in their social interaction levels, Palmore (1968) and Stone and Norris (1966) reported that individual social activities remained stable over time.

A possible explanation for the finding of very few changes in activity level with age is that the level of health of the sample studied was generally good. All subjects were screened for health factors that would have restricted their participation. Another factor possibly contributing to the lack of decline in participation levels and range of roles may have been proximity and availability of communication and transportation to centers, organizations, family members and friends.

Correlations between age and the dependent measures were all insignificant when age was used as a continuous and as a dichotomous variable. It is reasonable to conclude that regression analysis performed with age as a continuous variable would not be significantly different from the present findings.

There were also findings in relation to sex of subjects. Powers and Bultena (1976) found that social interactions of females occurred over a wider range of individuals than social interactions of men. In contrast to these findings, the present results indicated that male subjects tended to occupy a larger number of roles than females. Although the difference was significant, the correlation was small ($r = -.20$, $p < .03$). For the most part, the sexes resembled each other in their participation and activity levels in the different domains of social interaction.

One finding of interest was that sex was significantly related to performance on the person perception task, but was unrelated to interpersonal problem solving and coordinating perspectives. Male subjects tended to refer to interests, attitudes and psychological attributes when describing others, while females tended to describe

others in global terms and in relationship to themselves. The reason for this finding is not clear at the present time.

A subsidiary finding of the present research that has implications for future investigations of social interaction in the elderly is that it is possible to assess the magnitude and diversity of individuals' social experience using a single measure of social interaction. Of the six social interaction predictors, the predictor identified as most strongly related to social cognitive functioning was the total level of role participation in twelve mutually exclusive role categories. The percentage of variance accounted for by this one variable was almost as large as that accounted for by the combination of the six social interaction variables. This predictor by itself, accounted for 74 per cent of the total variance accounted for by all six social interaction predictors in scores of person perception, 91 per cent of the total variance accounted for by all six predictors in scores of interpersonal problem solving, and 87 per cent of the total variance accounted for by all six predictors in scores of coordinating perspectives.

An examination of what the total level of role participation predictor measures may provide some insight into this predictor's sensitivity to the magnitude and diversity of individuals' social experience. The total level of role participation predictor is based on the proposition that the individual's social environment can be separated into various social roles that he or she occupies. These roles consist of being a spouse, parent, grandparent, kin,

neighbor, friend, worker, club/association member, homemaker, church member, acquaintance, and civic/political member. The roles are categories of possible interaction which may be used in comparing the social performance of one individual to another, or one group of individuals with another group (Havighurst et al., 1972). Subjects were rated on a scale of zero to eight for each role category. In general, the scale was a continuum from no participation to high participation within each role. For all the roles, participation or activity was quantified in terms of amount and regularity of interaction, and participation was defined in terms of the amount of time, contact, communication, participation and effort in a role. This predictor captured the essential components of social interaction that related to social cognitive functioning.

Implications for Policy and Practice

The present findings challenge the conclusion of inevitable and irreversible deficits in cognitive functioning in the elderly and indicate that the acceptance of this unnecessarily pessimistic view is both premature and a consequence of the failure to consider the effects of experiential factors on the ontogenetic development of cognition. The findings of the present research contribute to several major areas of gerontological concern.

First, the results support a more positive model of aging than is generally prevalent in our society. The pervasiveness of negative models of aging has been documented by several researchers (Collette-Pratt, 1976; Seltzer & Atchley, 1971; Weinberger & Millham, 1975). In many cases the devaluation of the aged is associated with

their perceived loss of mental prowess. However, the present study indicates that cognitive functioning is nourished and maintained when there are ample opportunities for social interchange with the family and larger environmental network. One source of reduced levels of social interchange among the elderly may be the consequence of what the aged perceive to be role appropriate behavior for those 65 years of age and older. To the extent that society views aging as a negative process and attributes to most older people devalued status, loss of mental prowess, loss of physical ability and inactivity in family and community life, diminished levels of social activity may reflect such expectations and attributes. If the elderly believe they are expected to socially disengage, they may act on what they believe to be appropriate age-related behavior. As Butler (1970) suggested, the negative role model of aging may become a self-fulfilling prophecy, thus creating devalued self-images and dysfunctional behavior. Furthermore, negative stereotypes of aging among the aged themselves reinforce the views of younger adults creating a cycle that perpetuates negative self-images and behavior.

Myths need to be replaced; they will be replaced through research which integrates biological, generational and environmental factors in the examination of functioning throughout the life-span. Future research must consider contextual factors of aging as well as biological factors. There has been far too much consideration of only biological aspects of aging, which as Labouvie-Vief (1977) suggested, has precluded valid assessment of the abilities of the aged.

The findings of this research are valuable in contributing to a more positive role model of aging than has been generally available. The present results support efforts aimed at improving social attitudes toward aging among both adults and the aged themselves. Educational efforts must also be directed toward the young because they are being negatively socialized for their own "up-in-age" roles.

The findings of the present study are consistent with recent interest in formulating policy toward the aging. The 1981 White House Conference on Aging will involve policy toward the elderly that emphasizes living arrangements, models for development of activities and adaptation of the aging, learning opportunities, counseling, and health care services. In a recent report on Aging (1979), the National Institute on Aging (NIA) emphasized that new knowledge and fundamental understanding gained through research constitute the ultimate service. "The NIA is concerned with the environment in which the aged do and will live. Its goal is to provide the understanding needed to structure effective policies, to plan effectively for the future . . . and above all, to enrich the lives of the elderly" (p. 7).

The findings of the present study have implications for many of these areas. The well-being of the elderly requires the construction of support in the community and in the living arrangements which allow basic competencies to be supported in the daily routines of their lives. Environments can be planned; therefore, the results of

the present research should be taken into consideration by environmental psychologists in designing housing and communities that facilitate access to informal and formal social and service networks.

There is little doubt that the understanding, derived from this research, of the social concepts and capabilities basic to adaptation and adjustment of the elderly should serve as a base for several efforts: the development of prevention and screening techniques in various geriatric settings, the development of educational models (both for rehabilitation and for new learning opportunities), and the development of curriculum and training of those who will provide service to the elderly in terms of health care, counseling, rehabilitation, physical therapy, recreational activities, and self-help and advocacy groups.

The National Institute on Aging (1979) stressed the active involvement of the aged in all facets of life and questioned the type of facilities, activities and organizations that promote the well-being of those who are aging. The present investigation found that opportunities for social interchange are related to the maintenance of abilities closely linked to adjustment, adaptation and well-being of the elderly.

One compelling conclusion that comes forward is that age is not a determinant of cognitive decline in the elderly. The present findings indicate that intellectual development in the elderly is strongly related to opportunities to coordinate perspectives in the context of social interaction. Such a conclusion supports a more positive model of aging based on social contextual factors than one based on age.

APPENDICES

APPENDIX A

Assurance of Confidentiality -- All information you give will be held in strict confidence, will be used only by persons engaged in and for the purpose of the study, and will not be disclosed or released to others for any purpose. Your name, address and other identifying information will not be used.

Respondent number _____

Respondent's name _____

1. How old are you? _____ What is your birthdate? _____
(month - day - year)
2. Sex: Put a check in front of your answer like this: ✓
_____ male
_____ female
3. Were you born in the United States? _____ 4. Monthly income from all sources:
_____ yes
_____ no
_____ under \$500 a month
_____ over \$500 under \$700
_____ over \$700 a month
5. Years of school completed
_____ 0 to 3 years
_____ 4 to 6 years
_____ 7 to 9 years
_____ 10 to 12 years
_____ 2 years of college
_____ received college degree
6. What is or what was your occupation? _____
7. In comparing yourself with other people you have known, in general have you most of your life been
_____ healthy
_____ more healthy
_____ fairly healthy
_____ less healthy
_____ least healthy
8. Please check the health problems listed below that you have had in the last year. Please put a (1) if the illness is chronic, a (2) if it is very serious, or a (3) if it is not too serious.
_____ heart trouble
_____ rheumatism or arthritis
_____ bone fractures
_____ respiratory problems
_____ problems with hearing
_____ problems with eyesight

THANK YOU FOR YOUR COOPERATION

APPENDIX B

B-1

QUESTIONNAIRE

We would like to know a little about your interactions with your friends and family. This is not a "test". There are no right or wrong answers. Please give the answer that is right for you.

The information you give us will be kept strictly confidential. It will be used only by persons engaged in and for the purpose of the survey, and will not be disclosed or released to others for any purpose. Your name, address and other identifying information will not be used.

Please read each of the following questions and choose the one statement which best applies to you. If none of the statements seem appropriate, please choose the one which comes closest to describing you. Please read all possible statements before making your choice.

Thank you for your cooperation.

Respondent number _____

Respondent's name _____

Please put a check in front of your answer like this: ✓

1. Are you a parent? _____ Yes _____ No

If yes, how would you describe your contact and communication with your children either in person, by phone, or letter?

_____ no contact or communication at all

_____ infrequent, irregular communication, less than once a month

_____ regular communication, at least once a month

_____ regular communication, at least every week

_____ daily communication or contact

2. At the present time, how much do you do around the house, such as fixing appliances, gardening, cooking, cleaning, etc.?

_____ nothing

_____ very little

_____ little, but do some things regularly

_____ do a medium amount of these things regularly

_____ do many of these things regularly

3. Are you married at this time? _____ Yes _____ No

If yes, how would you describe the amount of time spent and activities shared with your marriage partner?

- _____ no contact at all (divorced, separated)
- _____ little shared activity, experiences irregularly shared
- _____ low but regularly shared activity, go to some places together
- _____ about half of the recreation, daily routines, activities are shared
- _____ "togetherness", practically all planning and carrying out of activities are shared with spouse

4. Which of the following statements best describes your status at present in terms of a job?

- _____ fully retired from work
- _____ working on a volunteer or informal basis
- _____ regularly employed, but with few hours
- _____ regularly employed, about half-time
- _____ working full-time

5. Think of the people who live in the same building as you, or in the same block as you. Which statement best describes your contact with these neighbors?

- _____ no contact, know only one or two neighbor's names
- _____ little contact, exchange "hello" on street or in passing
- _____ casual but fairly regular contact, friendly conversation if met
- _____ casual social contacts, frequent loaning of supplies, tools, etc.
- _____ frequent contacts with two or more neighbors on daily basis

6. Do you have any grandchildren? _____ Yes _____ No

If yes, how would you describe your talks with them either in person, by phone or by letter?

- _____ no contact or communication
- _____ infrequent, irregular contact, less than once a month
- _____ regular contact, at least once a month
- _____ regular contact, at least once a week
- _____ daily communication or contact

7. How would you describe your contact and communication with your relatives (other than children or grandchildren) either in person or by letter, or on the phone?

☐ no contact or communication at all
☐ few, irregular personal contacts, less than once a month
☐ regular communication, at least once a month
☐ regular communication, at least every week
☐ daily contacts or communication

8. Are you a church or temple participant? ☐ Yes ☐ No

If yes, which of the following statements best describes your attendance or participation?

☐ no attendance presently
☐ attend on holidays only
☐ attend with some regularity, participate in some functions on occasion
☐ attend weekly, participate in some functions occasionally
☐ attend weekly, participate regularly in church functions

9. How would you describe your contact with acquaintances, or people you know and meet for social or recreational purposes, but who are not your intimate friends?

☐ no contact with acquaintances
☐ little contact with few acquaintances
☐ a moderate amount of contact with a few acquaintances
☐ a moderate amount of contact with several acquaintances
☐ much contact with acquaintances

10. How would you describe your present participation in clubs or associations?

☐ no membership or attendance in any clubs or associations
☐ formal member, but attend only a few meetings per year
☐ attend meetings irregularly and am not an active member
☐ attend meetings, regularly, am somewhat active in club
☐ active member of several clubs

B-5

11. At present, how would you describe your contact and communication with your friend(s)? By friends we are thinking only of those with whom you have a close, intimate relationship at present.

_____ no close, intimate relationships at present
_____ have close friend(s) but have little contact with friend(s)
_____ regularly see friend(s) or communicate by phone or letter
_____ see friend(s) several times a month, share activities
_____ almost daily contact with friend(s), share many activities

12. How would you describe your participation in political and civic matters, and union or professional activities?

_____ no participation at all
_____ little participation, irregular activity
_____ little participation, but regular activity of some type
_____ active interest and participation
_____ leader in political and/or civic matters and/or union
or professional organization.

Please check the statement which best describes the amount of time that you spend in either planning, thinking or worrying about each of the areas listed below.

	Never	Seldom	Occasionally	Frequently
Parent				
Grandparent				
Worker				
Relative				
Homemaker				
Civic, political or professional member				
Club or association member				
Spouse				
Friend				
Neighbor				
Church attendant				
Acquaintance				

CHECKLIST OF ACTIVITIES

Subject No. _____

Please check the statement which best describes the amount of time spent in each activity.

Activity	Several Times a Week	About Once a Week	Several Times a Month	About Once a Month	Seldom	Never
Participant sports						
Painting, sculpture, drawing						
Outdoor hobbies						
Physical exercise (Gymnastics)						
Spectator sports						
Handicrafts						
Playing a musical instrument						
Cultural activities						
Card playing						
Shopping						
TV						
Travel						
Picnics						
Visiting						
Being visited						
Social life and parties						
Eating out						
Dancing						
Radio listening						
Movies						
Reading						
Discussion and talking						

APPENDIX C

C-1

WE ARE INTERESTED IN YOUR THOUGHTS ABOUT OTHER PEOPLE. PLEASE
SELECT TWO INDIVIDUALS WHOM YOU KNOW VERY WELL AND TELL WHAT KIND
OF PERSON EACH IS. THE PERSONS YOU SELECT ARE NOT TO BE MEMBERS
OF YOUR FAMILY. PLEASE GIVE ONLY THE FIRST NAME OF EACH PERSON
YOU HAVE SELECTED. THANK YOU.

C-2

WE ARE INTERESTED IN YOUR IMAGINATION. ON THE NEXT PAGE THERE ARE TWO STORIES, FOR EACH STORY YOU WILL BE GIVEN THE BEGINNING OF THE STORY AND HOW THE STORY ENDS. WE WOULD LIKE YOU TO MAKE UP A STORY THAT CONNECTS THE BEGINNING THAT IS GIVEN TO YOU WITH THE ENDING GIVEN YOU. IN OTHER WORDS, YOU WILL MAKE UP THE MIDDLE OF THE STORY. PLEASE WRITE AT LEAST ONE PARAGRAPH FOR EACH STORY. THANK YOU VERY MUCH.

C-3

1. MR. A./MRS. A./MS. A. WAS LISTENING TO THE PEOPLE SPEAK AT A MEETING ABOUT HOW TO MAKE THINGS BETTER IN THE NEIGHBORHOOD. HE/SHE WANTED TO SAY SOMETHING IMPORTANT AND HAVE A CHANCE TO BE A LEADER TOO. THE STORY ENDS WITH HIM/HER BEING ELECTED LEADER AND PRESENTING A SPEECH. PLEASE BEGIN THE STORY AT THE MEETING WHERE HE/SHE WANTED TO HAVE A CHANCE TO BE A LEADER.

2. MR. P./MRS. P./MS. P. HAD JUST MOVED IN THAT DAY AND DIDN'T KNOW ANYONE. HE/SHE WANTED TO HAVE FRIENDS IN THE NEIGHBORHOOD. THE STORY ENDS WITH HIM/HER HAVING MANY GOOD FRIENDS AND FEELING AT HOME IN THE NEIGHBORHOOD. PLEASE BEGIN THE STORY WITH MR. P./MRS. P./MS. P. IN HIS OR HER ROOM IMMEDIATELY AFTER ARRIVING IN THE NEIGHBORHOOD.

WE ARE INTERESTED IN WHAT YOU THINK ABOUT OTHERS' THOUGHTS, FEELINGS, ACTIONS AND INTENTIONS. IN THIS PICTURE A MAN AND A WOMAN ARE ENGAGED IN AN ARGUMENT, THEY HAVE JUST COME HOME FROM AN AFTERNOON OUTING. DURING THEIR CONVERSATION A MAN APPEARS AT THE DOORWAY HAVING HEARD THE SOUND OF THEIR VOICES . . . WE WOULD LIKE YOU TO MAKE BELIEVE THAT YOU ARE:

1. THE MAN WHO IS TALKING TO THE WOMAN, AND THAT YOU ARE RIGHT IN THE SITUATION. RETELL THE STORY FROM THE POINT OF VIEW OF THE MAN.
2. NOW MAKE BELIEVE THAT YOU ARE THE PERSON IN THE DOORWAY. TELL THE STORY AS THOUGH YOU REALLY WERE THIS PERSON.
3. NOW MAKE BELIEVE THAT YOU ARE THE WOMAN AND THAT YOU ARE RIGHT IN THE SITUATION. HOW DO YOU AS THE WOMAN FEEL, WHAT ARE YOUR THOUGHTS? RETELL THE STORY AS THOUGH YOU REALLY WERE THIS PERSON.

THANK YOU



C-6

THIS PICTURE SHOWS THREE PEOPLE IN A SUPERMARKET. THE MAN AT THE COUNTER IS HAVING SOME DIFFICULTY WITH THE CASHIER. SOMEONE WHO SEEMS TO KNOW HIM IS APPROACHING AND APPEARS TO BE SAYING SOMETHING. WE WOULD LIKE YOU TO MAKE BELIEVE THAT YOU ARE:

1. THE CASHIER, AND THAT YOU ARE RIGHT IN THE SITUATION.

RETELL THE STORY FROM THE POINT OF VIEW OF THE CASHIER.

2. NOW MAKE BELIEVE THAT YOU ARE THE PERSON AT THE COUNTER. TELL THE STORY AS THOUGH YOU REALLY WERE THIS PERSON.

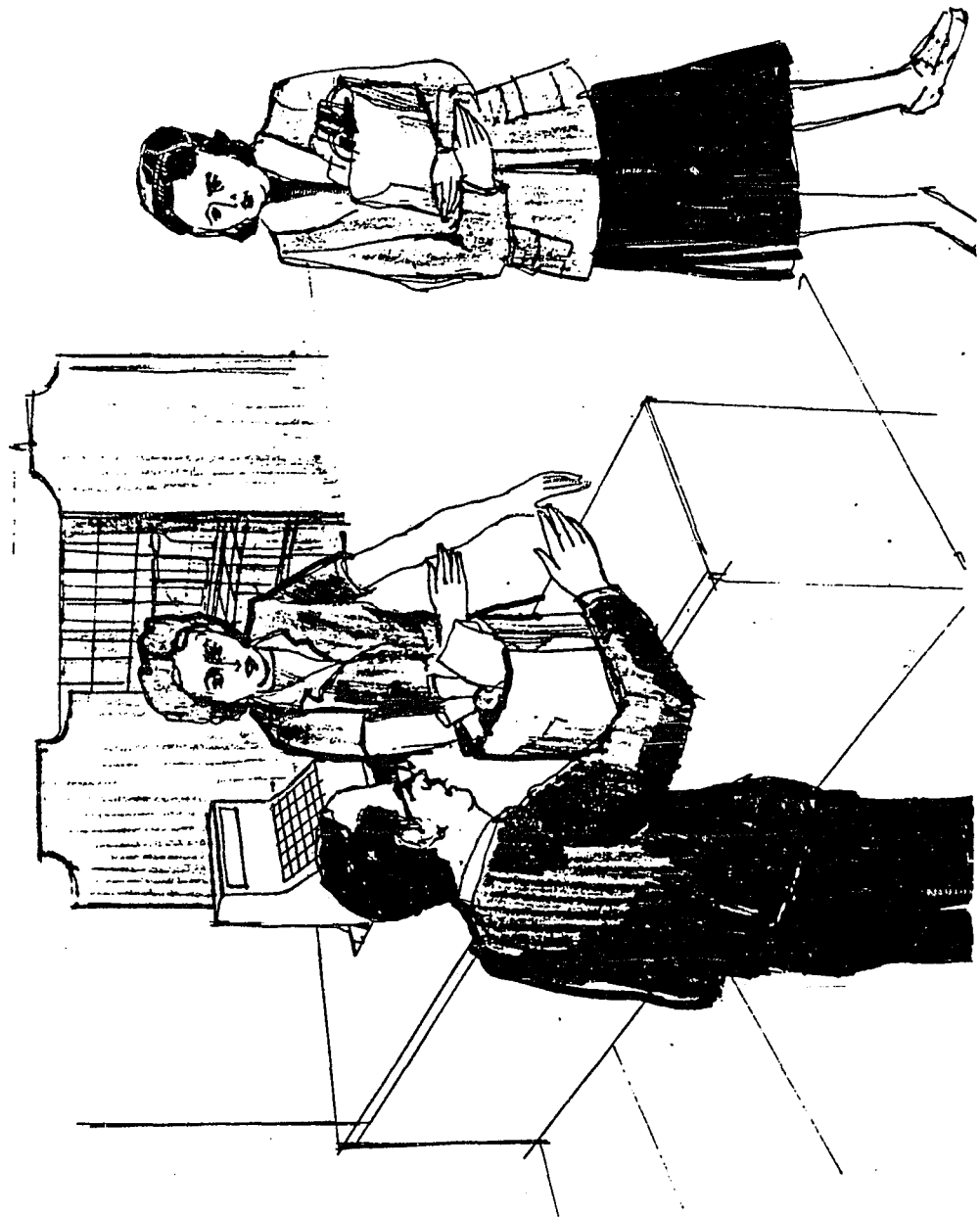
3. NOW MAKE BELIEVE THAT YOU ARE THE PERSON WHO IS APPROACHING.

HOW DO YOU AS THE WOMAN FEEL, WHAT ARE YOUR THOUGHTS?

RETELL THE STORY AS THOUGH YOU REALLY WERE THIS PERSON.

THANK YOU

C-7



APPENDIX D

Subject # - 6

D-1

Story - 1

BY

BY

BY

Score - PE V + PE V =
CP 9

MAN

MAN IN
DOORWAY

WOMAN

CP 9 = 14

MAN PE V	I <u>didn't mean to leave</u> <u>you alone.</u> I <u>thought</u> you knew I had to go over some business with Joe.		I know . . . you <u>didn't leave</u> me <u>on purpose</u> . . .
MAN IN DOORWAY		He is her brother- in-law who lives with them and heard them. he's not sure he should interfere.	
WOMAN PE V	. . . leave you alone . . . <u>you knew I had to</u> <u>go over</u> . . .		I know you didn't <u>leave me on purpose</u> but I <u>had an awful</u> <u>time</u> with all those people I don't know and I really felt <u>badly</u> .

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