AN ABSTRACT OF THE THESIS OF

Lisa Joan Kinch for the degree of Master of Science in Clothing, Textiles, and Related Arts presented on November 5, 1982.

Title: THE EFFECT OF FURNITURE ARRANGEMENTS ON THE SOCIAL INTERACTION OF INSTITUTIONALIZED ELDERLY

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The primary purpose of the study was to examine how furniture arrangements in the lounges of institutions for the elderly affect the social interaction among the residents. Based on the furniture arrangements that encourage social interaction, recommendations were made for the placement of furniture in the lounges of institutions for the elderly.

The social interaction of the residents was recorded using three measurement tools developed by the researcher: (1) the Floorplan, (2) the Social Interaction Checklist, and (3) the Furniture Arrangement Checklist.

A list of sixty-two housing institutions within a fifty mile radius of Corvallis, Oregon, was obtained from the State of Oregon, Center for Human Resources, Department of Senior Services. Five homes were selected for observation based on a list of five criteria.

Social interactions were recorded by placing the
seat numbers obtained from the Floorplan on the Social Interaction Checklist in the appropriate category. Later, these interactions were transferred and further classified on the Furniture Arrangement Checklist. The researcher was responsible for all observation and recording. Each lounge was observed on two randomly assigned weekdays from 9:00 A.M. until 7:00 P.M. for a total of twenty hours per lounge.

Analysis of variance and t-tests were used to test for significant differences in the number of interactions occurring among individuals seated in the four furniture arrangements. A t-test was also used to test for significant differences between interactions occurring within eight feet and those occurring over eight feet.

The analysis of variance indicated no significant difference among total interactions occurring in face-to-face, 90 degree, and side-by-side arrangements. However, results of a t-test indicated total interactions per seat were significantly greater in face-to-face, 90 degree, and side-by-side arrangements when compared to back-to-back arrangements.

The analysis of variance indicated no significant difference among sustained interactions occurring in face-to-face, 90 degree, and side-by-side arrangements. However, results of a t-test indicated sustained
interactions per seat were significantly greater in face-to-face, 90 degree, and side-by-side arrangements when compared to back-to-back arrangements.

Results of t-tests showed significantly greater total and sustained interactions occurring in eight feet or less when compared to those interactions occurring over eight feet. These findings suggest smaller groupings of furniture encourage social interaction more often than furniture positioned outside eight feet.

Descriptive data pertaining to the selection of homes for observation and the characteristics of the lounges were presented for each institution.

Findings based on information obtained during discussions with administrators and events occurring during observation sessions were recorded but not statistically tested. These findings were divided into the following eight categories: (1) seat selection, (2) tables and interaction, (3) visual and physical access to areas, (4) crowding and interaction, (5) lack of interaction, (6) planned activities, (7) awareness of daily schedules, and (8) presence of the researcher.
The Effect of Furniture Arrangements on the Social Interaction of Institutionalized Elderly

by

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Between 1971 and 1981 the number of elderly over 65 years of age increased by 28 percent resulting in an aged population of 25.5 million. This group of elderly represent 11 percent of the total population today and is projected to reach 16 percent by the turn of the century (Elrod, 1979).

The increasing number of older Americans will all require some form of housing. With increasing age, many elderly may be faced with declining incomes, deteriorating health and decreased mobility, and increased isolation (Elrod, 1979). Although many older Americans will be able to remain independent through their own means or with the help of family and/or community programs, some will require institutional housing. Those living in institutionalized housing in Oregon number 5.5 percent of the elderly population (Hunt & Gravatt, 1979). The Oregon figure coincides with the national percentage of 5 percent, but it is estimated that 20 percent of elderly will spend some time in a housing institution (Kastenbaum & Candy, 1973).

Shanas (1961), on the basis of survey data,
concluded that the majority of institutionalized aged have real needs they are attempting to solve via the institution. Whether alternatives exist to meet these needs is unknown. A representative compilation of studies on homes for the aged shows many residents sharing the following characteristics: poor adjustment, depression, unhappiness, intellectual ineffectiveness, negative self-image, feelings of personal insignificance, and a view of the self as old (Leiberman, 1961). Several studies, including Leiberman (1963) show an increase in mortality rates for aged persons in institutions.

One possible way to combat the negative effects of institutionalization is with social interaction. Wolfensberger (1972), in his discussion on normalization of institution residents, describes interaction as one of the most significant corollaries of normalization. Lawton (1968) suggests, since many elderly tenants come into institutionalized housing with the explicit aim of curing their loneliness or adding to their social opportunities, social interaction should be accepted as a positive goal of housing. Carp (1966) when studying residents moving into a new housing development, measured levels of satisfaction in several areas of housing before and after the residents moved. One of the most frequently expressed frustrations of
applicants to the new development was social isolation. However, once these people moved into the new housing developments, a dramatic improvement in social interaction was noted. Residents entered into more activities of all sorts, especially those of active rather than passive nature.

Lawton (1968) states, "the closer one is to other people, the greater the likelihood that he will interact with those around him." The congregate lounge, often referred to as a living room, dayroom, or sitting room can play an important role in facilitating social life with much of the conversation and structured interaction occurring there. Carp (1966), after gathering post-occupancy information from residents of a new housing development, emphasized the importance of a living room concept. She concluded that more attention should be paid to the role of the setting in enhancing the living experiences of older people.

The placement of furniture within the sitting room can also affect user behavior (Sommer, 1966). However, he feels there are a lack of explicit principles relating furniture arrangements to social interaction. After observing the behavior of the elderly in a state sponsored institution, Sommer found that most furniture items were positioned for ease of maintenance rather than for
comfort or to facilitate interaction. Most chairs on the ward were placed straight along the walls with several lined up back-to-back in the center. These arrangements not only existed, but were accepted as normal and remained unchanged. People will adapt to their surroundings in various ways and when a room is cold and unfriendly people will attempt to avoid it (Sommer, 1974). If a person is continually exposed to unfriendly environments the probable reaction will be social or psychological withdrawal.

Many people, for various reasons, do not have control over the selection of their surroundings. Designers must consider the needs of residents or the space will go unused. Designers, perhaps younger than the elderly residents they are designing for, may not be able to plan space as effectively without behavioral research to understand the needs of the group for which they are planning. Merrill (1976), researching the application gap between behavioral research and application, advocates setting up research so it can be related to specific real-life situations and then translated into a language designers can easily interpret.
Purpose of the Study

The purpose of the study is to examine how furniture arrangements in the congregate lounges of institutions for the elderly affect the social interaction among the residents. Based on the furniture arrangements that encourage social interaction, recommendations will be made for the placement of furniture in congregate lounges of institutions for the elderly.

Objectives of the Study

The primary objectives of the study are:

(1) to determine the frequency with which social interaction occurs within four types of furniture arrangements in congregate lounges of institutions for the elderly

(2) to determine the length (brief or sustained) and the type (verbal or nonverbal) of social interaction occurring among the elderly in four basic types of furniture arrangements

(3) to determine the effect of distance between individuals during interaction while seated in the four basic types of furniture arrangements

Limitations of the Study

The limitations of the study are:

(1) the attitude of the institution's administration toward the social interaction of the residents may affect
the social climate of the institution.

(2) various interior environmental factors such as the size of the room, location of the windows, color of the interior, comfort of the seating, as well as access to other areas of the institution could all affect the seat selection and the interactions occurring within the congregate lounges.

(3) the hearing, eyesight, mobility, and other physical impairments common among elderly may affect the social interaction patterns of the institution’s residents.
DEFINITIONS

behavioral mapping- used to investigate what people are doing, where they are doing it, for how long, and with whom to gather information on the needs of people in various spaces.

congregate lounge- a space available to residents for sitting, socializing, and other activities (may also be referred to as a dayroom, sitting room, living room, or common space)

elderly person- a person over 65 years of age

environmental behavioral research- research relating to the behavior of people in various physical environments

institutional sanctity- a state of mind that may occur among people spending extended periods of time in an institution. Residents become accustomed to their environment and think of it as fixed and permanent; residents may even begin to accept adverse conditions as standard after a period of time

interior designer- those persons whose jobs involve the planning and designing of interior physical environments

intermediate care facility- provides limited health care and services that can only be provided institutionally

post occupancy evaluation- an evaluation of the satisfaction of various characteristics of the built environment after occupancy

proxemics- the study of how man unconsciously structures microspace; the distance between men in the conduct of daily transaction, the organization of space in houses and buildings, and ultimately the layout of towns

residential care facility- provides minimal assistance in dressing, cooking, and other services

skilled care facility- represents the highest level of care, requiring twenty-four hour supervision by registered nurses

sociofugal environments- physical spaces that discourage social interaction
sociopetal environments - physical spaces that encourage social interaction

social interaction - mutual or reciprocal action or influence with one's friends or associates
CHAPTER II. REVIEW OF LITERATURE

The previous studies related to the effect of furniture arrangements on the social interaction of institutionalized elderly will be divided into four categories: (1) an overview of the aged population, (2) social interaction of institutionalized aged, (3) facilitating social interaction through interior design, and (4) the interior designer's use of behavioral research.

An Overview of the Aged Population

One of the most widely discussed and written about characteristics of elderly over sixty-five is the growing number. Twenty-five million Americans (11.2 percent of the population) were sixty-five or over in 1979, in contrast with three million (4 percent of the population) in 1900 (Elrod, 1979). Elderly are expected to total 16 percent of the population by the turn of the century (Statistical Abstract, 1979).

The elderly as a group have varying characteristics: they differ in age and have divergent backgrounds as well as physical and mental abilities. Despite these differences, there are several characteristics common to the group. Elrod (1979) reports elderly as more subject to chronic illness with 50 percent more visits to the physician than the rest of the population. Elderly may be faced with declining incomes, deteriorating health, and
decreased mobility and increased isolation (Elrod, 1979).

The type of housing that meets the needs of the elderly may change with age. Initially, most elderly live in intact husband-wife households in their own homes or rental units (Soldo, 1978). The possibility of losing a spouse increases with age along with an increase in physical, psychological, and social infirmities (Elrod, 1979). Carp (1972), after studying the housing needs of elderly, found they may become dependent on their community for physical care, health care, and psychological needs. As a person grows older, desires for alternative housing may arise, especially for women who tend to live longer than men and may be left alone (Carp, 1972). Although individuals may enter old age with few disabling factors, health may begin to fail resulting in elderly seeking more supportive or institutional housing with services and socialization opportunities (Elrod, 1979). The percentage of elderly Americans living in some form of institutionalized housing numbers 5 percent (Elrod, 1979). Kastenbaum and Candy (1973) estimate that at least 20 percent of elderly will spend some time in a long-term institution. However, Elrod (1979) estimates that 40 percent of elderly will spend some time in an elderly housing facility.

For many aged, a move into institutional housing provides opportunities not previously available to them. However, Goffman (1961) and Lieberman (1969), after studying various characteristics of elderly entering homes
for the aged, identified problems associated with institutionalization: severance from familiar social roles and relationships, the adjustment to loss of personal identity, and the loss of control over one's life. The older person is more sensitive to change in the environment than the person in middle life because he or she is likely to have experienced some kind of reduction in competence (Lawton & Simon, 1968). A study, based on 130 surveys from senior citizens with diverse characteristics living in institutionalized housing, indicated a definite relationship between the preferences of the aged and their physical environment, as a significant determining factor in their morale and life satisfaction (Rapelje and Papp, 1976).

**Social Interaction of Institutionalized Aged**

Frances Carp (1966), after surveying applicants to Victoria Plaza, a new housing development for elderly, found that one of the most frequently listed frustrations was social isolation. Carp's study showed new residents gained improved life satisfaction after their move to the new housing complex. Residents entered into activities of all sorts, especially those pursued in the company of other people, and of active rather than passive nature. Changes among residents in attitudes and way of living were generally toward activity and social contacts. Carp (1966) concluded that more attention should be paid
to the role of the setting in determining the experiences and behavior of older people. Sommer and Ross (1958), after observing increased interaction through more sociopetal furniture arrangements concluded that some of the negative social and psychological characteristics found among elderly seem to be a product of the institutional environment rather than the aging process itself.

At the Philadelphia Geriatric Center, Lawton, Liebowitz, and Charon (1968) conducted a study of the behavioral effects of a lounge plan. The lounge shared by residents was remodeled with differentiated areas designed to give residents a choice between a social space or a private space while still allowing for constant visual communication. Many hours of direct behavioral observations were made before and after remodeling. The new design of the lounge, with both visual and locomotor access, led to greater use of the lounge, surrounding areas, and greater interaction among residents.

Due to the physiological deterioration of the sensory equipment of many elderly they may rely on different sensory cues (DeLong, 1970). DeLong, after observing distances in which interactions between elderly occurred, found measurable differences between elderly and younger people with elderly sitting closer to each other
and at right angles or in side-by-side arrangements.

Thus, as people age, they tend to use space and alter their spatial behavior to compensate for the decrease in sensory cues. One of man's essential coping features is his ability to anticipate events and act accordingly. The fluctuation of distance is a useful tool in preventing a disruption of activities.

Facilitating Social Interaction Through Design

The design of the built environment is made up of subsystems varying greatly in physical size, function, and the amount of social interaction taking place within the space. The most significant influence of a room on behavior is the purpose of the room. However, when the purpose of the room was to encourage specific kinds of behavior, certain design considerations had to be kept in mind (Heimstra and McFarling, 1974).

Physical design is believed to affect social relationships principally through its control over proximity among individuals (Whyte, 1956). The reason physical and functional distance are influential in the process of establishing patterns of social relationships is explained by Kuper (1953) as the principle of passive contacts. A passive contact is the unintentional encounter of two persons. Getting to know someone takes time and is dependent on the opportunity for contacts
between the same people. Architecture and the physical environment play a significant part in facilitating these passive contacts (Sommer, 1970). Carp (1966), used sociometric surveys to investigate friendship patterns in a public housing high-rise apartment building and a home for the aged. Her results confirmed studies showing that proximity was a potent determinant of friendship formation.

The congregate lounge in institutions for the elderly can play a role in increasing social contacts. Sommer (1970) spent time observing elderly and their use of spaces and found the dayroom as the center of social life with much of the conversation and structured interaction occurring there. The placement of furniture also affected the way in which residents used space. However, Sommer (1970) reported a lack of explicit principles relating furniture arrangements to social interaction. The arrangement of furniture was often left to the ward staff members who did not realize the therapeutic potential of furniture arrangements. Many of the arrangements were positioned for ease of maintenance rather than comfort or for ease of conversation.

Sommer and Ross (1958), after observing elderly women in their lounges, noticed how insistent they were about maintaining the existing furniture arrangements. Institutional sanctity occurs when residents begin to see
arrangements as permanent, fixed, and they become very determined to keep the arrangements in the same positions. This condition often occurs after people spend long periods of time in institutions. Patients may mark out territories on the ward and any territorial violation produces disturbances. Lipman (1968), after observing the interaction patterns of elderly, found over 90 percent of the patients who regularly sat in the sitting rooms occupied the same chairs in the same position day by day.

Osmond (1959), the director of a geriatric center, was interested in the social interaction of his residents. Although part of the center had been remodeled, there was no increase in the interaction taking place in the new space. He was curious why some areas of the complex were more conducive to social interaction than others. He described areas that decreased interaction as sociofugal. Sommer and Ross (1958), working with Osmond, observed the residents in the center to determine why there was so little interaction. They found most of the chairs in straight rows back-to-back in the center of the room or along the walls. In addition, with fifty residents in the room at the same time there were as little as one or two brief conversations. Sommer added tables to the room to encourage face-to-face encounters. Initially the women returned the room to the original arrangement, but eventually, once the new arrangements were accepted, a significant increase in interaction occurred. Residents
had no input in changes in their environment with decision-makers who spent little time on the ward making the design decisions. Sommer felt input from the final users of the space was very important for a successful and functional design.

After investigating the seating preferences of persons engaged in conversation, Sommer (1958) found that up to a distance of about three feet subject pairs preferred to sit across from each other. When the distance between individuals exceeded three feet, they preferred to sit on the same couch in a side-by-side arrangement. The self-positioning by people in spaces can be influenced by the type of activity they are undertaking. Sommer, (1966) found the angle and the distance to be significant after observing spacing between people involved in various tasks. Face-to-face arrangements were preferred for casual conversations, side-by-side arrangements for cooperative work, and a distant face-to-face arrangement for competitive situations.

Social interaction is usually concentrated in specific areas and at specific times. There is some speculation about the use of small common rooms on each floor to enhance social behavior. Lawton (1970), after studying the use patterns of elderly in various spaces, discouraged the use of smaller rooms because the areas go unused. He suggested a sitting room near the elevator for maximum observation of activities. Lawton also listed laundries
and dining rooms as other areas of high interaction. A lounge next to the dining room often became the center of social activity before mealtimes.

Frush and Eschenbach (1968), after visiting and surveying homes for the elderly to develop guidelines for architectural layout, suggested a large lounge. They suggested this lounge be connected to the elevator area or walkways, to the administration area, and lead to the dining space. In addition, the lounge should be large enough to accommodate all the residents in comfort because they usually congregate there before and after lunch and dinner.

DeLong (1970), after studying the reaction of aged residents in different types of space allocations suggested three different space requirements in the institutional setting: private, semi-private/semi-public, and public, which served the needs of personal, social, and public behavior. DeLong's research indicated the following spatial relationships. First, semi-private/semi-public spaces decreased aggression, increased cooperation, participation, social awareness, and public behavior such as wandering and greeting others in the corridor. When there were no private spaces, residents established personal domains in the corridor. When there was a private space but no semi-private/semi-public space, residents used the corridor as a social space. When both private and semi-private spaces were available, the corridor became a
characteristically public space for the first time. This suggested that if any of the three spaces are lacking, the function of the others will be changed.

After Lawton's (1970) observations of how space was used, he questioned the need for specialized spaces for various activities. His observations revealed a very low density of use with activity rarely occurring unless a staff member organized the event.

The use of space can be manipulated to suit the individual's combined needs of social interaction and privacy. The two dimensions of privacy Ittleson, Proshansky, and Rivlin (1974) listed as relevant to environmental design were freedom from unwanted intrusion and freedom to determine the time and place of communication. Consequently, the amount of interaction desired takes into consideration the relationship between people, their personalities, the social situations and the cultural and physical setting.

**Designers' Use of Behavioral Research**

In recent years, a new field of research has emerged which is concerned with the relationship between social and psychological needs and elements of the built environment. This type of research is usually referred to as environmental behavioral research (Merrill, 1976).

In a survey of designers, Terrance (1971) found that
designers believe their work has important social implications. Some social scientists have expressed concern that designers give more attention to the human use of space (McCue, 1970). However, McCue also concluded, that because pertinent scientific evidence was not available, designers had been forced to make decisions about human use of space on a subjective basis.

Whiten (1974) summarized the relationship between the client and the interior designer and explained some of the problems that may arise. Historically, the interior designer has worked directly with the client. Today, as society becomes more institutionalized, the interior designer finds himself with two clients: the client that is paying for the job and secondly, the final user of the space. This two-client situation occurs when designing a nursing home. The group or agency paying for the job will not be the final user thereby requiring the designer to take into account the needs of the user. Behavioral mapping can be useful in gaining insight into the needs of the user. It was first used by Proshansky, Ittleson, and Rivlin to investigate what people were doing, where they were doing it, for how long and with whom (1970).

Another area to influence interior designers is anthropology. According to anthropologist Edward T. Hall, father of proxemics, spatial behavior is systematic, consistent, and interrelated with other kinds of behavior in
a system. Hall (1963) defined proxemics as the study of how man unconsciously structures microspace, the distances between men in the conduct of daily transactions, the organization of spaces in their houses and buildings, and ultimately the layout of their towns. Hall's (1969) research indicated that spatial distances exist between humans and these spaces are influential in interaction with other humans. Whiten (1974) using Hall's research as a basis suggested that interior designers should look at interior spaces in a variety of ways ranging from the symbolic significance of a structure to the rules governing the spatial arrangement of furniture.

In a survey of architects, Merrill (1976) found that only 21 of 144 had used behavioral research. Some of the lack of use may be the result of an application gap between social scientists and designers. There are differences in the methods of communication, thinking, and professional roles of social scientists and designers (Merrill, 1976). Merrill suggested several ways to bridge the application gap between social scientists and designers of interior spaces. He suggested making environmental behavioral research available to designers, eliminating jargon, and presenting material to designers in a useable form including some visual methods of presentation. He also suggested attempting to experience the life of the individual, especially of older people. Robert Sommer (1970) believes the ultimate consumers should be asked
what they want and need in the way of environmental design to help the consumers overcome alienation and depersonalization.

Summary

Few studies have been conducted on the effect of furniture arrangements on the social interaction of institutionalized elderly. Researchers have studied the housing needs and problems of elderly (Elrod, 1979; Soldo, 1978; Carp, 1966, 1972; Goffman, 1961; Leiberman, 1969; Lawton and Simon, 1968). The importance of social interaction in increasing life satisfaction was shown by Carp (1966). The design of interior space was found to be a strong factor in increasing social interaction among elderly; additionally, distance, proximity, and periodic contacts were shown to be determinants of social interaction (Whyte, 1956; Kuper, 1953; Sommer, 1970; Lipman, 1968). Several studies indicated that the lounge characteristics can also affect social interaction (Lawton, 1970; Frush and Eschenback, 1968; DeLong, 1970).

There is minimal research relating furniture arrangements to social interaction. The majority of research involving furniture has been conducted by Robert Sommer. Sommer (1970) found an increase in social interaction when chairs in a lounge for elderly were moved away from the walls and placed around tables. Sommer (1959) found that up to a distance of about three feet, subject pairs
preferred to sit on the same couch in a side-by-side arrangement. Sommer (1966) found angle and distance to be significant after observing spacing between people involved in various tasks.
CHAPTER III. PROCEDURE

The steps of the investigation include: (1) development of the hypotheses, (2) development of the measurement tools, (3) selection of sites for data collection, and (4) the statistical analysis procedures.

Research Hypotheses

Hypothesis I. The total number of social interactions per seat in congregate lounges will be greatest in face-to-face arrangements.

Hypothesis II. The total number of social interactions per seat occurring within 90 degree angle furniture arrangements will be less than the number of interactions occurring within face-to-face, but greater than the number of interactions occurring within side-by-side and back-to-back arrangements.

Hypothesis III. The total number of social interactions per seat occurring in side-by-side arrangements will be less than the number of interactions occurring within face-to-face and 90 degree angle arrangements, but greater than the number of interactions occurring within back-to-back arrangements.

Hypothesis IV. The total number of social interactions per seat occurring in back-to-back arrangements will be less than the number of social interactions occurring in the other three furniture arrangements.
Hypothesis V. The number of sustained interactions per seat occurring in congregate lounges will be greatest in face-to-face arrangements.

Hypothesis VI. The number of sustained interactions per seat occurring in 90 degree angle furniture arrangements will be less than the number of interactions occurring in face-to-face arrangements, but greater than the number within side-by-side or back-to-back arrangements.

Hypothesis VII. The number of sustained interactions per seat occurring in side-by-side furniture arrangements will be less than the number of interactions occurring within face-to-face and 90 degree angle furniture arrangements, but greater than the number of interactions occurring in back-to-back arrangements.

Hypothesis VIII. The number of sustained interactions per seat in back-to-back arrangements will be less than the number of social interactions occurring in the other three furniture arrangements.

Hypothesis IX. The frequency of total interactions occurring in furniture arrangements spaced eight feet apart or less will be greater than the number of interactions occurring in arrangements spaced greater than eight feet apart.

Hypothesis X. The frequency of sustained interactions occurring in arrangements spaced eight feet apart or less will be greater than those interactions occurring in arrangements spaced greater than eight feet apart.
Development of the Measurement Tools

The recording of social interaction among institutionalized elderly required three instruments: (1) the Floorplan, (2) the Social Interaction Checklist, and (3) the Furniture Arrangement Checklist.

The Floorplans (FP), the first set of instruments, were drawn to scale representing each of the five congregate lounges selected for observation. The floorplan of each congregate lounge included the dimensions of the room, placement of the furniture, windows, doors, and other architectural features. Non-architectural features such as tables, lamps, televisons, and pianos were also included for purposes of observation. In addition, each individual seat on the floorplan was drawn and numbered for use when recording the seats in which social interactions took place. The distance between interacting individuals was determined by using the scale drawing of the floorplan to measure the distance between seats of interacting individuals.

Each day the lounge was observed, separate copies of the floorplans were used for recording. Separate copies of the floorplan enabled any changes in seating arrangements to be noted as well as the addition of wheelchairs. Wheelchairs in the lounge were designated with letters for use during data collection.

The second measurement tool, the Social Interaction Checklist (SIC), was used to record the numbers of the
seats involved in each social interaction. The seat numbers corresponding to those seats involved in each interaction were recorded under one of the four categories according to the length and type of social interaction. These four categories for length and type of interaction were adapted from three sources: Sommer (1970), Ervin-Tripp (1964) and Argyle (1973). Robert Sommer's (1958) research investigated the response of institutionalized elderly when tables were added to their congregate lounge. He used the terms brief (two seconds or under) and sustained (over two seconds) to distinguish the length of social interaction. The study classified those interactions occurring in five seconds or less as brief and those interactions lasting over five seconds as sustained. The use of five seconds rather than two, as in Sommer's study, will classify casual exchanges such as "How are you today?" as brief rather than sustained. When defining the type of interactions as verbal or nonverbal, Ervin-Tripp (1964) classified verbal as talk or any audible exchange. Nonverbal interactions were more difficult to define. Most nonverbal communication is governed by lower, autonomic, and instinctive levels which usually are fragments of the real thing and emotions or acts in themselves (Argyle, 1973). In this study, nonverbal interactions were defined as gestures, headnods, touching, feeding, or engaging in joint activities (i.e. chess, quilting, etc.). When a person speaks to another, he
inevitably emits nonverbal signals as well. In this study, if verbal and nonverbal interactions occurred simultaneously, the interactions were recorded as a verbal interaction.

In order to record the interaction, the numbers on the seats of interacting individuals within the group were recorded in a parenthesis. When individuals joined or left the interacting group, a new group was formed and the numbers of the seats denoting this group were recorded on the SIC in parenthesis.

The third instrument, the Furniture Arrangement Checklist (FAC), was used to further categorize data recorded on the SIC. For this study, the seating possibilities listed on the FAC were divided into four basic arrangements: (1) face-to-face, (2) 90 degree angle, (3) side-by-side, and (4) back-to-back. These seating possibilities have been adapted from Watson and Graves (1966) research on proxemic behavior among Arabs and Americans. The labels attached to the range of positions were developed by Osmond (1959) when he described seating in a nursing home and its affect on social interaction. Those arrangements decreasing social interaction were labeled as sociofugal. Of the four basic furniture arrangements, face-to-face, 90 degree, side-by-side, and back-to-back, Osmond categorized face-to-face as the most sociopetal with 90 degree and side-by-side following in that order. Back-to-back arrangements
were listed as the most sociofugal by Osmond.

The categories for recording distance between seats containing people involved in interactions were obtained from Whiten's (1974) recommendations for successful conversation distances. Whiten advocated eight to ten feet as the maximum distance between pieces of furniture in which individuals were seated for interaction. The FAC provided two categories for distances: (1) eight feet or less, and (2) over eight feet.

Data taken from the SIC denoting the seat numbers which were occupied by interacting individuals were placed on the FAC in the appropriate categories. FAC categories included the four basic furniture arrangements, the distance between seats, and the length and type of interaction. Each interaction was divided into units of two interacting persons regardless of the number of people involved in each interaction. For example, if an interaction occurred among three people with two sitting side-by-side and a third person facing the other two, the interaction was recorded on the FAC as two interactions occurring in face-to-face arrangements and one interaction occurring in a side-by-side arrangement. The data were summarized according to the four basic furniture arrangements, the length and type of social interaction, as well as the distance under or over eight feet.
Selection of Sites for Data Collection

A list of sixty-two housing institutions for the elderly within a fifty mile radius of Corvallis was obtained from the State of Oregon, Center for Human Services, Department of Senior Services. The state had divided the homes into geographic regions and branches. This study encompasses the branches of Albany, Corvallis, Eugene, Lebanon, Newport, Springfield, McMinnville, North Salem, and South Salem.

The selection of homes for use in this study was based on five criteria: (1) the number of residents living in the institution, (2) the availability of one main congregate lounge, (3) the type of care offered, (4) permission to use the institution in the study, and (5) the availability of a variety of furniture arrangements.

First, all homes with more than forty residents were included in the list of homes for possible selection as sites for data collection. It was felt that the social climate in smaller institutions would result in a difference in the social interaction among the residents when compared to the social climate of larger institutions.

Secondly, all homes had one main lounge accessible to all residents. Homes having several small lounges throughout the building but no main lounge were eliminated.

The third criterion applied to the type of care
in each institution. Those with the majority of patients in nursing/skilled care were eliminated leaving those homes providing intermediate and residential care included for selection. It was felt that residents requiring nursing/skilled care might not be able to select a seat by themselves or to use the lounge at all, thereby decreasing the validity of individual seat selection.

The fourth criterion, permission to observe the lounges, was obtained from all remaining institutions.

Information regarding three of these first four criteria: (1) the availability of one main congregate lounge, (2) the type of care offered, and (3) permission to observe was obtained through a phone call to each institution. A letter of introduction was sent prior to the phone call to all institutions with over forty residents. A copy of the letter is available in Appendix B. Institution administrators or staff were asked to respond over the phone to questions regarding these three criteria. Those institutions not meeting any or all of the three criteria were eliminated.

The fifth consideration in selection of institutions was the variety of furniture arrangements available in each congregate lounge. Those lounges meeting the first four criteria were visited by the researcher with the purpose of determining the number of seats available in the four basic furniture categories (face-to-face, 90 degree, side-by-side, and back-to-back). During the visit
the researcher made informal sketches of the room noting architectural and nonarchitectural features and furniture. The numbers of seats available in each category, excluding the back-to-back arrangements were compared to each other. The smallest number of available seats in a single category was divided into the largest number of seats in another category and a ratio obtained. Those institutions with a ratio exceeding 1:5 were excluded from possible selection. For example, if a lounge had three face-to-face arrangements and twenty-one side-by-side arrangements, the ratio would be 1:7 and the lounge would be eliminated from possible selection. It was felt that the availability of a variety of the four basic types of seating was needed to assure residents had a choice in selecting a seating arrangement.

Five lounges, meeting the criteria listed above, were randomly selected for use in the study. In addition, another home, selected on the basis of convenience was used in the pilot study. Several changes came about as a result of the pilot study and are discussed in the data collection section.

Data Collection

Social interactions were recorded by the researcher in the congregate lounges of the selected institutions. Each institution was observed on two randomly assigned weekdays with no observation done on weekdays.
Efforts were made to avoid scheduling observation sessions during activities planned by the institution. However, occasionally observation sessions during these activities were unavoidable, and the researcher discontinued recording interactions until the event was concluded.

The researcher planned to observe each lounge on the hour and half hour for fifteen minute segments from 10:00 A.M. until 7:45 P.M. However, after conducting the pilot study, it became apparent to the researcher through discussions with administrators and through observation that a significant amount of activity occurred in the homes before 10:00 A.M. with less activity after 7:00 P.M. Therefore, the observation schedule for the actual study was established from 9:00 A.M. until 7:00 P.M. In addition, the researcher was surprised by the seemingly small number of interactions occurring between residents throughout the day. For this reason, the researcher chose to observe the lounge for the entire day rather than fifteen minute segments.

The researcher had a copy of the floorplan of each institution for each day observations were made. The numbers corresponding to the seats in which interaction was taking place were recorded on the SIC. This data was then transferred to the FAC and placed in the appropriate column pertaining to the length and type of interaction, the corresponding furniture arrangements, and the distance between interactions.
The researcher sat in view of the residents and remained for the designated period of time. The researcher usually took a break every two hours for five minutes. Any residents inquiring about the presence of the researcher were told that she was studying the interior design of different buildings. During the pilot study, the researcher discovered that prolonged conversation between herself and a resident could be terminated by leaving the room for a short time and returning to the lounge a few minutes later and taking another seat.

**Analyses of Data**

Descriptive data pertaining to the selection of homes, the type of care offered and the number of residents housed was listed for each institution participating in the study. In addition, characteristics of the lounges (color, walls, floors, windows, accesses, and architectural features), characteristics of the furnishings (number of seats, tables, televisions, and the type of lighting), and seating characteristics (number of seats, seat covers, seat arrangements, and the ratio of seats in each lounge) were all provided in descriptive form in tables. The frequency of interaction occurring within each arrangement and the average number of interactions per seat were recorded as well as the length and type of interaction, and the frequency of interactions occurring in eight feet and under and those occurring over eight feet.
The analysis of variance statistical test and t-tests were used to test the hypotheses.
The presentation of the findings has been organized into five main sections: (1) findings related to the five criteria used in the selection of homes for observation, (2) findings related to the characteristics of the five lounges, (3) findings related to the hypotheses, and (4) additional findings related to behavior and interaction.

Findings Related to the Five Criteria Used in the Selection of Homes for Observation

The sixty-two homes for the elderly within a fifty mile radius of Corvallis were studied using five criteria: (1) the number of residents living in the institution, (2) the availability of one main congregate lounge, (3) the type of care offered by the institution, (4) permission to use the institution in the study, and (5) the availability of a variety of furniture arrangements.

A visual explanation of the selection of homes for observation is provided in Figure 1. Of the sixty-two available homes, thirty-six housed forty residents or more and were retained for possible selection while twenty-six with less than forty residents were eliminated.

Twenty-four of the thirty-six remaining homes met the second criterion of a main congregate lounge for use by residents and were kept for possible selection. Of the twelve homes without a main congregate lounge, six had
FIGURE 1
SELECTION OF THE FIVE HOMES USED FOR OBSERVATION

- 62 homes within a fifty mile radius of Corvallis
  - homes with less than 26 forty residents
    - 36 homes with forty residents or more
      - homes with no main lounge
        - 12 homes
      - 24 homes with a main lounge for use by residents
        - 20 homes providing intermediate or residential care
          - 15 homes granting permission to the researcher for observation
            - 6 homes with a furniture ratio exceeding 1:5
              - 9 homes with furniture ratios of 1:5
                - 5 homes randomly selected for observation
            - 4 homes not randomly selected for observation
            - 4 homes not granting permission for observation
several small lounges throughout the building, two used the dining room as a lounge, three did not have a lounge, and one home had a lounge under construction.

The next qualifying criterion used in selection was the type of care offered by the institution. Four homes with skilled care were eliminated leaving nineteen intermediate and one residential care home available for possible selection.

Five of the remaining homes did not grant permission to the researcher for observation leaving fifteen homes available for selection.

These fifteen homes were visited to determine if a variety of furniture arrangements existed. In each home, the number of seats positioned in three of the four furniture arrangement categories (face-to-face, 90 degree, and side-by-side) were compared to each other. Back-to-back arrangements were excluded because of the difficulty in locating homes with a large number of back-to-back arrangements. The smallest number of available seats in a single furniture arrangement category was divided into the largest number of seats in another category and a ratio obtained. Those institutions with a ratio exceeding 1:5 were excluded from possible selection. Six of the fifteen homes visited had furniture ratios greater than 1:5 and were removed from possible selection.

From the nine homes remaining, five were randomly selected.
Findings Related to the Characteristics of the
Five Lounges

In meeting the qualifying criteria, each of the five homes selected for observation housed over forty residents, had a main lounge for use by residents, provided intermediate or residential care, granted permission to the researcher for observation, and had a furniture ratio of less than 1:5.

During the sessions in which social interaction among residents was recorded, observations were also made regarding the characteristics of the lounges. These characteristics are presented in Tables 1-3. Floorplans of each of the five lounges are provided in Appendix A. The characteristics are summarized below and include: (1) architectural features, (2) visual and physical access to other areas of the building, (3) windows, (4) floor and wall materials, (5) colors, (6) lighting, (7) tables, and (8) the type of seating.

Architectural Features

The architectural features of the lounges can be found on the floorplan in Appendix A. Home A had a wall with two archways dividing the lounge. Exposed beams on the ceiling were also visible. Architectural features in lounge B included a wall dividing a section of the room and exposed beams. Lounge D had a fireplace while lounges C and E had no distinguishing architectural features.
TABLE 1
INTERIOR FEATURES OF THE FIVE LOUNGES

<table>
<thead>
<tr>
<th>Home</th>
<th>Color</th>
<th>Walls</th>
<th>Floors</th>
<th>Windows</th>
<th>Access</th>
<th>Architectural Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>gold &amp; orange</td>
<td>wallpaper, carpet &amp; paint, &amp; hard pictures</td>
<td>flooring</td>
<td>one wall with view of yard</td>
<td>two doors to hall, one door to yard</td>
<td>walls dividing two areas with two archways between, exposed beams on ceiling</td>
</tr>
<tr>
<td>B</td>
<td>no dominant color</td>
<td>paint &amp; carpet</td>
<td>hard flooring</td>
<td>one wall with view of parking lot</td>
<td>door to hall &amp; front door, nurses' station</td>
<td>seven foot wall dividing the southern half of the lounge, exposed beams</td>
</tr>
<tr>
<td>C</td>
<td>no dominant color</td>
<td>paint &amp; hard flooring</td>
<td></td>
<td>one wall, view of patio</td>
<td>doorway to hall, door to patio</td>
<td>sliding doors leading to outdoor patio</td>
</tr>
<tr>
<td>D</td>
<td>no dominant color</td>
<td>paint &amp; hard flooring</td>
<td></td>
<td>one wall, view of street &amp; yard</td>
<td>hallway, nurses' station &amp; dining area</td>
<td>fireplace</td>
</tr>
<tr>
<td>E</td>
<td>no dominant color</td>
<td>paint &amp; hard flooring</td>
<td></td>
<td>one wall view of yard</td>
<td>two doors to hall, gift shop, and yard</td>
<td>only access to gift shop</td>
</tr>
<tr>
<td>Home</td>
<td>Residents (No.)</td>
<td>Room Dimensions (Ft.)</td>
<td>Seats (No.)</td>
<td>Tables High (No.)</td>
<td>Low (No.)</td>
<td>Televisions (No.)</td>
</tr>
<tr>
<td>------</td>
<td>----------------</td>
<td>----------------------</td>
<td>-------------</td>
<td>------------------</td>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td>A</td>
<td>80</td>
<td>28 x 38</td>
<td>15</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>107</td>
<td>24 x 30</td>
<td>32</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>84</td>
<td>20 x 24</td>
<td>20</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>D</td>
<td>65</td>
<td>16 x 28</td>
<td>19</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E</td>
<td>145</td>
<td>26 x 34</td>
<td>31</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
### TABLE 3

**SEATING CHARACTERISTICS OF THE FIVE LOUNGES**

<table>
<thead>
<tr>
<th>Home</th>
<th>Residents (No.)</th>
<th>Seats (No.)</th>
<th>Seat Type&lt;sup&gt;a&lt;/sup&gt; (No.)</th>
<th>Seat Coverings</th>
<th>Seat Arrangements&lt;sup&gt;b&lt;/sup&gt; (No.)</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>A</td>
<td>80</td>
<td>15</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>2</td>
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<tr>
<td>B</td>
<td>107</td>
<td>32</td>
<td>25</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>84</td>
<td>20</td>
<td>16</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>65</td>
<td>19</td>
<td>19</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E</td>
<td>145</td>
<td>31</td>
<td>22</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>481</td>
<td>117</td>
<td>87</td>
<td>6</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

<sup>a</sup> Seat types: (A) padded seat, back and arms with metal legs, (B) large cushioned chairs with padding on seat, back, and throughout the chair, (C) rockers with padded seats and backs on a wooden frame or upholstered rockers with cushioning throughout the chair, and (D) sofas with varying numbers of seats.

<sup>b</sup> Seat arrangements: (F-F) face-to-face, (90) 90 degree angle, (S-S) side-by-side, (B-B) back-to-back.
Visual and Physical Access to Other Areas of the Building

The lounge in Home A was visually and physically secluded when compared to the lounges in the other homes. The lounge had two doors leading to the hallway and one exterior door leading to the yard outside. However, the doors to the hallway closed after each use limiting the visual access between the residents seated in the lounge and the comings and goings of those in the halls.

In lounge B, the parking lot was one of the visual attractions enabling residents to watch people coming and going. The receptionist's window, the front door and the nurses' station could also be seen from the lounge.

During the summer months, residents in lounge C could use the patio outside the lounge or watch other residents or staff use the patio. In addition, people passing by in the hall were of interest to the residents. Residents using the lounge in home D were in the center of activity. They could watch visitors enter through the front door while at the same time see the nurses' station, dining room, and administrative offices.

Lounge E provided a gift shop in the corner of the lounge. Therefore, any resident, staff member, or visitor using the gift shop had to go through the lounge. Two doors leading to the hall as well as a view of the yard were also available.
Two of the five lounges had a television located in the lounge. Lounge A had two televisions positioned in two corners of the lounge while the television in lounge B was positioned along one wall. The furniture was not arranged to facilitate television watching in either lounge. However, staff occasionally positioned wheelchairs patients in front of the television for easy viewing. In both lounges, the television could be heard from almost anywhere in the room.

Windows

All five of the lounges had windows along one wall. The windows in home A provided residents with a view of the south and the backyard of the facility. A view of the parking lot leading to the front entry was available to residents in lounge B. Residents in lounge C had a view of the street outside and the patio in front of the building. Those people using lounge D had a view of the front yard and the street outside while residents in lounge E could see the yard and garden outside their window.

Floor and Wall Materials

The flooring materials varied from lounge to lounge. Three of the five lounges had hard floors while one lounge was carpeted. There was a combination of carpet and hard flooring in the fifth lounge with hard flooring in the area often used for planned activities. The walls
were painted in all five of the lounges. However, wallpaper covered one wall in lounge A.

**Color**

In four of the five lounges there was no dominant color scheme or theme. Home A was the exception with yellow and orange used primarily.

**Lighting**

All five of the lounges used overhead lighting with two homes also providing lamps. Home A provided four lamps on tables while lounge B had two table lamps. All six of the table lamps had shades and sat on pedestal bases.

**Tables**

Tables used for various purposes were found in four of the five lounges. Home A had two 30 inch high tables used during activities and for seating during unscheduled times. A low round coffee table was provided in lounge B while two 30 inch tables were available in lounge C. Two rectangular tables with six chairs surrounding each one were found in home D. Lounge E had two coffee tables, two 30 inch tables pushed together in the center of the room, another 30 inch tables for use as a reading table, and a fourth 30 inch table for building puzzles.

**Type of Seating**

Within the five lounges there were 117 available
seats for use by residents. Because wheelchairs are not permanent pieces of furniture they were not counted as seats available for selection. The available seats fell into four basic categories: (1) chairs with padded seats, backs and arms and metal legs, (2) large cushioned chairs with padding on the seats, backs, and throughout the chair, (3) rockers with padded seats and backs on a wooden frame or upholstered rockers with cushioning throughout the chair, and (4) sofas with varying numbers of seats.

The distribution for the four types of seats is shown in Table 3. Of the 117 available seats, 87 were chairs with padded seats, backs and metal legs. Five chairs could be classified as rockers and six as large cushioned chairs. Three of the lounges had two sofas each while a fourth lounge had one sofa. There were no sofas in the fifth lounge. Vinyl as well as fabric upholstery were used as chair coverings. Vinyl was the predominant choice with 105 chairs upholstered in vinyl and only twelve in fabric.

The arrangement of the furniture in the lounge is also listed in Table 3. The side-by-side arrangements were the most widely seen with seventy-two chairs in a position to seat individuals engaged in side-by-side interaction. The 90 degree angle arrangements were found less often than side-by-side with fifty-six seats.
positioned for possible selection by individuals. Face-
to-face arrangements followed 90 degree arrangements with
thirty-nine possible seats in the face-to-face arrangement. The back-to-back arrangements occurred least often with
only eleven possible seats in that position.

Findings Related to the Hypotheses

The social interactions occurring among institution-
alized elderly in the lounges of their housing insti-
tution were recorded using three instruments: (1) the
Floorplan, (2) the Social Interaction Checklist, and
(3) the Furniture Arrangement Checklist. Copies of the
instruments are provided in Appendix A.

A scale floorplan of each lounge was drawn and in-
cluded architectural features, nonarchitectural features,
and all furniture. Each seat on the floorplan was
numbered for use in recording the seats in which
interactions occurred. A separate copy of the floorplan
was used daily to enable any changes in seating ar-
rangements and the addition of wheelchairs to be noted.

The second measurement tool, the Social Interaction
Checklist (SIC), was used to record the numbers of the
seats in which social interaction occurred. The seat
numbers were recorded under one of the four categories
for length and type of interaction. Wheelchairs, de-
signated by letters, were also recorded on the SIC under
one of the four categories.
The third instrument, the Furniture Arrangement Checklist (FAC), was used to further categorize the data recorded on the SIC. For this study, the seating possibilities listed on the FAC have been divided into four basic arrangements: (1) face-to-face, (2) 90 degree, (3) side-by-side, and (4) back-to-back. Data taken from the SIC noting the seat numbers which were occupied by interacting individuals were placed on the FAC in the appropriate categories. FAC categories shown in Tables 4-8 included the four basic furniture arrangements, the distance between seats, and the length and type of interaction.

Table 9 summarizes Tables 4-8 and shows the total number of interactions within the four basic types of furniture arrangements. Forty-one interactions occurred in the face-to-face arrangements, 77 in the 90 degree angle arrangements, and 54 in the side-by-side arrangements for a total of 171 interaction. There were no interactions occurring in the back-to-back arrangements.

All interactions fell into the verbal categories with 135 verbal sustained interactions and 36 verbal brief interactions. There were no nonverbal interactions as defined by this study.

The distance at which these interactions took place was obtained from data recorded on the FAC. From 171 interactions, 168 took place between individuals
seated at a distance of eight feet or less.

Table 10 lists the number of seats available in the five lounges for each of the four basic types of furniture arrangements as well as the number of verbal sustained and the total number of interactions occurring within those seats. Because of the difference among lounges in the availability of each of the four furniture arrangements, face-to-face, 90 degree, side-by-side, and back-to-back, the frequency of interactions occurring within each arrangement could not be analyzed without the results favoring those seats that were most available. To adjust for the difference in availability, interactions per seat were obtained by dividing the number of interactions occurring within an arrangement into the number of seats available in that arrangement. Then, sustained and total interactions per seat could be used in the statistical analysis to determine those arrangements that encourage social interaction between residents.

While interactions were recorded, the researcher also recorded the seats occupied with residents not involved in any type of interaction. These residents were seated alone or near other residents in various areas of the lounge. The number of noninteracting residents totalled 109 with 22 in lounge A, 27 in lounge B, 25 in lounge C, 15 in lounge D, and 20 in lounge E.
### TABLE 4
FREQUENCY OF SOCIAL INTERACTION BY FURNITURE ARRANGEMENT USING THE FURNITURE ARRANGEMENT CHECKLIST - HOME A

<table>
<thead>
<tr>
<th></th>
<th>Face-to-Face</th>
<th>90 Degree</th>
<th>Side-by-Side</th>
<th>Back-to-Back</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;8’ &gt;8’ T</td>
<td>&lt;8’ &gt;8’ T</td>
<td>&lt;8’ &gt;8’ T</td>
<td>&lt;8’ &gt;8’ T</td>
</tr>
<tr>
<td>Verbal Sustained</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Nonverbal Sustained</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Verbal Brief</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Nonverbal Brief</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>18</td>
</tr>
</tbody>
</table>

Number of seats occupied with noninteractors- 22

### TABLE 5
FREQUENCY OF SOCIAL INTERACTION BY FURNITURE ARRANGEMENT USING THE FURNITURE ARRANGEMENT CHECKLIST - HOME B

<table>
<thead>
<tr>
<th></th>
<th>Face-to-Face</th>
<th>90 Degree</th>
<th>Side-by-Side</th>
<th>Back-to-Back</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;8’ &gt;8’ T</td>
<td>&lt;8’ &gt;8’ T</td>
<td>&lt;8’ &gt;8’ T</td>
<td>&lt;8’ &gt;8’ T</td>
</tr>
<tr>
<td>Verbal Sustained</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Nonverbal Sustained</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Verbal Brief</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Nonverbal Brief</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>17</td>
</tr>
</tbody>
</table>

Number of seats occupied with noninteractors- 27
TABLE 6
FREQUENCY OF SOCIAL INTERACTION BY FURNITURE ARRANGEMENT USING THE FURNITURE ARRANGEMENT CHECKLIST - HOME C

<table>
<thead>
<tr>
<th></th>
<th>Face-to-Face</th>
<th></th>
<th>90 Degree</th>
<th>Side-by-Side</th>
<th>Back-to-Back</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;8' &gt;8' T</td>
<td>&lt;8' &gt;8' T</td>
<td>&lt;8' &gt;8' T</td>
<td>&lt;8' &gt;8' T</td>
<td>&lt;8' &gt;8' T</td>
</tr>
<tr>
<td><strong>Verbal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustained</td>
<td>8 0 8</td>
<td>13 0 13</td>
<td>6 0 6</td>
<td>0 0 0</td>
<td>27</td>
</tr>
<tr>
<td><strong>Nonverbal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustained</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Verbal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brief</td>
<td>0 0 0</td>
<td>4 0 4</td>
<td>8 0 8</td>
<td>0 0 0</td>
<td>12</td>
</tr>
<tr>
<td><strong>Nonverbal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brief</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>8 0 8</td>
<td>17 0 17</td>
<td>14 0 14</td>
<td>0 0 0</td>
<td>39</td>
</tr>
</tbody>
</table>

Number of seats occupied with noninteractors - 25

TABLE 7
FREQUENCY OF SOCIAL INTERACTION BY FURNITURE ARRANGEMENT USING THE FURNITURE ARRANGEMENT CHECKLIST - HOME D

<table>
<thead>
<tr>
<th></th>
<th>Face-to-Face</th>
<th></th>
<th>90 Degree</th>
<th>Side-by-Side</th>
<th>Back-to-Back</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;8' &gt;8' T</td>
<td>&lt;8' &gt;8' T</td>
<td>&lt;8' &gt;8' T</td>
<td>&lt;8' &gt;8' T</td>
<td>&lt;8' &gt;8' T</td>
</tr>
<tr>
<td><strong>Verbal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustained</td>
<td>7 0 7</td>
<td>11 0 11</td>
<td>7 0 7</td>
<td>0 0 0</td>
<td>25</td>
</tr>
<tr>
<td><strong>Nonverbal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustained</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Verbal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brief</td>
<td>0 0 0</td>
<td>2 0 2</td>
<td>1 0 1</td>
<td>0 0 0</td>
<td>3</td>
</tr>
<tr>
<td><strong>Nonverbal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brief</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7 0 7</td>
<td>13 0 13</td>
<td>8 0 8</td>
<td>0 0 0</td>
<td>28</td>
</tr>
</tbody>
</table>

Number of seats occupied with noninteractors - 15
TABLE 8
FREQUENCY OF SOCIAL INTERACTION BY FURNITURE ARRANGEMENT USING THE FURNITURE ARRANGEMENT CHECKLIST - HOME E

<table>
<thead>
<tr>
<th>Face-to-Face</th>
<th>90 Degree</th>
<th>Side-by-Side</th>
<th>Back-to-Back</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤8' &gt;8'</td>
<td>≤8' &gt;8'</td>
<td>≤8' &gt;8'</td>
</tr>
<tr>
<td>Verbal</td>
<td>17</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Nonverbal</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Verbal</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Nonverbal</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>1</td>
<td>20</td>
</tr>
</tbody>
</table>

Number of seats occupied with noninteractors - 20

TABLE 9
FREQUENCY OF SOCIAL INTERACTION BY FURNITURE ARRANGEMENT USING THE FURNITURE ARRANGEMENT CHECKLIST - TOTAL

<table>
<thead>
<tr>
<th>Face-to-Face</th>
<th>90 Degree</th>
<th>Side-by-Side</th>
<th>Back-to-Back</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤8' &gt;8'</td>
<td>≤8' &gt;8'</td>
<td>≤8' &gt;8'</td>
</tr>
<tr>
<td>Verbal</td>
<td>37</td>
<td>0</td>
<td>37</td>
</tr>
<tr>
<td>Nonverbal</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Verbal</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Nonverbal</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>2</td>
<td>41</td>
</tr>
</tbody>
</table>

Number of seats occupied with noninteractors - 109
## Table 10
### SOCIAL INTERACTIONS PER SEAT

<table>
<thead>
<tr>
<th>Home</th>
<th>Furniture Arrangement Type</th>
<th>Seats Available in Arrangement (No.)</th>
<th>Sustained Interactions (No.)</th>
<th>Sustained Interactions Per Seat (No.)</th>
<th>Total Interactions (No.)</th>
<th>Total Interactions Per Seat (No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>F-F</td>
<td>2</td>
<td>3</td>
<td>1.5</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>90 Degree</td>
<td>9</td>
<td>13</td>
<td>1.4</td>
<td>19</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>S-S</td>
<td>5</td>
<td>8</td>
<td>1.6</td>
<td>11</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>B-B</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>F-F</td>
<td>4</td>
<td>2</td>
<td>0.5</td>
<td>3</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>90 Degree</td>
<td>13</td>
<td>14</td>
<td>1.1</td>
<td>17</td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td>S-S</td>
<td>18</td>
<td>8</td>
<td>.44</td>
<td>12</td>
<td>.66</td>
</tr>
<tr>
<td></td>
<td>B-B</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>C</td>
<td>F-F</td>
<td>4</td>
<td>8</td>
<td>2.0</td>
<td>8</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>90 Degree</td>
<td>7</td>
<td>13</td>
<td>1.8</td>
<td>17</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>S-S</td>
<td>14</td>
<td>6</td>
<td>.42</td>
<td>14</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>B-B</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>D</td>
<td>F-F</td>
<td>12</td>
<td>7</td>
<td>.58</td>
<td>7</td>
<td>.58</td>
</tr>
<tr>
<td></td>
<td>90 Degree</td>
<td>14</td>
<td>11</td>
<td>.78</td>
<td>13</td>
<td>.92</td>
</tr>
<tr>
<td></td>
<td>S-S</td>
<td>15</td>
<td>7</td>
<td>.46</td>
<td>8</td>
<td>.53</td>
</tr>
<tr>
<td></td>
<td>B-B</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E</td>
<td>F-F</td>
<td>17</td>
<td>17</td>
<td>1.0</td>
<td>20</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>90 Degree</td>
<td>13</td>
<td>10</td>
<td>.76</td>
<td>11</td>
<td>.85</td>
</tr>
<tr>
<td></td>
<td>S-S</td>
<td>20</td>
<td>8</td>
<td>.4</td>
<td>9</td>
<td>.45</td>
</tr>
<tr>
<td></td>
<td>B-B</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
A two-way analysis of variance was used to determine if a significant difference existed between the mean number of total and sustained interactions per seat in three of the four furniture categories (face-to-face, 90 degree, and side-by-side) and between the mean number of social interactions in the five homes. The back-to-back means were tested separately using a t-test because they contained a constant zero value which distorts analysis of variance. A t-test was also used to determine if a significant difference existed between the distance (under eight feet and over eight feet) at which interactions took place.

The hypotheses are stated in null form.

The analysis of variance testing the mean number of total social interactions per seat and the mean number of total social interactions in the five homes is presented in Table 11.

**TABLE 11**

ANALYSIS OF VARIANCE FOR TOTAL INTERACTIONS IN F-F, 90 DEGREE, & S-S FURNITURE ARRANGEMENTS

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>2</td>
<td>.732</td>
<td>.366</td>
<td>2.580</td>
</tr>
<tr>
<td>Home</td>
<td>4</td>
<td>4.069</td>
<td>1.017</td>
<td>7.173*</td>
</tr>
<tr>
<td>Residual</td>
<td>8</td>
<td>1.135</td>
<td>.142</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>5.936</td>
<td>.424</td>
<td></td>
</tr>
</tbody>
</table>

*significant at .01 level
The analysis of variance test indicated that the mean number of total social interactions per seat in the three furniture arrangements were not significantly different. The test indicated a significant difference ($p<.01$) between the mean number of total social interaction within the five homes.

**Hypothesis I.** There will be no significant difference between the total interactions per seat occurring in face-to-face arrangements when compared to 90 degree angle and side-by-side arrangements. This hypothesis was supported by the analysis and can be accepted.

**Hypothesis II.** There will be no significant difference between the total interactions per seat occurring in the 90 degree angle furniture arrangements when compared to face-to-face and side-by-side arrangements. This hypothesis was supported by the analysis and can be accepted.

**Hypothesis III.** There will be no significant difference between the total interactions per seat occurring in the side-by-side furniture arrangements when compared to face-to-face and 90 degree angle arrangements. This hypothesis was supported by the analysis and can be accepted.

The back-to-back arrangements could not be included in the analysis of variance because of the constant zero value. However, it can be determined if the
mean number of total and sustained interactions occurring in back-to-back arrangements are significantly different from the face-to-face, 90 degree, and side-by-side arrangements through the use of a t-test. The t-test for total interactions is presented in Table 12.

TABLE 12
T-TEST CONSTRASTING MEAN INTERACTIONS PER SEAT IN F-F, 90 DEGREE, AND S-S WITH B-B ARRANGEMENTS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>T-Value</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face</td>
<td>1.2200</td>
<td>.5586</td>
<td>4.88*</td>
<td>4</td>
</tr>
<tr>
<td>90 Degree</td>
<td>1.5200</td>
<td>.6943</td>
<td>4.90*</td>
<td>4</td>
</tr>
<tr>
<td>Side-by-side</td>
<td>.9800</td>
<td>.7120</td>
<td>3.08*</td>
<td>4</td>
</tr>
</tbody>
</table>

*significant at .05 level

The t-value for face-to-face, 90 degree, and side-by-side are all greater than the tabular value of 2.132 indicating the interactions per seat occurring in these arrangements are significantly different than the interactions occurring in back-to-back arrangements. Hypothesis IV. There will be no significant difference between the total interactions per seat occurring in back-to-back arrangements when compared to face-to-face, 90 degree, or side-by-side arrangements. The hypothesis was not supported by the analysis and can not be accepted.

The analysis of variance testing the mean number of sustained social interactions per seat and the number of sustained interactions in the five homes is presented in
Table 13.

TABLE 13
ANALYSIS OF VARIANCE FOR SUSTAINED INTERACTIONS IN F-F, 90 DEGREE, & S-S FURNITURE ARRANGEMENTS

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>2</td>
<td>.809</td>
<td>.405</td>
<td>2.588</td>
</tr>
<tr>
<td>Home</td>
<td>4</td>
<td>2.177</td>
<td>.544</td>
<td>3.482</td>
</tr>
<tr>
<td>Residual</td>
<td>8</td>
<td>1.251</td>
<td>.156</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>4.237</td>
<td>.303</td>
<td></td>
</tr>
</tbody>
</table>

no significant findings at .05

The analysis of variance test indicated that the mean number of sustained interactions per seat in the three furniture arrangements were not significantly different. In addition, the test indicated no significant difference between the mean number of sustained interactions within the five homes. However, the results did show a large amount of variability among the five homes.

Hypothesis V. There will be no significant difference between the sustained interactions per seat occurring within face-to-face arrangements when compared to 90 degree angle and side-by-side arrangements. This hypothesis was supported by the analysis and can be accepted.
Hypothesis VI. There will be no significant difference between the sustained interactions per seat occurring within the 90 degree angle furniture arrangements when compared to face-to-face and side-by-side arrangements. This hypothesis was supported by the analysis and can be accepted.

Hypothesis VII. There will be no significant difference between the sustained interactions per seat occurring in the side-by-side furniture arrangements when compared to face-to-face and 90 degree angle arrangements. This hypothesis was supported by the analysis and can be accepted.

A t-test to determine if sustained interactions in back-to-back arrangements are significantly different from sustained interactions in face-to-face, 90 degree, and side-by-side arrangements is presented in Table 14.

**TABLE 14**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>T-Value</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face</td>
<td>1.220</td>
<td>.6301</td>
<td>3.97*</td>
<td>4</td>
</tr>
<tr>
<td>90 Degree</td>
<td>1.1800</td>
<td>.4266</td>
<td>6.19*</td>
<td>4</td>
</tr>
<tr>
<td>Side-by-side</td>
<td>.6600</td>
<td>.5273</td>
<td>2.80*</td>
<td>4</td>
</tr>
</tbody>
</table>

*significant at .05 level
The t-value for face-to-face, 90 degree, and side-by-side are all greater than the tabular value of 2.132 indicating the interactions per seat occurring in these arrangements are significantly different than the interactions occurring in back-to-back arrangements.

Hypothesis VIII. There will be no significant difference between the sustained interactions per seat occurring in back-to-back arrangements when compared to face-to-face, 90 degree, or side-by-side arrangements. The hypothesis is not supported by the analysis and cannot be accepted.

A t-test was used to test for a significant difference between total and sustained interactions occurring in furniture arrangements spaced eight feet apart or less and those occurring in furniture arrangements spaced over eight feet apart. The t-test for total interactions is presented in Table 15.

**TABLE 15**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>T-Value</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 8 ft.</td>
<td>0.6000</td>
<td>0.548</td>
<td>14.47*</td>
<td>4</td>
</tr>
<tr>
<td>&gt; 8 ft.</td>
<td>33.6000</td>
<td>5.079</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*significant at .05 level
The value of $14.47$ is greater than the tabular value of $2.132$ indicating a significant difference between interactions occurring in arrangements at a distance of eight feet or less and those over eight feet.

**Hypothesis IX.** There will be no significant difference between the mean number of total social interactions occurring in furniture arrangements spaced eight feet apart or less when compared to total social interactions occurring in furniture arrangements spaced greater than eight feet apart. The hypothesis is not supported by the analysis and can not be accepted.

The t-test testing for a significant difference between sustained interactions occurring within furniture arrangements spaced eight feet apart or less and those occurring over eight feet apart is presented in Table 16.

**TABLE 16**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>T-Value</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\leq 8 \text{ ft.}$</td>
<td>$0$</td>
<td>$0$</td>
<td>$13.02^*$</td>
<td>$4$</td>
</tr>
<tr>
<td>$&gt;8 \text{ ft.}$</td>
<td>$27.0000$</td>
<td>$4.637$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*significant at .05 level
The t-value of 13.02 is greater than the tabular value of 2.132 indicating a significant difference between sustained interactions occurring in furniture arrangements spaced at a distance of eight feet or less and those spaced at a distance over eight feet.

**Hypothesis X.** There will be no significant difference between the mean number of sustained social interactions occurring in furniture arrangements spaced eight feet apart or less when compared to sustained social interactions occurring in furniture arrangements spaced greater than eight feet apart. The hypothesis is not supported by the analysis and can not be accepted.

**Summary of the Hypotheses**

The analysis of variance test indicated no significant differences (\( p < .05 \)) between total or sustained interactions per seat in face-to-face, 90 degree angle, or side-by-side arrangements. However, the t-tests indicated significant differences between total and sustained interactions per seat when comparing back-to-back arrangements with face-to-face, 90 degree, and side-by-side arrangements. That is, although the furniture arrangements were not significantly different from each other, each arrangement was found to be significantly different from the back-to-back arrangement.
A significantly (p < .05) larger number of total and sustained interactions occurred within eight feet or less when compared to those interactions occurring at distances over eight feet.

In addition, a significant difference (p < .01) was found when comparing total social interactions per seat among the five homes.
Additional Findings Related to Behavior and Interaction

Additional findings related to the behavior and interaction patterns of residents are based on information obtained during discussions with administrators and observation sessions. These findings were not analyzed statistically but will be discussed below. They have been divided into eight categories: (1) seat selection, (2) tables and interaction, (3) visual and physical access to other areas, (4) crowding and interaction, (5) lack of interaction, (6) planned activities, (7) awareness of daily schedules, and presence of the researcher.

Seat Selection

While 87 of the 117 seats available to residents were vinyl chairs with padded seats and backs and metal legs, the more comfortable large chairs and rockers with padded seats, backs, and arms and cushioning throughout were the first chosen and the seats occupied more often by the residents using the lounge. Residents occupying these chairs often remained in the lounge for longer periods of time than residents occupying other types of chairs. There were no apparent preferences among residents for selecting sofas over any other type of seating.

Tables and Interaction

Four of the five homes had 30 inch tables in some part of the lounge. The seats located around the tables
were selected less often by noninteracting residents. Only 13 of 109 noninteracting individuals selected seats located around tables. Interactors were distributed proportionately between tables and the other available seats.

**Visual and Physical Access to Other Areas**

The visual and physical accessibility of residents varied with the physical layout of the five homes.

The lounge in home A was physically accessible to other areas of the building. The doors leading to the hall and thus the entrances and exits of people leading to and from the lounge appeared to interest the residents seated in the lounge despite the fact that the doors to the lounge closed after each use. Residents in home A did not position themselves toward any dominant focal point.

In lounge B, the residents had visual access to the parking lot, the front door, and the nurses' station. Home B had a great amount of visual stimulation in the form of human activity. The lounge was the center of activity and residents appeared very interested in the activity in the parking lot.

The main visual and physical attractions in lounge C were the doors to the hall and patio. The observations took place during the summer months enabling residents to use the patio. Traffic from the hallway, through the
lounge and to the patio provided stimulation for residents using the lounge. Residents watched those moving back and forth from the hall and patio even if they were seated and not actively involved in the traffic flow.

The lounge was the center of activity in home D. The nurses' station, dining room and front door all led directly to the lounge. Residents could observe and participate in a variety of activities with others.

The main attractions in lounge E were the hall door, the hallway outside the lounge, and the gift shop. Nurses, residents, and visitors walked by regularly and occasionally visited the gift shop in the lounge. Gardeners working outside the window were also of interest to the residents.

In summary, the seats with a view of some activity were selected before those seats with no visual stimulation. The comings and goings of residents, staff, and guests appeared to be of great interest to the residents. Physical accessibility of residents to various areas of the buildings occasionally caused congestion. The nurses' stations were popular and areas of congregation for residents. Congestion at the nurses's stations, at the intersection of hallways and doorways was reported as a problem in three of the homes.

Wheelchairs contributed to overcrowding in at least two of the homes by slowing traffic of other residents
through the lounge. Wheelchairs were often positioned in front of windows by staff members.

Two of the five homes had televisions located in the lounges. The furniture was not arranged to facilitate television watching in either lounge. In both lounges, a television could be seen and heard from almost any area of the room. Often, the television would be on with none of the residents watching it.

Crowding and Interaction

Crowding in the lounges also had an affect on the interaction of the residents. Lounge D was especially crowded making traffic through the lounge difficult. Residents complained and occasionally pushed other residents out of the way as they located a spot in the lounge. This complaining was recorded as an interaction by the researcher, but these residents often had no friendly sustained interactions with people once they reached their destination in the lounge.

Lack of Interaction

While recording the type of interactions occurring among residents the researcher also noted how many residents were seated in the lounge without interacting. During the one-hundred hours of observation, 109 residents were seated in the lounges without participating in any type of interaction. On several occasions, for two to three hours, as many as 15 residents would be
occupying a lounge with no interactions occurring. Through the duration of the observation sessions, 102 interactions occurred involving at least two people while 109 residents occupied chairs in the lounge without interacting at all.

After studying the seating selection of noninteracting residents, the most frequently selected seats were those positioned around the perimeter of the room. Eighty-four of the 109 noninteracting residents chose perimeter seats. Those seats positioned around tables were the least frequently chosen with only 13 of 109 noninteracting residents selecting table seats. The remaining 12 noninteractors chose seats in the middle of the lounge. Because this study was not designed to test the seat preference of noninteractors, conclusive results can not be obtained. Table 17 shows the selection of seats by noninteractors.
TABLE 17
SEAT SELECTION OF NONINTERACTING RESIDENTS

<table>
<thead>
<tr>
<th></th>
<th>Perimeter Seatsa Selected (No.)</th>
<th>Middle Seatsa Selected (No.)</th>
<th>Table Seatsa Selected (No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home A</td>
<td>13</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Home B</td>
<td>25</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Home C</td>
<td>22</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Home D</td>
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<tr>
<td>Home E</td>
<td>16</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Totalb</td>
<td>84</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Availablec Seats</td>
<td>65</td>
<td>32</td>
<td>40</td>
</tr>
</tbody>
</table>

a perimeter seats - those located around the perimeter of the lounge; middle seats - those located in the middle of the lounge but not around tables; table seats - those positioned around tables

b total - noninteractors observed during the entire one-hundred hours of observation. Residents came and went making the total larger than the number of available seats

c available seats - the number of seats available in the lounges in the perimeter, middle, and table locations

Planned Activities

The researcher tried to avoid scheduling observation sessions during activities planned by the institution. However, some institutions have activities scheduled every day and therefore the researcher was not able to avoid these activities. Although social interaction occurred during these planned activities, the researcher
did not include any of these interactions in the data used in analysis. However, there was some interesting behavior noted during these times. The increase in interaction during planned activities was greatest between the staff member supervising the activity and those residents participating in the events. Unfortunately, even with a room full of residents and an activity going on, the increase in interactions between residents was very small. Most residents sat and watched the activity quietly until it was their turn to participate.

Awareness of Daily Schedules

Residents appeared to have a keen sense of when the next meal or activity would take place. Residents usually gathered for meals about fifteen minutes before serving time. Mealtime was often the highest point of interaction during the day. Unfortunately, residents usually went to the dining room before mealtime making their interactions outside the scope of this research. Four of the five homes had assigned seats for mealtimes. Increased interaction could be due to the familiarity of individuals to each other after daily contact at mealtime. Often residents helped others or encouraged other residents to take their appropriate seats. Residents were also aware of the time the daily paper or medicine would be delivered. At one home residents went to the lounge to wait for the paper about fifteen minutes before it arrived.
Presence of the Researcher

The presence of the researcher had little affect on the residents. Five people, on various occasions, asked why she was there while others would stare or smile for long periods of time. When asked why she was in the lounge, the researcher replied that she was studying the interior design of buildings. On two occasions an interaction between the researcher and a resident began to interfere with the researcher's observation. The researcher excused herself, left the room, and returned a few minutes later to find the residents conversing or occupied with another activity.
CHAPTER V. SUMMARY AND CONCLUSION

The primary purpose of the study was to examine how furniture arrangements in lounges of institutions for the elderly affect the social interaction among the residents. Based on the furniture arrangements that encourage social interaction, recommendations will be made for the placement of furniture in lounges of institutions for the elderly. The primary objectives of the study were: (1) to determine the frequency with which social interaction occurs within four types of furniture arrangements in the lounges of institutions for the elderly, (2) to determine the length (brief or sustained) and the type (verbal or nonverbal) of social interaction occurring among the elderly in four basic types of furniture arrangements, and (3) to determine the affect of distance between individuals during interactions while seated in the four basic types of furniture arrangements.

Summary of the Procedure

Development of the Measurement Tools

The recording of social interaction among institutionalized elderly required three measurement tools: (1) the Floorplan, (2) the Social Interaction Checklist, and (3) the Furniture Arrangement Checklist. A scale floorplan of each lounge was drawn and included architectural and nonarchitectural features, and all furniture.
Each seat on the floorplan was numbered for use in recording the seats in which social interaction occurred. A separate copy of the floorplan was used daily to enable any changes in seating to be noted as well as the addition of wheelchairs.

The second measurement tool, the Social Interaction Checklist (SIC) was used to record the numbers of the seats involved in each social interaction. The seat numbers corresponding to those seats involved in each interaction were obtained from the floorplan.

The third instrument, the Furniture Arrangement Checklist (FAC), was used to further categorize the data recorded on the SIC. For this study, the seating possibilities listed on the FAC were divided into rows containing the four basic furniture arrangements: (1) face-to-face, (2) 90 degree, (3) side-by-side, and (4) back-to-back and columns categorizing distances and length and type of interaction. Data taken from the SIC noting the seat numbers which were occupied by interacting individuals were placed on the FAC in the appropriate categories.

Summary of Selection of Sites for Data Collection

A list of sixty-two housing institutions for the elderly within a fifty mile radius of Corvallis was obtained from the State of Oregon Center for Human Services, Department of Senior Services. The selection of homes for use in this study was based on five criteria:
(1) the number of residents living in the institution, (2) the availability of one main lounge, (3) the type of care offered, (4) permission to use the institution in the study, and (5) the availability of a variety of furniture arrangements. From the list of institutions meeting the five criteria listed above, five were randomly chosen as sites for data collection.

Data Collection

Social interactions were recorded by placing the seat number obtained from the floorplans on the Social Interaction Checklist in the appropriate category. Later, these interactions were transferred and further classified on the Furniture Arrangement Checklist. The researcher was responsible for all observation and recording. Each lounge was observed on two randomly assigned weekdays from 9 A.M. until 7 P.M. for a total of twenty hours per lounge.

Analyses of Data

Descriptive data pertaining to the selection of homes for observation and the characteristics of the lounges were listed for each institution. Analysis of variance and t-tests were used to test for significant differences in the number of interactions occurring among individuals seated in the four furniture arrangements. In addition, t-tests were used to test for significant differences between interactions occurring within eight
feet or less and those occurring over eight feet.

Summary of the Findings

Findings Related to the Five Criteria Used in the Selection of Homes for Observation

The sixty-two homes for the elderly within a fifty mile radius of Corvallis were evaluated using five criteria: (1) the number of residents living in the institution, (2) the availability of one main congregate lounge, (3) the type of care offered by the institution, (4) permission to use the institution in the study, and (5) the availability of a variety of furniture arrangements. Nine of the sixty-two homes met all of the criteria listed above. Of the remaining nine homes, five were randomly selected for observation.

Findings Related to the Characteristics of the Five Lounges

While the social interaction in the lounges was recorded, several other characteristics were observed: (1) architectural features, (2) visual and physical access to other areas of the building, (3) windows, (4) materials used, (5) colors, (6) lighting, (7) tables, and (8) type of seating.

The various architectural features of the lounges can be seen on the floorplans in Appendix A. These features included wall dividers, archways, exposed beams and fireplaces.
The visual and physical access influencing the interaction patterns of the residents included access to front windows, doors leading outside the building, entry doors, hallways, nurses' stations, and the dining room. These features vary from lounge to lounge and specific features can be seen on the floorplans in Appendix A.

All of the five lounges had windows on one wall. The views available to residents included yards, gardens, patios, parking lots, and the street outside.

Various flooring and wall covering materials were used throughout the lounges. Four of the five lounges had walls that were painted while one lounge was wallpapered. Hard floors were found in three of the lounges, carpet in one lounge, and a combination of carpet and tile in another lounge.

Four of the five lounges did not appear to have a dominant color scheme or theme. Home A was the exception with yellow and orange colors used throughout the lounge.

Three of the five lounges used only overhead lighting. Four table lamps were available in lounge A and two table lamps in lounge B. Both lounge A and B had overhead lighting.

Both high and low tables were seen in the lounges. Ten dining height tables and three low coffee tables were available.
Four basic types of seating were provided in the lounges: (1) chairs with padded seats, backs, and metal legs and arms, (2) large padded chairs with cushions on the seats, backs, and arms, (3) padded rocking chairs, and (4) sofas. Although four types of chairs were available, 87 of the 117 available seats were chairs with padded seats, backs, and metal legs and arms. There were six large padded chairs with cushions on the seats, backs, and arms, five rocking chairs, and seven sofas. Of the 117 chairs, 105 vinyl covered and 12 were covered with fabric.

Findings Related to the Hypotheses

The analysis of variance test was used to determine if a significant difference existed between the means of total interactions occurring in face-to-face, 90 degree angle, and side-by-side arrangements. The test showed no significant difference among the three arrangements.

T-tests were used to determine if significant differences existed between the back-to-back arrangement and the face-to-face, 90 degree, and side-by-side arrangements. Since the back-to-back value was zero, the three other arrangements were tested to see if they were equal to zero. The results showed face-to-face, 90 degree angle, and side-by-side were all significantly greater than zero or back-to-back.
The analysis of variance test was used to determine if a significant difference existed between the means of sustained interactions occurring in face-to-face, 90 degree angle, and side-by-side arrangements. The test showed no significant difference among the three arrangements.

T-tests were used to determine if significant differences existed between the back-to-back arrangement and the face-to-face, 90 degree angle and side-by-side arrangement during sustained interactions. Since the back-to-back value was zero, the three other arrangements were tested to see if they were equal to zero. The results showed face-to-face, 90 degree, and side-by-side were all significantly greater than zero or back-to-back.

A t-test was used to determine if a significant difference existed between total interactions occurring within eight feet or less and those occurring over eight feet. The same test was done for sustained interactions. Results showed a significantly greater number of total and sustained interactions occurring within eight feet or less.
Summary of Additional Findings
Related to Behavior and Interaction

The findings are based on information obtained during discussions with administrators and during observation sessions. These findings have been divided into eight categories: (1) seat selection, (2) tables and interaction, (3) visual and physical access to other areas, (4) crowding and interaction, (5) lack of interaction, (6) planned activities, (7) awareness of daily schedules, and (8) presence of the researcher.

The seats chosen first and occupied for longer periods of time were large chairs with padded seats, backs, and arms and cushioning throughout the chair and padded rockers.

Four of the five homes had dining height tables in some area of the room. Two of the lounges had coffee-type tables. The seats located around the tables were selected less often by noninteracting residents.

The location of the lounge within each facility varied within each home. The physical and visual accessibility of residents to areas of the home also varied. Generally, the seats positioned with a view of some type of activity were selected before those seats with no visual stimulation. Doors leading to and from the lounge and outside the building were of interest to the residents as well as the traffic in the hallways,
nurses' stations, and activity outside the windows. Physical accessibility of residents to various areas of the building occasionally caused congestion. The nurses' stations were common areas of congestion.

Crowding was predominant in one of the lounges making mobility difficult. Residents complained and occasionally pushed other residents out of the way as they located a spot in the lounge.

While recording the type of interactions among residents the researcher also noted how many residents were seated in the lounge without interacting. During the one-hundred hours of observation, 109 residents were seated in the lounges without interacting. Therefore, while 102 interactions involving two people occurred there were still 109 people that were sitting without interacting. After studying the seating selection of noninteracting residents, the seats chosen most often were those positioned around the perimeter of the room with a very small number seated around tables.

There was some interesting behavior observed during activities planned by the institution. The increase in interaction during planned activities was greatest between the staff member supervising the activity and those residents participating in the events. Unfortunately, even with a full room of residents and a
planned activity going on, the increase in interactions between residents was very small.

Residents were very aware of when the next meal or activity would take place. Mealtimes were usually the highpoint of interaction during the day. Residents were also aware of the time the daily paper or medicine would be delivered.

The presence of the researcher had little affect on the residents. On only two occasions did the interaction between the researchers and a resident begin to interfere with the researcher's observation.
Conclusion

The observations and findings of this study indicate that various design aspects in the lounges for the elderly affect the social interaction of the residents.

The location of the lounge within the building and the physical and visual accessibility of the lounge to other areas appeared to affect the interaction of residents. Nurses' stations, hallways, intersections, dining areas, entryways, windows and doors, and other building features located near the lounge were especially interesting to residents. These findings are similar to those by Lawton, Liebowitz, and Charon (1968). They studied a lounge remodeled to allow constant visual communication with other areas of the lounge and surrounding areas. Results showed greater use of the lounge and surrounding areas after the remodeling. Lawton (1970) also suggested a sitting room located near the center of activity for maximum observation by residents.

A large number of noninteracting individuals were observed in this study. Sommer and Ross (1958) also found a large percentage of residents seated in the lounge at the same time with no interactions occurring. In the study, during one-hundred hours of observation, 109 residents were seated in the lounge without interacting.

When studying the seating selection of individuals, Sommer (1959) found angle and distance to be significant factors in affecting interaction. In the present study,
during one-hundred hours of observation, 109 residents were seated in the lounge without interacting.

When studying the seating preferences of individuals, Sommer (1959) found angle and distance to be significant factors in affecting interaction. In this study, significantly less interaction in back-to-back arrangements was found while no significant differences among face-to-face, 90 degree, and side-by-side arrangements.

In this study, interactions occurring within eight feet or less were significantly greater than those occurring at distances over eight feet. All sustained interactions in this study occurred in eight feet or less. DeLong (1970) agrees that distance is an adjustment often made by elderly to adjust for decreases in various sensory cues. There were no significant differences between interactions per seat occurring in face-to-face, 90 degree, and side-by-side arrangements. However, before adjusting for the availability of seating, a greater number of interactions were found in the 90 degree angle arrangements with side-by-side following, and face-to-face arrangement selected third. Sommer (1969) found angle to be significant with face-to-face arrangements selected more often for casual conversations, side-by-side for cooperative work, and a distant face-to-face for competitive situations.

The analysis of variance indicated no significant differences in total or sustained interactions occurring
in three of the four furniture arrangements. However, in the analysis of variance for total and sustained interaction (Table 11) home was found to be significantly different. The purpose of this study was not to test for variability among homes, but these findings can be helpful in designing future studies. The differences among homes may not have been as great if more homes had been selected for observation. One possible solution would have been to select all nine of the homes that met the qualifying criteria. Another option would have been to randomly assign three or four weekdays to each home and then look for consistencies in the interactions from day to day.
VI. RECOMMENDATIONS

Included in this section are: (1) recommendations for the design and layout, selection of materials, and placement of furniture in the lounges of homes for the elderly, (2) recommendations for use of the study, (3) recommendations for improvement of the study, and (4) recommendations for further research.

Recommendations for the Design and Layout, Selection of Materials, and Placement of Furniture

The primary purpose of this study was to examine how furniture arrangements in the lounges of institutions for the elderly affect the social interaction among the residents. Based on findings, recommendations will be made for the placement of furnishings within the lounges. In addition, other recommendations will be made for the design and selection of materials for use in the lounges.

Design and Layout

Residents tend to congregate in areas of high activity. However, these areas may become overcrowded and a problem for staff as well as wheelchairs. Therefore, areas of the facility where residents tend to congregate should be planned with ample room for wheelchairs and for residents to talk and watch others while still allowing room for staff mobility. Residents with mobility difficulties may feel discouraged from using the
lounge when there are obstacles in their way. Televisions, game tables, reading tables, and other attractions that may encourage residents to congregate should be placed away from the lounge doors and the traffic patterns should allow ample room for mobility.

Windows were located on one wall in all five of the lounges. In this study, it was difficult to determine how important the windows were to residents. However, residents appeared more attentive to the view outside when it involved some type of activity. For example, gardeners outside the window, or people coming and going from parking lots and entryways were of more interest to residents than a yard with no human activity.

**Selection of Materials**

Two types of floor coverings were seen in the lounges. The researcher received contrasting preferences in floor covering choices from the institution administrators. Hard surface floor coverings were preferred by some because of the ease in cleaning and removing odors. However, the tile floor can be very slippery when wet. Carpet, the other choice in floor covering, may hold odors and is more difficult to clean, but is not slippery when wet. Many elderly residents are incontinent which contributes to the odor problem as well as slippery floors. Therefore, institutions with hard surface floors must be prepared to clean the
floor often while institutions with carpet must shampoo on a regular basis. In addition, residents confined to wheelchairs often have difficulty manipulating their wheelchairs on carpet. A possible solution would be to use a hard surface floor covering with a nonskid finish or indoor/outdoor carpet with no backing. When selecting floor coverings, the designer would be advised to gather information on the type of care offered and the number of potentially incontinent residents.

Fabric upholstered chairs were selected by residents before vinyl covered chairs. However, 105 of the 117 available seats were vinyl rather than fabric. Several institution administrators reported that because vinyl was waterproof, and many of the patients were incontinent, vinyl was the only practical choice. Using cushions upholstered in the fabric selected by residents, while adding a waterproof layer under the fabric could result in a compromise between the residents and staff.

An interesting contrast was found when the type of seating available in the lounges was compared to the seating selected by the residents. While 87 of the 117 seats available to residents were vinyl chairs with padded seats and backs and metal legs, the seats selected most often were the large cushioned chairs and padded rockers. Therefore, to meet the preference of
the residents, larger cushioned chairs and padded rockers are recommended.

Placement of Furniture

All five of the homes had overhead lighting. Two of those five also provided table lamps. Residents in those lounges who chose to read usually selected chairs near a lamp. This study was not designed to study the lighting of lounges and specific conclusions can not be drawn from the results. However, the selection of seats near lamps raises the question of how many residents in the lounges without lamps were unhappy with the lighting conditions. Perhaps more residents would use the lounge if table lamps were provided.

The presence of tables appeared to have an impact on the interaction of residents. The location of individuals seated in the lounge, but not involved in interactions was recorded. After adjusting for the availability of seats around tables, results indicated the smallest percentage of noninteracting individuals were seated around tables. This study was not designed to study increased interaction due to the presence of tables and is not conclusive.

The study was designed to determine which of the four basic types of furniture arrangements encouraged social interaction. The interactions occurring in back-to-back arrangements were found to be significantly
less than face-to-face, 90 degree, and side-by-side interactions. Therefore, when designing lounges, furniture should not be placed in back-to-back positions. However, occasionally a back-to-back arrangement would occur as a result of smaller groupings of face-to-face, 90 degree, and side-by-side. These arrangements are recommended if residents seated in a back-to-back position still have the opportunity to interact with the adjoining arrangements. The results can not be used to make recommendations among the other three furniture arrangements.

Significantly more interactions were found to occur at distances of eight feet or less and all sustained interactions occurred at this distance. Therefore, groupings of furniture designed to encourage interaction should be placed within a distance of eight feet or less. In addition, chairs lined up around the perimeter of a room will limit the social interaction because many will be at distances greater than eight feet making the conversation group limited to the immediate side-by-side arrangement. Obviously, single chairs set away from others will not encourage interaction.

After studying the seat selection patterns of individuals who were not interacting it was found that 84 of 109 noninteracting individuals had chosen seats around the perimeter of the room. The smallest number of
noninteracting residents, 13 of 109, were seated around tables. However, this study was not designed to measure the significance of tables and therefore can not be considered conclusive.

The findings have been summarized to help establish guidelines for the designer in design and layout, the selection of materials, and the placement of furniture in the lounges. The specific needs of individuals may vary from institution to institution, and the designer may find himself with two clients: the client paying for the job and the final user of the space.

The importance of obtaining data on the needs of the user is important to the success of the design. The designer should not design thinking only of the residents or only of the administrators if he/she wants to please as many people as possible. A compromise between these two groups should be found. When discussing plans for a home with the paying client, an explanation backed by research, could be given to support those design features that will be beneficial to the residents. For example, when selecting chairs and seat coverings, meeting the needs of the client through the selection of larger comfortable chairs with fabric upholstery may not please the paying client because of the cost and odor problems. Therefore, a compromise is needed with the designer suggesting fabric upholstery with a waterproof cushion covering underneath a fabric covering on a wooden rocker.
Post-occupancy evaluations, conducted by the designer after the newly designed space has been occupied, allows the designer to see how the design is functioning. The results of these evaluations can be used in the design of future spaces so the same mistakes are not made again.
Recommendations for Use of the Study

The goal of this study was to develop guidelines for interior designers, architects, and institutions administrators in arranging furniture to increase social interaction in the lounges of institutions for the elderly. A condensed copy of the results will be made available to those institutions who participated in the study. The results may be useful for making decisions regarding the therapeutic potential of the interior design of lounges in institutions for the elderly.

In addition, the furniture, tables, wall and floor coverings, and other interior features preferred by the residents may be of use to interior designers as well as manufacturers and retailers of institutional furnishings. The satisfaction of the residents and the practical needs of the residents and staff should be taken into consideration when developing and purchasing products to be used by elderly.

Recommendations for Improvement of the Study

There are several aspects of the study that could be modified to obtain a better research design. In this study there were no significant results found among the social interaction occurring in face-to-face, 90 degree, and side-by-side arrangements. However, several alterations in the research schedule may allow significant results to be obtained. The results of the analysis showed more variation.
among homes than among furniture arrangements. This problem may have been remedied by using all nine of the qualifying homes rather than five and observing each home on four or five randomly selected days of the week. The interactions observed from day to day could be compared to see if any constant patterns of interaction among the four furniture arrangements occurred.

The distance classification of eight feet or less and over eight feet may have yielded more useful results if there had been three categories. One possibility, three feet and less, four to eight feet, and over eight feet would have given the researcher more idea of the distance at which interactions occurred.

In the present study, the numbers corresponding to seats in which interactions occurred were recorded on the Social Interaction Checklist (SIC). The data obtained from the SIC did not provide information on the seats selected first or those seats the residents sat in for the longest period of time. By recording the time of day a seat became occupied and the duration of time the residents spent in that seat, data on seat preference could be obtained.

There were no nonverbal interactions, as defined in this study, occurring among residents. However, it is difficult to deny that residents seated in the lounge while watching others participating in some activity were
not interacting in some way. Therefore, nonverbal interactions, as defined in this study should be left out or redefined to included the watching of others and activities.

Recommendations for Further Research

Other researchers could investigate:

1. the relationship between the location of various rooms within homes for the elderly and traffic and congestion patterns that develop
2. the relationship between the location of the lounge within the facility and the amount of use the lounge receives from residents
3. a study on the seating material, wall and floor coverings, and window treatments preferred by residents and staff
4. a study on the color used in homes for the elderly and the satisfaction of staff and residents toward these colors
5. the relationship between staff knowledge of potential therapeutic values of furniture arrangements and the interaction levels within the lounges of the facility
6. a study of the interaction patterns and furniture arrangements used during activities scheduled by the home
7. a study altering the furniture arrangements in a lounge to observe the resulting changes in interaction, and
a study on the addition of dining height tables and the effects on social interaction.


APPENDIX A

Instruments
# SOCIAL INTERACTION CHECKLIST*

<table>
<thead>
<tr>
<th>Verbal Sustained</th>
<th>(A,8,9) (17,16,15) (18,19) (4,5) (6,7) (4,6) (2,3) (12,11,10)</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>Nonverbal Brief</td>
<td>(A,D)</td>
</tr>
<tr>
<td>Verbal Brief</td>
<td></td>
</tr>
<tr>
<td>Other Comments</td>
<td>- chairs occupied with no interaction: 11,1,3,2,7,4,3 -residents often sit and talk in the dining room because the lounge often gets very cramped, especially with wheelchairs</td>
</tr>
<tr>
<td></td>
<td>* sample Social Interaction Checklist from home D</td>
</tr>
</tbody>
</table>
FURNITURE ARRANGEMENT CHECKLIST

<table>
<thead>
<tr>
<th></th>
<th>Face-to-Face</th>
<th>90 Degree</th>
<th>Side-by-Side</th>
<th>Back-to-Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal</td>
<td></td>
<td></td>
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<tr>
<td>Sustained</td>
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<tr>
<td>Nonverbal</td>
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<td>Sustained</td>
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<td>Brief</td>
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<td>Nonverbal</td>
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<td>Total</td>
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</tbody>
</table>
APPENDIX B

Letters
I am studying the effect of furniture arrangements on the interaction patterns of elderly living in institutions. The primary objective of the study is to develop suggestions for interior designers and institution administrators for promoting greater interaction among residents using the lounges of the facility.

I am writing to you for help. The study will encompass sixty-two homes for the elderly within fifty miles of Corvallis. I will be selecting institutions that have:

1) a majority of residents in intermediate or residential care
2) a main lounge where residents can congregate

If your institution fits these criteria I would be very interested in visiting the lounge to assess its potential for further research. I will be contacting you by phone within the next several days to discuss with you this possibility. At that time I will be happy to answer any questions you may have.

All the information gathered at your home will be strictly confidential. Neither your name nor the name of the institution will be used anywhere in the study.

Thank you for your time and I hope I can count on you to assist me in this project.

Sincerely,

Redacted for Privacy

Lisa Kinch
Graduate Student
Research Coordinator

Ardis W. Koester
Assoc. Professor
Research Advisor
Name of Recipient
Street Number
City, OR Zip Code

I would like to thank you for your cooperation in allowing me to visit your home to examine the furniture arrangements in the lounges of the facility.

From the homes visited, Name of Home has been selected as one of the five chosen for further observation. I would like to visit your institution to observe your lounge on two weekdays to observe interactions occurring between residents. Neither your name nor the name of your institution will be used in the study.

I will be in touch with you by phone to establish dates and times for observation. At that time I will be happy to answer any questions you may have concerning the final stage of this study.

Thank you for your help and cooperation!

Sincerely,

Redacted for Privacy

Lisa Kinch
Graduate Student
Research Coordinator

Ardis W. Koester
Assoc. Professor
Research Advisor
I would like to thank you for your cooperation in allowing me to visit your home to examine the furniture arrangements in the lounge of the facility.

From the homes visited, five have been randomly selected for further observation. Although your home was not selected I thank you for your help up to this point.

Thank you again for your help and cooperation.

Sincerely,

Lisa Kinch
Graduate Student
Research Coordinator

Ardis W. Koester
Assoc. Professor
Research Advisor
Name of Recipient
Street Number
City, OR Zip Code

Thankyou for your willingness to participate in the study on the effects of furniture arrangements on the interactions of institutionalized elderly.

As arranged during our telephone conversation, I will be observing your lounge on Date & Time. I am looking forward to visiting your home again.

Please call if you have any questions.

Sincerely,
Lisa Kinch
Graduate Student
Research Coordinator
(503) 752-4437
(503) 754-3798
I would like to express my appreciation toward you and your institution for allowing me to visit and observe the lounge in your facility.

As mentioned earlier, the primary objective of the study is to develop suggestions for interior designers and institution administrators for promoting greater interaction among residents in the lounge areas of the facility. I am still in the process of compiling the results of the study, but would be happy to send you a copy when I've completed. I've enclosed a self-addressed post card that you may return to me if you would like a copy.

Thank you for your cooperation and time!

Sincerely,

Redacted for Privacy

Lisa Kinch
Graduate Student
Research Coordinator