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USE OF SOCIALIZATION GAMES TO INCREASE PROSOCIAL BEHAVIOR OF INSTITUTIONALIZED RETARDED WOMEN

The Ohio State University

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USE OF SOCIALIZATION GAMES TO INCREASE
PROSOCIAL BEHAVIOR OF INSTITUTIONALIZED
RETARDED WOMEN

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of the Ohio State University

By
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* * * * *

The Ohio State University
1980

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This work is dedicated to my grandmother who gave me the fond memories of childhood and my son, Benjamin Woo Shick Kim.
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Finally, I thank my family for their help and support throughout this difficult and lonely endeavour to achieve beyond what is expected of me.
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CHAPTER I

INTRODUCTION

As the deinstitutionalization movement progresses, more and more emphasis is being placed on maximizing the social competence of handicapped youngsters and adults (Brody and Stoneman, 1977). Windle (1962), in his monograph, pointed out that historically one of the major obstacles to successful community placement of retarded person has been their associated behavior problems which account for the majority of adjustment failures in the community.

As discussed in numerous publications, the incidence of maladaptive behavior, problems that arise from interpersonal interactions, appears to be one of the important factors leading to institutional placement, to adjustment failures in relocation programs (Baroff, 1974; Tarjan, 1961; Shellhaas and Nihira, 1970) and to the higher rate of return to the institution (Gollay, Freedman, Wyngaarden and Kurtz, 1978). For example, Tarjan (1961) indicated that individuals were institutionalized chiefly because of problem behavior, and he divided such individuals into two groups - the socially maladjusted and the psychiatrically disturbed. A further subdivision was made within the socially maladjusted group, a refinement that disclosed the variety of problems that
institutions for the retarded attempted to address. One prominent subdivision was that of conduct disorders consisting primarily of interpersonal aggression.

Eyman and Call (1977) investigated the prevalence of maladaptive behavior for retarded individuals residing in institutions, community facilities, or their own homes. The findings confirmed much higher prevalence of behavior problems in the institutions as compared to community placements. The results further suggested that chronic problems of self-violence, violence to others, and damaging property represented the type of behavior that would surely persist as obstacles to community placement for large number of retarded individuals. The service implication of this dilemma was apparent in this study. Appropriate social interpersonal functioning and cognitive ability comprise the major parts of competence in the everyday lives of mentally retarded persons as discussed by Edgerton (1967). Recently, the need to provide retarded persons with training in skills for successful social adaptation has been gaining increasing attention from many concerned mental retardation researchers (Affleck, 1977).

Statement of the Problem

Like other people, retarded individuals throw tantrums, assault others, and hit themselves when they are deprived of desired objects and activities, when they are confronted by situations in which they have previously suffered failure, deprivation, and punishment, and when they are attacked or
taunted. Much of this behavior is normal in the sense that the reactions are understandable and the behavior can sometimes be managed once an analysis of the situations has been conducted. What researchers see in individuals who exhibit problems with respect to social competence is a "chronic lack of basic social skills and ineptness in their interpersonal relations and situations" (Affleck, 1977, p. 85).

In one of the local institutions for the mentally retarded, there has been a low rate of prosocial interpersonal activity on a security ward of moderately and severely retarded women (Edmonson, 1979). The ward is kept locked because of incidents of assaultive behavior, runaways, and self-hazardous acts such as ingesting toxic materials. The women residents, until they earn "ground privileges" by three consecutive weeks of good behavior, are escorted to and from meals and to their off-ward scheduled activity. On the average they are on the ward some 5-6 waking hours during week days and even longer hours in weekends. Most of the women have been domiciled together for years (from 1 to 22), but instances of friendly behavior have been infrequent. Their activity is most often isolated, sometimes parallels another's and is less often cooperative. In the past there has been a fairly constant rate of hostile teasing, screaming, hitting, biting one another, and assaults on the furniture. There is a pecking order in which two especially
strong and frequently aggressive women are dominant. An aggressive act from one of them to another resident often causes aggressive ripples outward from the dominant to the less dominant who are often noticed in bed during daylight hours, perhaps insulating themselves from the socially noxious climate of noise and aggression.

As an incentive for prosocial behaviors, the women can earn privileges if their individual behavior charts for the week show four or more "good days" in which they have done their chores, gone to their activities, and bathed and dressed appropriately with no incident of aggressive behavior. The behavior charts, on which postings are made by attendants on all three shifts, are to help residents discriminate the behaviors that are socially approved and disapproved. If a resident can earn privileges for three weeks with no incident of aggression, stealing, or ingesting toxic materials, she will restore her right to come and go at will as described earlier. Although, the privilege system has made residents more conscious of social contingencies, it is believed to have very limited effect on friendly behavior. For the latter, there seem apparent need for an expanded repertoire of friendly acts; need for a change in attitude toward one another -- in effect an increase in positive valence. During the women's long residence in this institution there have been few models of friendly behavior and until very recently no activities specifically designed to increase the liking
of one for another, or to increase their social awareness.

Purpose

The objective of this study is to attempt to increase prosocial behavior via socialization games. In particular, the study will determine whether small group involvement with a set of socialization games will have an effect on interpersonal distance, affiliative behaviors, knowledge about one another and peer preference nominations on a sociometric device.
CHAPTER II

REVIEW OF LITERATURE

Concept of Competence

This chapter will review research that has been addressed cognitive, overt behavioral, and motivational components of social adaptation and, in addition, techniques that have been used to develop these components.

One of the major developmental tasks for the retarded individual, like other non-retarded people is to develop competence in their intellectual and behavioral skills for successful adaptation and integration to their environment. According to Ross and Ross (1973) the concept of competence refers to the ability to carry on effective interactions with the social and nonsocial environment and is a cumulative product of an individual's history of success.

Brunner and Connolly (1974) defined competence as intelligence in the broadest sense, as operative intelligence, -- knowing how rather than simply knowing that. It involves at least three things: First, being able to select relevant cues from the environment for elaborating the course of action; next, being able to initiate a sequence of movements,
and finally utilization of what one has learned from successes and failures in the formulation of new plans. The "cognitive demand" of this definition is quite explicit. This notion applies equally well to all areas of competence including social competence in general and to interpersonal competence in particular, the latter being the topic to which this study is addressed.

Social competence is broadly defined as behavior which relates individuals to the institutions of the society in which they live. In psychological literature, it is traditionally referred to as acts and feelings through which persons are related as individuals to one another and to small groups - patterns of interaction which might be called person-relevant behavior (Hess, 1974). There is another category of social activity which might be called situation or context relevant behavior following Rotter (1954). In sum, social competence emphasizes the role of cognitive functions and other skills derived from this ability such as problem-solving skills, role-taking and inference making that are associated with the interpersonal successes in various social settings.

Ross (1973) earlier suggested that among the important determinants of an individual's social competence were his cognitive skills, which she specifically termed as situational problem solving as well as planning skills. Problem solving is a two phase behavioral process in which alternative responses are generated with respect to everyday problems and
then decisions are made based on one's awareness of consequences of certain problem situations. This explanation of cognitive procedural competence is somewhat consistent with what has been termed "social inference" skills (Edmonson, DeJung, Leland and Leach, 1974) since they both refer to the processes which are conceptualized as the action of acquiring skills.

The retarded individual's ability to adapt himself to natural and social demands, more specifically his adaptability to his immediate social environment is thus regarded as largely dependent upon his ability to comprehend and interpret social cues, that is to make accurate social inferences. Being able to evaluate the social situation for performing adaptive acts requires quite complex cognitive operations ranging from the ability to draw upon past experiences to the ability of "responsible self-direction" which is situation specific cognitive ability (Edmonson, 1974b). Making social inferences, therefore, is an important basic skill which makes up social cognition and social understanding. Subsequently in their article, Edmonson et.al. noted that the notion of "impaired adaptive ability" proposed by Heber was what may account for the retarded person's later failure in social adjustment on the basis of their research. In sum, the ability to encode would be closely related to the accuracy which he interpreted (decoded) social cues, a factor which is related to the retarded
person's general level of social competence.

Currently in the literature, this construct is used to describe an individual's ability to comprehend what is happening in social gatherings or situations. When this social inference construct is applied to interpersonal competence, it is termed "social comprehension" or "interpersonal awareness" (Selman and Jaquette and Lavin, 1977). The authors used these terms interchangeably in referring to the ability of understanding of interpersonal situations as processes such as friendship, peer interactions, leadership, etc. (Greenspan, in press).

There has been some constructive attempt to reorganize and clarify the widespread confusion and disagreement concerning the meaning of the term of social competence. In his article, "Social Intelligence in the Retarded," Greenspan attempted to delineate what was meant by social competence and how the concept related to the field of mental retardation. He employed the term "social intelligence" to describe what has been traditionally called social competence. Social intelligence basically implied two different types of qualities. The first can be seen as behavior, the second can be referred to as processes and conceptualized as the action of acquiring skills. This procedural aspect of social competence has generated numerous studies on the development of methods of training (Smith and Greenberg, 1979).

First of all, as discussed earlier in this chapter,
the attempt to change "social perceptual" skills in the retarded subjects via a training curriculum has resulted in increases in this ability, as reported by Edmonson, deJung, Leland and Leach (1971). This program involves a 10-week course with daily lessons using movies, slides, competitive games, role-playing and teacher explanation. The significance of this type of program and the recent movement of deinstitutionalization further called forth the need of various training packages geared to the development of social skills. The most convincing argument was presented with respect to social skills development especially in the domains of Self-Direction, Responsibility, and Socialization of the Adaptive Behaviors domains (Nihira, Foster, Shellhaas and Leland, 1969). These areas have received relatively insufficient attention in connection with the formulation of competence based training strategies in current literature although these areas would appear to be critical for functioning outside of the institution (Edmonson, 1974b). This topic was again discussed in an article by Nihira (1977) who stated that the Personal-Social Responsibility factor which represented a broad cluster of personality attributes including initiative to engage in purposeful activities, self-direction, motivation to manage one's own affairs, responsibility for other, and interest in interpersonal relationships as an important dimension of the traditional notion of social competence.
Along with this, concerns regarding the relative paucity of research in the area of development of training packages, several promising studies have been conducted. However, this competence based training program for interpersonal skills and its research has been carried out under various conceptual umbrellas as discussed earlier and they are also variably termed as cognitive problem solving skills, role-taking ability, inductive knowledge, etc. Most of the studies were conducted with non-retarded samples.

Spivack, for example, in his study of problem solving skills found that youngsters most able to conceptualize alternative solutions to typical problems were least likely to exhibit impatient and nagging behavior, overemotionality, and aggressive and dominating behaviors. Although he did not discuss the concept of "role-taking" or "perspective-taking" skills in engendering cognitive processes relevant to social competence, such skills and concepts seem clearly to be what constitute one of the processes involved in the cognitive problem-solving ability that he tried to develop in the subject via game curriculums he developed (1974).

Prosocial behavior is linked to the development of age appropriate role-taking or perspective-taking skills and numerous researchers have demonstrated that a variety of forms of social deviance are associated with persistent egocentric thought. Kitano, Stiehl and Cole (1978) reviewed
correlational research on the relationships between role-taking and communication, cooperation and prosocial behavior and suggested that role-taking may account for a substantial portion of variance in the occurrence of such behavior. Results of training studies provide additional evidence for a link between role-taking ability and affective behavior as found in the performance of 7-year-old children on a cognitive role-taking task which was significantly related to their generosity (Rubin, 1973).

Recently, in the literature of child development as well as the social competence of mental retardation, the construct of role-taking ability has taken on a variety of meanings, from the limited phenomenon of visual perspective-taking to the broad concept of social sensitivity (Greenspan, in press).

Deficit in the role-taking skills may account for the poor social adjustment defining certain types of handicapping conditions including mental retardation. Study findings suggested that the developmental sequence for role-taking skills (perceptual and cognitive) found in normal children is the same for mentally retarded children (Afflick, 1977). Earlier, role-taking ability was found to be associated with increasing mental age in a sample of mentally retarded children (Feffer, 1970).

Role-taking skills as a dimension of social cognition or parts of procedural social competence was discussed by
Blancher-Dixon and Simeonsson (1978). Their study was concerned primarily with the development of role-taking, or the ability to coordinate another person's perspective. The study result indicated that egocentric subjects did not benefit from shared experience in contrast to the performance shown by nonegocentric retarded children. The study results were interpreted as consistent with the assumption that the role of experience; e.g., "stand in someone else's shoes" might contribute to the improved social-cognitive development in retarded children. In a similar vein, Feffer (1970) regarded social interaction as an implicit problem-solving situation requiring the "cognitive organization" of interpersonal perspectives. In his article, he expanded on this notion of "the specific social-cognitive scheme" which he labels "role-taking" ability. In Feffer's analysis, role-taking ability refers to the capacity of the person to recognize and coordinate self-other perspectives in the context of interpersonal interaction. Other behavioral correlates of role-taking ability have been revealed in the study conducted by Affleck (1975b). In his study, role-taking proficiency was found to be related to interpersonal conflict resolution in a group of moderately and mildly retarded group of retarded young adults. Using retarded children, Affleck (1975a) found a significant relationship between role-taking ability and interpersonal competence as measured by a game in a mutual strategy to maximize joint
outcomes. The result of a study done earlier by Neale (1966) also indicated that institutionalized, emotionally disturbed children had significantly lower perceptual role-taking ability than a "normal" control group. Various measurement instruments used to assess the construct of role-taking ability present problems in interpreting and comparing results of different role-taking studies because of their unproven validity. However, it is generally assumed that role-taking ability is not a single, unitary construct, but rather a summary variable consisting of several different types of role-taking skills - perceptual, cognitive, and affective (Rubin, 1973).

Motivational Component of Social Adaptation

As discussed earlier socially maladjusted behavioral pattern such as aggressive behavior within the institutionalized population of mentally retarded individuals represent a pressing problem for both administrative and direct care staffs (Frankenberger, 1979). As these maladjusted behavioral patterns may be correlated with the reason of their low level of interpersonal competence and social cognition in general, formulation of training strategies designed to foster cognitive social skills are imperative.

Reasons for the manifestation of aggression and other behavioral problems would seem to be dependent upon various factors such as the degree of somatic and cerebral impairment, accompanying emotional disturbance, the length of
institutionalization and/or degree of exposure to a certain stressful environment. Various theoretical assumptions have been generated to explain the socially maladjusted behavior and numerous studies have been undertaken in order to develop treatment tactics as a result of this vigorous theorizing.

One promising lead was found in the area of skill training by using games. Ross and Ross (1972) suggested that the lower interpersonal skills may have been due to the lowered motivational set in the retarded during their daily activities. For example, being deprived of social play experience was regarded as one reason for a deficit in basic competence skills leading to lack of motivation to master the relevant aspect of developmental tasks in the social interaction. This lowered effectance level in turn would further isolate an individual from the interactions he needs in order to develop a social competence. White (1959) refers to the underlying mechanism of competence as a "motive" or an "effectance." He states that the behavior which it motivates is characterized by rapt attention and experimentation. As an example, effectance is easily observed in children's play behavior which may occur when their physiological needs have been well satisfied. With the confidence obtained from the effective manipulation of one's environmental consequences through play and/or games, children are observed to invent play in which they develop
and perfect new skills until these are mastered and then go on to more complex behavior. It is generally believed that play is critical in the facilitation of cognitive and social development of normal children. However, the influence which the acquisition of a broad range of play skills might have on the behavioral development of play and interpersonal skills of retarded individuals remains an area which has been essentially ignored. Play and use of leisure time by mentally retarded persons are skills which have been receiving relatively little attention in the habilitative programming literature (Wehman, 1977). In general, the assumption here is that mentally retarded persons have not learned how to play or engage in pleasurable activities during free time or how to channel their disruptive energy in a constructive way through natural media such as play and games. Therefore, interaction with the social and nonsocial environment would be less success-and fun-oriented and become a constant bombardment of negative stimuli of direct aggression entailing impending danger, threat and physical confinement resulting in a vicious cycle of building maladaptive behavior and subsequently affecting their "social status."

It would also appear that the development of appropriate interpersonal skills through play and games in retarded individuals of all functioning levels would enhance various skills from basic gross and fine motor skills to the complex social cognitive skills.
Retarded individuals' limited ability to view things in perspective, their lack of competence in involving themselves in relaxing and spontaneous play and the lack of opportunity to learn how to play games during their leisure activities may have contributed to their ineffectiveness in interpersonal behaviors if not worsened their present unfortunate state of the social aspects of their lives. Simple simulation games containing various proven effective techniques or teaching strategies may be presented as an efficient tool for them to develop and practice various interpersonal skills which will affect their general social adaptation to their environment.

Games as a Training Medium

In recent years many researchers have witnessed early success using games as a teaching or training medium for retarded individuals (Ross, 1969). There seems to be little doubt as to the effectiveness of the use of games in training groups of retarded individuals in various institutional settings. They are used because they allow individuals to have a number of alternative choices that are acceptable (problem-solving skills), expand behavioral repertoire of desirable behaviors and allow the individual to experience a sense of controlling one's own future. Games generally provide an excellent milieu conducive to fostering desirable interpersonal skills.
Early reports on the use of games in various training settings are favorable but there is little formal research to support their success as a means of organizing the learning process (Spivack, 1974; Blancher-Dixon and Simeonsson, 1978).

The Concepts of Play and Game

The word game has come to mean many things to many people ranging along a continuum from "life is a game" to the concept of a very specific, highly delineated entity. To this end, discussions will be made toward differentiating between the concepts of play and game.

In attempting to isolate those attributes peculiar to each, play and game were differentiated and compared along several dimensions. Play was felt to be a free, spontaneous activity which cannot be prescribed and with no predictable outcome. Problems, goals and rules may change as play progresses (Allen, 1974). Play behavior is regarded as a spontaneous act which emerges throughout childhood. An important function of play is that it has the pleasure or joy aspects of engaging in play or leisure time activity. Play has also the function of the facility with which play can be utilized as a reinforcer. Therefore, play not only has inhibiting effect on the socially inappropriate behaviors but has the potential for the development of collateral behaviors such as gross and fine motor skills.

Both games and play contain an element of non-reality,
a stepping out of oneself into another social system as play and game involvement are customarily voluntary (Sutton-Smith, 1971). In addition, both can be problem solving for an individual. The difference here lies in the fact that in a game situation, prescribed roles and rules follow from predetermined goals and enable the player to reach these designated end-points whatever they may be. However, in play the ends are subordinated; the means justify the ends (Allen, 1974).

A perspective regarding play and game as part of developmental continuum was expressed by Piaget (1951) who views that play in childhood (8-11 years) is controlled by collective discipline and codes of honor so that games with rules replace the individual symbolic make-believe play of the earlier stage. Although games with rules are socially adapted and survive into adulthood, they still show assimilation rather than adaptation to reality.

The following summary of the differences between play and games served as operational definitions. When one talks about play, one has in mind a general sort of activity which differentiates it from other kinds of activity, activity in which one can imagine, have fun, do many things, and increase one's skill. But in talking about a game, one is concerned with a specific problem-solving situation that does not necessarily involve a social group.

If games are viewed as an assimilation and not an
adaptation into a real world, a question arises about the need to develop a curriculum of games which will aid the retarded individual to practice the social rules in a setting that resembles not only real-life situation but is also compatible with their level of cognitive understanding. Although games with rules require a highly socialized child as stated by Wolfgang (1977), one can still follow the developmental lines in designing a game. Therefore, the game structure can be simplified and made compatible according to the various competence levels of players. Along with this line, two things need to be considered in the use of games: First, games should be made compatible with a person's physiological development and cognitive ability. Second, the game designer needs to devise ways of motivating the individual's participation in the game.

Moderately retarded individuals are described to be functioning at a preoperational period based on the Piaget's cognitive stages of organization and oftentimes regarded as capable of demonstrating abilities such as motor learning, space perception, discrimination and generalization of uncomplicated stimuli, and the mastery of a number of simple job related skills (Robinson and Robinson, 1976). In a similar manner, the severely retarded individual's cognitive functioning levels are described on the basis of Piaget's stage construct as being capable of functioning at the level of sensory motor period.
It is therefore suggested further that the inability of emotionally disturbed and retarded individuals to play games is the same kind of problem that occurs in their inability to have appropriate and meaningful social interaction. This notion can be tied into the discussion of social competence presented earlier in this chapter. In other words, the ability to play games is very much influenced by cognition, perception, and affect, and both require the ability to identify social cues, the ability to discern differences in alternatives of behavior, to make a decision, to resolve conflict, to establish social maturity, to follow directions and orientation, to handle freedom and to handle change. Therefore, the idea of developmental sequence or developmental readiness in game playing is reinforced when one attempts to play games with emotionally disturbed individuals who for some reason or other have missed some vital developmental experiences (Wehman, 1977).

When one deals with retarded individuals in game facilitator-participant interactions, a need exists for coming down to the level at which the individual now stands and for providing the necessary motivation or fundamentals which enable him to participate at the level which he should be functioning.

From the experience of this author, with mentally retarded individuals, external rewards were effectively utilized as incentives for game playing and for achieving
skills. Thus, external rewards which are concrete and have meaning for the individual on their level, primary reinforcers, particularly food, can provide an incentive for getting involved in the first place. However, it is also important for the users of such incentives to know how and when to terminate their usage.

Also there are a large number of intrinsic motivations contained in the gaming process. If one can discover the right type of game appropriate for the particular developmental level of the learner, one can effectively utilize these intrinsic gratifications as needed incentives.

**Game Structure Conducive to Group Solidarity**

Games, therefore, with inherent characteristics of organizing the group structure, provide an excellent milieu within which various social skills can be fostered. For example, the small group situations lends itself to the development of social relations among group members. This may inhibit competitive responses during the game if competition assumes threatening proportions. Several game events seem to be purely social. In a small group game situation, either the objective of social solidarity or a defense against threat are also possible. Group solidarity is seen in sharing behavior after the game is over. Children, for example, in the game had a tendency to share their prize of chocolate candies (M & M's) after the games were over. This is a form of solidarity that is expressed outside of the
game proper and represents what is called "side-bets" in
game theory (Allen, 1974). Sharing can be selective
(include a few players) or general (include all players).
When it is selective it probably serves a competitive goal,
while general sharing can serve social ends.

The structure of player interaction determines the
manner in which a player is to relate to other players in the
game. It is therefore, used to pattern different types of
social behavior. The game designer must indicate whether
interaction is to be physical or non-physical, whether live
or symbolic players are to be used, and whether interaction
is to be cooperative or competitive.

Games for the pre-twelve age group generally structure
a physical type of interaction, i.e., children are allowed
to do something with their bodies (Gillespie, 1974).
The physical presence of live players is typical of games
of this period. Because games introduce the child to dif-
ferent patterns of social behavior, competition is not as
intense as it is in games for older adolescents. Inter-
action is generally softened in this type of game. In the
older adolescent's games, the value, the perceived value
and the culture in relation to the games become more dis-
tinct. For example, a study by Maccoby and Modiani was
cited by Carlson (1969) in connection with the cultural
values underlying various games. In teaching a Mexican game
to American children, or an American game to Mexican children,
it was found that modification soon began to appear in the social structure of the game, modification that was felt to be consistent with some of the cultural values which were inherent in the notion of games as each group saw it. Each particular culture fosters its own unique games. Studies of devoted game players in various culture show that they have distinctive attributes that go along with their game playing. The players seem to be molded by their games, they don't just play them (Sutton-Smith, 1971).

It is not clear as yet what mechanism is operating in the game that affects group solidarity and interpersonal skill development in children. However, it appears that at the very basic level, games help the children's perceptual organization. In other words, their limited ability to comprehend phenomena with even a few interactions among social elements is properly dealt with in the game situation. Games present simultaneously progressing multiple interactions that can be examined one at a time, and then gradually together with increasing comprehensibility. From this involvement, the children gain a growing sense of structure among the game variables with a correspondingly growing sense of structure of the subject simulated by the game. This can expand the children's attention span and intellectual confidence (Adams, 1973).

Techniques That Are Used to Develop Social Skills

Many techniques ranging from systematic desensitization
through imaginary conditioning and relaxation to classical and operant conditioning techniques and combinations of these techniques have been developed and employed in curtailling disruptive behavior with various clinical populations (Mahoney, 1974).

Proponents of all these methods, i.e., punishment and aversive conditioning (Azrin and Holts, 1966), modeling and reinforcement (Bandura, 1965) report some degree of treatment success with some individuals.

Social learning theory proposes modeling or imitative mechanisms for the development of aggressive behavior in the retarded (Robinson and Robinson, 1976). Bandura (1969) explains imitational learning in terms of covert mediational processes. He proposes that there are two distinct kinds of mediational responses that are involved, i.e., imagery which is assumed to occur via a process of sensory conditioning of perceptual responses, forming long-lasting images of behavior, and verbal coding of responses, which enable a tie-in with the extensive verbal component of cognitive behavior in human beings. Further, he emphasizes that the information that observers gain from observing models is converted to covert perceptual-cognitive images and covert mediation-rehearsal responses that are retained by the client and later used by him as symbolic cues to overt behavior.

Modeling and imitation techniques are only now beginning
to be utilized explicitly and extensively in training the disturbed retarded individual although retarded persons like other non-retarded persons have been learning by this means (Fetcher, 1971). In the treatment program for severely and moderately retarded subjects, the effectiveness of a combination of modeling and reinforcement for teaching new motor and verbal skills to retarded subjects has been demonstrated by Lovaas (1966).

As a cognitive process such as covert mediation-rehearsal response is being implicated in the studies conducted to explain the acquisition of proper social behavioral responses, several treatment strategies have been proposed on the basis of experimental research. For example, Meichenbaum's (1971) serendipitous finding regarding the benefit of "healthy talk" from his research with hospitalized schizophrenic patients pushed further his research efforts to systematically assess the efficacy of the use of verbal mediation procedure. This method has been modified to include a self-instructional component relative to the efficacy and the validity of "standard" behavior therapy procedures such as operant and aversive conditioning, modeling, and desensitization. In general, the results have indicated that, when the "standard" behavior therapy procedures were augmented with a self-verbalization package, greater treatment efficacy, more generalization, and greater treatment effects were obtained (Mahoney and Thoresen, 1974).
The verbal mediation phenomenon is readily observed in our daily lives when young children speak out loud to describe what they are doing while playing. This overt verbalization is supposedly to influence their own behavior (Luria, 1961). The benefit of utilization of question and answer types of discussion after the game in problem-solving situations is quite implicit in Luria's argument regarding the regulatory role of language over motor behavior which passes through a series of developmental stages.

Rationale

Although the problem of social competence in retarded persons is a topic of substantial interest, research in the area of interpersonal effectiveness in the retarded adults has been sporadic and it is with some justification that, recently, increasing attention is being paid to the task of social skills development as a primary problem in the habilitation of moderately and severely retarded persons.

In this context, several experimental studies suggest some promising leads in developing techniques to improve social skills, specifically interpersonal problem solving skills and social adjustment in children with problem behaviors by using games. Several researchers have contributed to the understanding of interpersonal phenomena among the mentally retarded. For example, Meichenbaum and Goodman's (1971) study focused on the relationship between problem solving ability and social adjustment in the group of
impulsive children, although the problems presented to the subjects were paper and pencil tasks. Ross (1970) employed games as a medium to teach specific interpersonal problem solving skills as well as number concepts and the training procedure was somehow limited to the use of modeling and reinforcement with the assumption that the experience of successes in a game-like situation would mediate social adjustment in the retarded youngsters.

A different approach has been attempted in some studies which utilized real life problem situations in a game-like setting to teach social skills to preschool children as well as to retarded adults (Spivack, 1974; Blancher-Dixon and Simeonsson, 1978). The approach devised by the former author is referred to as a "cognitive problem solving" approach and the game program (script) consists of prerequisite language training and the training of children to think of alternative solutions and consequences when they are confronted with problems. It has been noted that this skill is associated with social class and social adjustment.

As for the retarded persons, one important aspect of normalized living involves satisfying and productive interpersonal relationships (Landesman-Dwyer, Berkson and Romer, 1979). In this context, peer relationships in particular are thought to be critical factors in the normal acquisition of both social and cognitive abilities (Lewis and Rosenblum, 1975). For example, low rate of play or game skills may be
causally linked to some extent to reduced social skills displayed by retarded individuals. This inability may be related to the limitations that the retarded persons experienced due to their cognitive and perceptual limitation and vice versa. Game and play skills as an important factor that mediate social cognitive competence in the retarded are also extensively discussed elsewhere (Leland and Smith, 1965).

Hartup (1975) postulated that friendships constitute a special category of peer relationships, most often identified by high rate of interaction which usually were positive in nature and free from external control. He also stated that the choice of friends and the character of social interactions were influenced by many variables, e.g., certain cognitive, perceptual and social processes.

For example, similarity of some type of perceptual attribute appears to determine affiliative behavior among retarded persons. Landesman-Dwyer et al. (1979) reported that mentally retarded residents in group home appeared to affiliate with peers of similar intelligence (although the author noted that the relationship may be entirely attributable to the fact that residents were segregated by intelligence and, therefore; were more likely to affiliate with similar others).

Interpersonal Distance

One important but relatively neglected aspect of social and interpersonal competence by most developmental psychologists
appears to be the non-verbal dimension of proxemics (McGrew, 1974). The use of space by the individual as an "index of social competence" was implicated in the topic discussed in McGrew's recent study conducted with a group of preschool children on their spontaneously occurring inter-personal spacing behaviors (1970). Studies of social spacing in men and subhuman species have recently increased.

In his discussion of the attributes of personal space, referring to the distance maintained between individuals of species, and social distance, if exceeded, an animal apparently begins to feel uncomfortable, Hediger (1950) pointed out that members of many noncontact species tended to maintain a relatively fixed distance between one another, i.e., a species-typical "individual distance."

Hall (1966) provided extensive data supporting a similar type of spacing behavior in human adults. He conceived of personal space as a series of concentric circles with the individual as their center. Within the confines of the area delimited by these circles, various types of interpersonal behavior occur. He labeled these zones as the intimate (0-18 inches), the casual-personal (18-48 inches), the social-consultative (48-144 inches), and public domain (Meisel and Guardo, 1969).

Little (1965) defined personal space as the area immediately surrounding the individual in which the majority of his interactions with others took place. He further
stated that it was clearly a form of territory but, as Sommer (1959) pointed out it could be distinguished from territory in that it had no fixed geographic reference points. "Territorial" space usually referred to stationary areas with their regular formats and boundaries (Horowitz, 1968). In addition to such relatively fixed spaces, there is a "portable" space which may be seen as surrounding and moving about with the individual. The use of this omnipresent mobile area by individuals is variously labeled as personal space (Sommer, 1959), proximetric space (Hall, 1966) and the body-buffer zone (Horowitz, 1968). The phenomenon of portable space was studied by Sommer (1959) who employed a semi-projective techniques to investigate the assumptions that interactions between two persons classified variously as friends, acquaintances, or as strangers would take place an increasing rank order of distances. His assumption was supported by his study where the perceived interaction distances of subjects in a dyad were markedly influenced by the degree of the acquaintance of the two members. Thus, he concluded that the space may be regarded as both stationary and mobile.

Horowitz (1968) investigated the size, shape and penetrability of the body-buffer zone in psychiatric in-patients. His observation of spatial behavior of his clinical subjects indicated that as the patients improved clinically, they tended to use more cognitive defenses and relinquished the motor responses of withdrawal behavior. He stated that interpersonal spacing behavior appeared to yield much information about
his subjects when coupled with clinical data. His study suggested that the study of nonverbal behavior was a principal vehicle in the quest to understand people whose verbal communication was limited. One aspect of such non-verbal communication which has not yet been given extensive study is the use of space by the individual.

Many similar spacing behavior studies have been conducted with the non-retarded population but they mostly employed impersonal tasks such as interactional distances as seen by observers. For example, Little (1965) measured the distance between human figures which consisted of five line drawings of males and females mounted on stiff cardboards presented in three different background scenes consisting of the interior of a living room (H), an office (O), and a street corner (R) after the subjects had manipulated the figures. The subjects were also given information as to the degree of acquaintance (e.g., very good friends (F), casual acquaintances (A), and strangers (S)) attributed to human figures. When the distances between the figures were measured, an inverse relation was obtained between distance and degree of acquaintance. That is, as the degree of acquaintance increased, the distance between members of the dyad decreased. This result suggested that that college subjects assumed a correlation between physical closeness and closeness of interpersonal relationship. Subsequent studies by Guardo (1969) provided data from sixth grade children demonstrating such a correlation between physical proximity
and interpersonal closeness as measured by the personal space tasks (PS I) devised and administered to each subject by the examiner. Both studies were done either by having subjects project themselves into the interaction through the use of manipulable self-referent figures or by having the subjects manipulate line drawings of human figures in dyads. However, in both studies, it has not been reported whether the perceived interpersonal distances by the subjects are assumed to be isomorphic with the actual patterning of interpersonal distances in real life.

Interpersonal distancing behavior as a behavioral attributes of liking (friendship) and acquaintance were studied and reported by King (1965). In one of the few observational studies on actual social interaction, he noted that the approach distance for pairs of children was affected by the proportion of "unfriendly" social interactions previously directed toward each other in an earlier free play session. To this writer's knowledge, although similar studies have been conducted with children in various settings as discussed earlier, relationships among these variables has not been studied with institutionalized retarded adults.

It appears that patterns of interpersonal contacts discussed in Hartup's study (1969), such as dispensing mutually positive and negative reinforcements among children and spacing behaviors are two important parameters which are closely interrelated and which characterize social behaviors
in a group. A group's solidarity can be measured in terms of these two variables as found in several studies. This assumption is strongly implied by McBride's article (1970) concerning group formation in subhuman species. Based on his systematic observation, he states that there is a coordination of activities within the group in a series of social subphases, associated with such activities as movement, resting, alarm, feeding or body care. The group takes up a different spatial arrangement during each subphase and the repertoire of interactions is regulated accordingly. McBride uses the term "role" in describing the repertoire of behavior of each animal in each subphase of activities. It covers both the range of interactions and the spacing responses which determine group structure. He further maintains that group solidarity tends to be initiated and maintained by a range of behavior, collectively called affiliative or integrative (originally called socializing) behavior. These behaviors may involve mutual reinforcement, as in allogrooming, allofeeding, and play, or may lower disruptive forces between animals in the formalization of agonistic behavior, or the avoidance of strangers within large groups.

McGrew (1974) expanded on this concept of the ontogeny of interpersonal spacing behavior and examined whether spacing behavior was a proper measure as an index of social competence in a group of preschool children. McGrew stated
that performance of efficient spacing was presumably like any social behavior pattern in that its development was sharpened and made more appropriate by suitable experience. This process of increasingly skillful performance of a behavior was another way of saying that competence develops. The spacing behavior can be appropriately examined along with the interpersonal interaction patterns as suggested by McBride earlier.

In this regard, Hartup's study (1967) about mutually reinforcing behaviors in the nursery school peer group shed some light on this approach. Hartup's extensive study on peer groups is based on the "reinforcement" theory posited by Skinner and his list of prosocial behavior categories are derived from the definition of affiliative behavior provided by Skinner. The four broad prosocial categories he used are: I. Giving positive attention and approval. II. Giving affection and personal acceptance. III. Submission. IV. Token giving. Although these four major categories also contain subcategories, they are mostly undefined and do not present an exhaustive catalog of behavior. However, the findings relevant to the present study are: Reinforcement is dispensed in a higher proportion when a child is engaged in dramatic play activity than when he is engaged in other pursuits (such as art, music, or table games). About half the reinforcements are given in response to overtures from the recipients and half spontaneously.
Duke and Nowicki (1972) attempted to approach the interpersonal distancing phenomenon within the framework of social learning theory posited by Rotter (1972) being of the opinion that much of the confusion in the interpersonal distance literature was due to lack of theoretical basis and understanding. Rotter's social learning theory specifically emphasizes the prior history of reinforcement as well as the context as the subsequent determinants of social interactions between individuals and thus seems to bear directly on interpersonal spacing. Included among the reasons which Duke and Nowicki (1972) proposed, using Rotter's locus of control theory as a viable framework were: 1) Empirical studies reported by Tolor et al. (1970) indicated that locus of control (a generalized expectancy and an integral part of social learning theory) served as a mediator in interpersonal distancing responses. 2) Based on their previous data, it was clear that interpersonal distance was the result of interaction between an individual's prior history of reinforcement vis a vis others as well as the context in which the behavior occurs.

It appears that the propositions of Duke and Nowicki and the study results are consistent with others derived from empirical findings (e.g., Hartup, 1969; McGrew, 1970) and the ethological study by McBride (1972) although these studies are not based on identical theoretical orientation. The social learning theory posited by Duke and Nowicki (1972)
and Hayes and Kock (1977) and other study results derived from various theoretical assumptions appear to suggest the following conclusions which can be useful for further studies: 1) Positive previous interactions among people create positive and specific expectancies and therefore, affect their subsequent social interactional patterns measured in terms of affiliative behavior and interpersonal spacing behavior. 2) These two variables are also intercorrelated with the context in which the behavior occurs.

In sum, the person's reinforcement history in the past (Hartup, 1969) and the specific interrelationships which constitute the person's reinforcing history (Bijou, 1970) appear to have some relevance to the situation or context, in other words, the positive and negative reinforcements as a situational cues (Rotter, 1954) in which the behavior occurs. In essence, the part of the individual's socialization processes by which the individual becomes members of groups, interpersonal competence, is determined by the variation of these variables.

Regarding the contextual cues, occurrence of negative reinforcement or its anticipation, according to Rotter (1972) may lead to defensive or avoidant behaviors which can be understood as having a potential for a particular class of reinforcement. The anticipation of such reinforcement (generalized problem-solving expectancies) will take place shortly is accompanied by changes in autonomic nervous system
activities which can serve as cues and along with situational cues can affect learned behavior.

This research is particularly concerned with questions regarding the interpersonal competencies occurring within a small group with their presumed characteristics of mutually reinforcing behaviors emitted in a game situation, the context which is believed to be conducive to the increases of friendly interactions and decreases of unfriendly interactions. This is because socialization games allow the individual experience satisfaction in a particular need areas, e.g., peer acceptance, where they come to learn to place a high value along with the high expectancies for receiving the social reinforcements from others through the involvement of the positive social interactions in the game.

There has been relatively little research with retarded individuals to determine whether training to increase their interpersonal likings via the use of socialization games has an effect on their pattern of social interactions and interpersonal spacing behavior on a ward. It is assumed that the development of social skills such as friendly interactions, peer knowledge and the propinquity experienced in small group games by using multiple method may increase social awareness and reduce interpersonal maladaptive behaviors, e.g., fighting, name-calling, and so on, as well as increase prosocial conducts in retarded persons who are "disturbed." In this context, socialization games could be employed
to expand a behavioral repertoire of friendly approaches and interactions, and might be employed to desensitize individuals to being with a feared person (e.g., an aggressive peer). Games could present aversive stimuli (e.g., teasing) in a new format associated with pleasure in order to desensitize players to such stimuli. Games could present concepts to the players, such as cooperation (working as a team, working to help another); peer knowledge (learning about other's likes and dislikes, etc.); nurturance of another, and being a "good buddy." Finally, games could increase a player's sense of interpersonal competence.
CHAPTER III

METHOD

Design

A two groups equivalent time-samples design was employed in order to examine the short terms effects of participation in socialization games on four dependent variables: 1) the rate of friendly and unfriendly social interactions, and inactive behavior, and on 2) interpersonal spacing behavior among the subjects. The efficacy of dividing subjects into small groups for taking observational data is well documented in several researcher's articles (Porter, Ramsey, Tremblay, Lacocobo and Crawley, 1978; Leach, 1965). The two small groups design facilitated scheduling clients into the planned socialization game program with least conflict with other institutional programs.

To determine whether participation in socialization games was any more effective at promoting friendly interactions than participation in more task oriented activities, members of both treatment groups were presented a total of 21 sessions, of approximately 30 minutes duration, three times weekly (Friday, Saturday and Sunday), of the socialization games or of a "placebo" activity on a random schedule over
an 8 week period. Immediately following these activities, after they had been instructed to wait a few minutes for refreshments, the subjects' behavior during the 10-minute waiting period was videotape recorded, providing the basis for the behavioral analyses.

An equal number (12 each) of games versus placebo sessions for the two groups had been scheduled so that the two treatments would occur equally in the morning (10:30 - 12:00 noon) and in the afternoon (2:30 p.m. - 5:00 p.m.) except on Fridays when programs were scheduled to occur always in the afternoon (2:30 p.m. - 5:00 p.m.) for both groups. Because of a power failure on one occasion, camera failure for session 16, and audio failure for session 14, data were actually obtained from only 21 sessions for both groups.

to determine whether participation in socialization games would increase subjects' knowledge about one another, a peer knowledge questionnaire was administered to all subjects after the treatment sessions were concluded. To determine whether group participation had an effect on peer preferences, questions as to preferred peers were included in the questionnaire.

**Subjects**

The subjects of the research were moderately and severely retarded female residents in a cottage for inappropriately behaving young adults at the Columbus Developmental Center. Of the total ward population of 19 women, 6 were randomly selected to participate in group 1 and 6 in group 2. The
remaining 7 subjects comprised a control group, the members of which received neither the games nor the placebo treatment. All of the women were ambulatory. Several women were subject to seizures in spite of medication and at least two had uncorrected visual problems; non, however, was known to have an auditory deficit.

Intelligence test scores of subjects were not available to the investigator. The staff social worker indicated the subjects were functioning in the range of moderate retardation except one subject who functioned in the range of severe retardation at the time of investigation.

Within these three groups, two experimental and one control, chronological age and length of institutionalization were examined. Table 1 is a summary of means and standard deviations of the CAs and length of institutionalization.

Table 1
Means and Standard Deviations of Subjects CAs and Length of Institutionalization

<table>
<thead>
<tr>
<th>Group</th>
<th>Age (in years)</th>
<th>Years of Institutionalization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Group 1</td>
<td>25.2</td>
<td>2.3</td>
</tr>
<tr>
<td>(N=6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>30.8</td>
<td>1.9</td>
</tr>
<tr>
<td>(N=6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 3</td>
<td>28.8</td>
<td>1.6</td>
</tr>
<tr>
<td>(N=7)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The equivalence of these groups was shown by F values of 1.20 and .30 respectively for age and years of institutional residence (p > .05).

Socialization Game. Most of the socialization games had been designed and tried out on the ward with all of the residents prior to this investigation (Moxley and Nevil, 1979). Thus, it was known that they were developmentally appropriate for the subjects in terms of language and level of difficulty. Later, several new games were designed and added to the already existing pool of games by the investigator. The game procedures involved residents in sessions in socialization games that were intended to promote an increase in friendly interactions (verbal as well as non-verbal) and valences. In presenting games, various combined techniques such as role-playing, conditioning procedures, discussion of real-life problem solving and modeling were utilized to enhance the efficacy of the socialization games. The games were presented during approximately 30 minute sessions by the investigator with one or two assistants. The game that were used are included as Appendix A.

Placebo Activities. The Placebo activities were presented in sessions of about 30 minutes by the investigator with one or two assistants. Physical prompts and assistance were given freely to the residents during these activities. The placebo activities consisted of several different arts and crafts and stories shown on the filmstrip/slide projector.
The activities that were used are included as Appendix B.

Pretzels were distributed by the assistant to the residents for good attending behavior at intervals of 2, 5, 7, 9 minutes. Refreshments served at the conclusion of the sessions were cakes, cookies, candies and soft drinks such as Hawaiian punch mix, orange juice and decaffeinated coffee.

Peer knowledge and Sociometric Questionnaire. Nineteen questions were formulated to learn how aware subjects were about their peers in the ward. The correct answers to the questions were determined in advance of administration. An additional three questions asked about peer preferences. Questions are indicated in the Response Form in Appendix C.

The administrator met individually with each client. A Polaroid photograph of each client was placed on a table in front of the subject. The subject was first asked the name of each of the clients in the photographs. Errors were recorded on the response form. The subject was then asked the next 18 questions on the response form and indicated her answer by pointing to the relevant picture or by using client names. The administrator indicated answers by encircling or underlying the names printed on the response form. In asking the sociometric questions 20 through 25, the subject was similarly asked to respond by indicating the relevant photographs. The examiner wrote the names on the form.
Apparatus

An open reel video tape recorder (Sony Camera AVC-3210) was used in taping the 10 minute free activity following the game and the placebo sessions. This system includes: 1) a video camera, 2) a microphone, 3) a video recorder (Sony Deck 1/2" reel to reel, AV-3650) which converts video (visual) and audio (sound) impulses to electronic patterns on magnetic tape, and 4) a standard television receiver (Sony TV monitor CVM 920). A Panasonic portable cassette tape recorder (RQ-2133) was used to emit a sound at 30 second intervals that was recorded in the videotape. This was intended as an audible cue to facilitate data analysis. In addition, a standard Slide/Filmstrip projector (Dukane, Cassette Super Micromatic 28A 15A) was used to present sound slide shows as a placebo activity in several sessions.

Procedure

The activities and observations took place in a room adjacent to the regular ward. This space, measuring 10 x 34 feet, had been intended for a dining area, but it was not in use at the time of this study. A 9 x 24 foot area, which corresponded to the focal range of the video camera, was blocked out by the use of chairs and bolsters, and subjects were instructed to remain within this area throughout the sessions. The floor plan is illustrated in Figure 1.
Figure 1. Schematic diagram (to scale) of room in which the treatments and the observed social interactions occurred.

As soon as a group had completed a game or placebo session, the game facilitator explained that the session was over and that participants could talk to each other or do what they wanted until the timer (set for 10 minutes) rang. At that time the assistant would come in to give them their treat. If they remained in the room they received refreshments, if they left the room, they forfeited the treat. (For details see the standard procedure as indicated in Appendix D.)

Videotaping of subjects' behavior was conducted by an assistant throughout this 10 minute period of waiting. The investigator remained in the room near the camera station as unobtrusively as possible taking live data for possible later use. Efforts by group members to interact with the investigator and assistant were discouraged during the interval.
The procedure was well observed by all participants. A data recording sheet for the live observations is included as Appendix E.

To facilitate the assessment, via the video tape, of interindividual proximity, the floor of the room was marked off into a checker board grid (squares measuring 3 x 3 feet) with masking tape as illustrated in Figure 2. The camera was stationed in one corner of the room so that the entire "blocked off" area could be covered without rotating the camera on the tripod.

Figure 2. Schematic diagram (to scale) of the floor plan in which the treatment and the observed social interactions occurred.
Behavioral Samples and Analyses

Although a total of 21 activity sessions were videotaped, not all were a full 10 minutes. Problems with the camera, or delays because of subjects' brief absences from the room, resulted in shorter tapings. The range was from 6 to 10 minutes. Also, because of the occasional absences of subjects from the group activities, some sessions had less than the full complements of subjects in the groups.

When the tapes were viewed, the behavior of each subject during the first three seconds of each 30 second interval, was recorded in terms of the friendly, unfriendly, and inactivity categories (Appendix F). If a subject emitted more than one behavior during the interval, priority was given to the first behavior. Because the tape for a full 10 minute session would yield 20 behavioral samples, the maximum score a subject could have received for her social interaction was 20.

The investigator and one assistant viewed the tapes working in unison. The tape was frozen at 30 second intervals. On the first viewing, the frequency with which friendly and unfriendly behavior, and inactivity, occurred was recorded at each 30 second interval. During a second viewing, the observers together viewed the tapes to record the interpersonal proximity or distance data.

During a pilot trial, the tabulation of the friendly, unfriendly, and inactivity data was based on what was observed
during the 3 second auditory signal which occurred at the beginning of each 30 second interval. In reviewing the initial tape, however, it was found that the meter counter reading of 1.3 was approximately equal to 3 seconds and the meter reading of 13 was equivalent to 30 seconds. Subsequent tapes were, therefore, analyzed in terms of the meter reading equivalent in collecting frequency data.

Social Interaction Data. During the first 3-seconds of each 30-second interval, if any subject directed what was categorized as a friendly movement, or vocalization as described in Appendix F, toward another member, this was recorded on the data sheet under the appropriate category for that subject. If the behavior met the criterion for unfriendly behavior, it was similarly coded and tabulated under the appropriate unfriendly behavior category. Instances of inactive behavior were similarly coded. The observers then tabulated the number of friendly, and unfriendly interactions, identifying the initiator and the recipient, as well as inactive behaviors made by each subject.

When subjects interacted with an identifiable peer, the observer coded the interaction to indicate the initiator, the type of behavior (positive or negative), and the responses (positive or negative) of the recipient. If an initiator and a recipient could not be identified the participants were scored as engaging simultaneously in friendly or unfriendly behaviors.
In summary, the data consisted of a frequency count for each individual of friendly, unfriendly, and inactive behavior, the identity of the other subjects with whom she interacted in each instance, and, when possible, the initiator and recipient in each of these interactions (The data sheet is appeared in Appendix G).

Interpersonal Distance. After viewing the tape for the social interaction data collection, the observers simultaneously viewed the tape a second time to record interpersonal distance data. In this process, the tape was stopped at the sound of the auditory cue (or counter reading that corresponded to a 30 second interval). The position of each subject was marked on a ruled form (Scale 1/2" = 1 foot) and the distance of each subject from each other subject were measured with an inch ruler and recorded the measures by converting them into feet on the data sheet (Appendix H).
CHAPTER IV

STATISTICAL RESULTS

Hypotheses

The followings are the hypotheses for the study stated in null form.

1. There will be no significant difference in the mean rate of friendly interaction across groups for the two treatment conditions, socialization game and placebo condition.

2. There will be no significant difference in the mean rate of friendly interaction with respect to time-of-day.

3. There will be no significant difference in the mean rate of unfriendly interaction across groups for the socialization game and placebo condition.

4. There will be no significant difference in the mean rate of inactive behavior across groups for time-of-day.

5. There will be no significant difference in the mean rate of inactive behavior across groups for the two different treatment conditions.

6. There will be no significant difference in the mean interpersonal distance across groups for the socialization game and placebo condition.

7. There will be no relationship between the rate of friendly interaction and the interpersonal distance across
the pairs of subjects.

8. There will be no relationship between each subject's mean rate of friendly behavior toward individuals in her group and the number of times she named these individuals as preferred peers on a sociometric test.

9. There will be no relationship between the subjects' mean rate of friendly behavior initiated and the rate of friendly behavior received.

10. There will be no difference in the mean Peer Knowledge scores of the experimental groups and control group.

Computation of Interpersonal Behavior and Distance

The frequency of the three classes of behavior (friendly, inactive, and unfriendly) and the subjects' distance from one another were determined by observers' reviewing the video tapes that were recorded after all but three experimental and placebo sessions. An unexpected power failure for session 10, camera failure for session 16, and audio failure for session 14, as well as occasional absences of subjects resulted in an uneven length of recording for each subject (mean number of absences were 3.7 for group 1 and 4.3 for group 2). In all, 21 10-minute free game activity sessions for each group were observed and analyzed. Prior to the experiment, six pilot sessions were conducted to familiarize the research assistants and residents with the experimental procedure. For group 1, three of the sessions were conducted in the Treatment/a.m. condition, six sessions in the Treatment/p.m. condition,
five sessions in the Placebo/a.m. and seven sessions in the Placebo/p.m. For group 2, four sessions were conducted in Treatment/a.m. condition, seven sessions in Treatment/p.m. condition, four sessions in Placebo/a.m. condition and six sessions in Placebo/p.m. condition.

Because session lengths varied somewhat, the frequency of occurrence of the three classes of interpersonal behavior was converted to rate as suggested by Sackett (1978) (rate= frequency of a class of behavior divided by number of 30 second intervals of the session).

The mean interpersonal distance (measured in feet) was obtained by calculating the mean distances between each subjects and all of the other members of her group, across all sessions in which the subject was present. Again, due to uneven session length for each individual, mean distance was obtained by using the formula suggested by King (1966, p.113):

\[
\text{Mean Distance} = \frac{\sum_{i=1}^{N} D_i}{N},
\]

where \(D_i\) = sum of physical distance between the subject and another subject studied at 30 second intervals, and \(N\) = number of 30 second intervals observed.

Finally, the sum of all these scores were averaged across sessions (a.m. and p.m. separately) to obtain final mean scores used in the statistical analyses. The raw data appear in Appendix I.

**Computation of Peer Knowledge and Peer Preference Scores**

The number of correct answers to the first 19 questions
of the test were summed to yield the peer knowledge score. The Peer Preference score was the number of time any individual was named on questions 21, 24 and 25 of the test.

Reliability

As a check on the investigator's accuracy, another observer made tallies and measurements from the first session, and this observer's data were compared with the investigators. Interobserver reliability coefficients were computed separately for the three major behavioral categories: friendly, unfriendly and inactive behaviors and interpersonal distance scores. The resultant interobserver reliability coefficients are presented in Table 2.

<table>
<thead>
<tr>
<th>Observers Compared</th>
<th>01-02</th>
<th>01-02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friendly Interaction Rate</td>
<td>0.989</td>
<td></td>
</tr>
<tr>
<td>Unfriendly Interaction Rate</td>
<td></td>
<td>0.997</td>
</tr>
<tr>
<td>Inactive Behavior</td>
<td>0.990</td>
<td></td>
</tr>
<tr>
<td>Interpersonal Distance Score</td>
<td></td>
<td>0.994</td>
</tr>
</tbody>
</table>
High reliability was expected, as the data collection by use of the video tape allowed the observers to review the tape several times. On subsequent recording sessions, the investigator and assistant observer viewed the tapes in unison and came to agreement on each interpersonal behavioral recording. This method was also used in computing interpersonal distance scores. The data collection for the distance scores was occasionally supplemented by "live" data taken by the investigator who remained with subjects during free-game sessions. At 30 second intervals on the digital watch kept by the observer, the position of each subject was quickly marked on a recording grid form which corresponded to the floor of the room which was marked off into a checkerboard grid pattern. The "live" observation data were used on occasion to clarify a subject's position when window light or imperfect camera focus made a position unclear on the video tape.

The reliability with which subjects responded to the Peer Knowledge and Peer Preference questions on the questionnaire was examined in terms of Pearson product moment correlations between responses given to two administrations which were from seven to 13 days apart.

The reliability coefficient for subjects' Peer Knowledge was \( r = .852 \) and that for Peer Preference scores was \( r = .295 \).

**Analyses**

Hypotheses (1, 2, 3, 4, 5 and 6) concerning the relationships
between the independent variables (treatment conditions and
time-of-day) and dependent variables (rate of friendly,
unfriendly, inactive behavior and interpersonal distances)
were tested via 1-between, 2-within subjects ANOVAs (Myers,
1972).

Hypotheses (7,8 and 9) concerning the relationship
between dependent variables, such as interpersonal distance
and rates of friendly interaction were tested with a Pearson's
product moment correlation. The unit of analysis for these
correlations were not the individual subjects, but were pairs
of subjects; i.e., the mean distance between each pair of
subjects across sessions, the mean frequency of the ini-
tiation of friendly acts of each subject toward each other
and the mean frequency with which each subject was the
recipient of friendly acts from each other subject. There
were 15 pairs of subjects in each group, and each pair had
two friendly interaction scores (one of them is the mean rate
of friendly interaction for friendly interactions initiated
by one member of the pair, and the other score is the rate of
friendly interactions initiated by the other). There were,
therefore, 60 friendly interaction scores altogether.
There were 30 interpersonal distance scores, one for each
pair of subjects. Each of these 30 scores corresponds to
two of the 60 friendly interaction scores.

One-way between-subjects ANOVAs with a priori compari-
sions were used to test the hypotheses that the treatment and
control groups were different with respect to the dependent variables of Peer Knowledge (Hypothesis 10).

Before presenting results of the analysis of variance, the mean rates of the three categories of interpersonal behavior are shown in relation to time-of-day and type of treatments for both experimental groups (1 and 2) in Table 3. The standard deviations are also included in the table.
Table 3

Means and Standard Deviations of Interpersonal Behaviors for Groups 1 and 2

<table>
<thead>
<tr>
<th>Time of Condition Day</th>
<th>Group 1 (N=6)</th>
<th></th>
<th>Group 2 (N=6)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rate of Friendly Interaction</td>
<td>Rate of Inactive Behavior</td>
<td>Rate of Unfriendly Interaction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean    SD</td>
<td>Mean    SD</td>
<td>Mean    SD</td>
<td>Mean    SD</td>
</tr>
<tr>
<td>Games</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.m.</td>
<td>0.495    0.293</td>
<td>0.463    0.349</td>
<td>0.042    0.102</td>
<td></td>
</tr>
<tr>
<td>p.m.</td>
<td>0.737    0.096</td>
<td>0.253    0.088</td>
<td>0.025    0.030</td>
<td></td>
</tr>
<tr>
<td>Placebo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.m.</td>
<td>0.115    0.070</td>
<td>0.712    0.108</td>
<td>0.175    0.082</td>
<td></td>
</tr>
<tr>
<td>p.m.</td>
<td>0.245    0.099</td>
<td>0.570    0.049</td>
<td>0.162    0.115</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time of Condition Day</th>
<th>Rate of Friendly Interaction</th>
<th>Rate of Inactive Behavior</th>
<th>Rate of Unfriendly Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean    SD</td>
<td>Mean    SD</td>
<td>Mean    SD</td>
</tr>
<tr>
<td>Games</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.m.</td>
<td>0.273    0.076</td>
<td>0.745    0.081</td>
<td>0.001    0.004</td>
</tr>
<tr>
<td>p.m.</td>
<td>0.570    0.169</td>
<td>0.413    0.155</td>
<td>0.020    0.030</td>
</tr>
<tr>
<td>Placebo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.m.</td>
<td>0.197    0.110</td>
<td>0.608    0.262</td>
<td>0.198    0.177</td>
</tr>
<tr>
<td>p.m.</td>
<td>0.255    0.159</td>
<td>0.515    0.187</td>
<td>0.228    0.180</td>
</tr>
</tbody>
</table>
The result of the 1-between, 2-within ANOVAs where group was the between-subjects factor, and treatment and time-of-day were the within-subjects factors for the mean rate of friendly interaction is shown on Table 4.

Table 4

Analysis of Variance Summary Table for the Dependent Variable of Mean Friendly Interaction Rate

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>d.f.</th>
<th>SS</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>1</td>
<td>0.066</td>
<td>1.94</td>
<td>0.193</td>
</tr>
<tr>
<td>Error Term</td>
<td>10</td>
<td>0.040</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>1</td>
<td>1.197</td>
<td>86.93</td>
<td>0.000</td>
</tr>
<tr>
<td>Treatment x Group</td>
<td>1</td>
<td>0.173</td>
<td>12.55</td>
<td>0.005</td>
</tr>
<tr>
<td>Error Term</td>
<td>10</td>
<td>0.138</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of Day</td>
<td>1</td>
<td>0.396</td>
<td>18.20</td>
<td>0.002</td>
</tr>
<tr>
<td>Time of Day x Group</td>
<td>1</td>
<td>0.000</td>
<td>0.01</td>
<td>0.924</td>
</tr>
<tr>
<td>Error Term</td>
<td>10</td>
<td>0.022</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment x Time of Day</td>
<td>1</td>
<td>0.092</td>
<td>4.32</td>
<td>0.064</td>
</tr>
<tr>
<td>Treatment x Time of Day x Group</td>
<td>1</td>
<td>0.012</td>
<td>0.57</td>
<td>0.469</td>
</tr>
<tr>
<td>Error Term</td>
<td>10</td>
<td>0.213</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The significant difference between the rate of friendly interaction for the social game and the placebo condition across groups leads to the rejection of Hypothesis 1. As can be noted in Table 3, the rate of friendly interaction following the social game condition was higher than the rate following the placebo condition regardless of time-of-day.

The significant difference in rate of friendly interaction in relation to time-of-day leads to rejection of hypothesis 2. As can be noted in Table 3 the rate was higher in the afternoon sessions.

When the mean scores were collapsed over a.m. and p.m. for the experimental groups, and across all sessions, the mean rate of friendly interaction was less for the placebo condition (mean=0.20, SD=0.16) than for the treatment condition (mean=0.52, SD=0.11). This accounts for the significant interaction between treatment condition and group as shown in Table 4 (F=12.55, d.f.=1,10; p<.005).

The significant statistical interaction between treatment and group is graphed in Figure 3. Group 1 has an overall mean friendly interaction rate higher than that of group 2 in the social games, but the mean for group 2 is higher in the placebo condition. This statistical interaction is not strong, however, and is probably not of theoretical importance. The groups did not differ in rate of friendly interaction collapsed across the two treatment conditions. (F=1.94; d.f.=1,10; p>.05)
With respect to hypothesis 3 as shown in Table 5, the result of an analysis of variance of rate of unfriendly interaction in relation to treatment and time-of-day revealed a significant main effect for treatment condition and no significance for time-of-day. The combined experimental group mean rate of unfriendly interaction for the socialization game was 0.022 and the mean rate for the placebo condition (arts and crafts activity) was 0.191. The standard deviations for combined groups for each condition were 0.042 and 0.188 respectively. The hypothesis of no difference is rejected.

With respect to hypothesis 4, the result of an analysis of variance of the rate of inactive behavior revealed a significant difference in mean rates of inactive behavior following the socialization game than the placebo condition as shown in Table 6. The hypothesis of no difference is rejected.
Table 5

Analysis of Variance Summary Table for the Dependent Variable of Mean Unfriendly Interaction Rate (1-between, 2-within ANOVA)

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>d.f.</th>
<th>SS</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>1</td>
<td>0.001</td>
<td>0.08</td>
<td>0.778</td>
</tr>
<tr>
<td>Error Term</td>
<td>10</td>
<td>0.181</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>1</td>
<td>0.341</td>
<td>18.93</td>
<td>0.001</td>
</tr>
<tr>
<td>Treatment x Group</td>
<td>1</td>
<td>0.013</td>
<td>0.76</td>
<td>0.405</td>
</tr>
<tr>
<td>Error Term</td>
<td>10</td>
<td>0.180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of Day</td>
<td>1</td>
<td>0.000</td>
<td>0.05</td>
<td>0.821</td>
</tr>
<tr>
<td>Time of Day x Group</td>
<td>1</td>
<td>0.005</td>
<td>0.98</td>
<td>0.345</td>
</tr>
<tr>
<td>Error Term</td>
<td>10</td>
<td>0.047</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment x Time of Day</td>
<td>1</td>
<td>0.000</td>
<td>0.02</td>
<td>0.882</td>
</tr>
<tr>
<td>Treatment x Time of Day x Group</td>
<td>1</td>
<td>0.000</td>
<td>0.01</td>
<td>0.934</td>
</tr>
<tr>
<td>Error Term</td>
<td>10</td>
<td>0.072</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6

Analysis of Variance Summary Table for the Dependent Variable of Mean Inactive Behavior Rate

(1-betweeen, 2-within ANOVA)

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>d.f.</th>
<th>SS</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>1</td>
<td>0.060</td>
<td>1.23</td>
<td>0.293</td>
</tr>
<tr>
<td>Error Term</td>
<td>10</td>
<td>0.489</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>1</td>
<td>0.211</td>
<td>7.60</td>
<td>0.020</td>
</tr>
<tr>
<td>Treatment x Group</td>
<td>1</td>
<td>0.270</td>
<td>9.74</td>
<td>0.011</td>
</tr>
<tr>
<td>Error Term</td>
<td>10</td>
<td>0.277</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of Day</td>
<td>1</td>
<td>0.452</td>
<td>15.18</td>
<td>0.003</td>
</tr>
<tr>
<td>Time of Day x Group</td>
<td>1</td>
<td>0.004</td>
<td>0.14</td>
<td>0.721</td>
</tr>
<tr>
<td>Error Term</td>
<td>10</td>
<td>0.298</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment x Time of Day</td>
<td>1</td>
<td>0.070</td>
<td>2.17</td>
<td>0.171</td>
</tr>
<tr>
<td>Treatment x Time of Day x Group</td>
<td>1</td>
<td>0.022</td>
<td>0.67</td>
<td>0.433</td>
</tr>
<tr>
<td>Error Term</td>
<td>10</td>
<td>0.324</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7
Analysis of Variance Summary Table for the Dependent Variable of Mean Interpersonal Distance Score (1-between, 2-within ANOVA)

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>d.f.</th>
<th>SS</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>1</td>
<td>21.280</td>
<td>11.06</td>
<td>0.009</td>
</tr>
<tr>
<td>Error Term</td>
<td>9</td>
<td>17.315</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>1</td>
<td>40.916</td>
<td>168.51</td>
<td>0.000</td>
</tr>
<tr>
<td>Treatment x Group</td>
<td>1</td>
<td>0.422</td>
<td>1.74</td>
<td>0.220</td>
</tr>
<tr>
<td>Error Term</td>
<td>9</td>
<td>2.185</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of Day</td>
<td>1</td>
<td>0.184</td>
<td>0.98</td>
<td>0.348</td>
</tr>
<tr>
<td>Time of Day x Group</td>
<td>1</td>
<td>3.064</td>
<td>16.30</td>
<td>0.003</td>
</tr>
<tr>
<td>Error Term</td>
<td>9</td>
<td>1.692</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment x Time of Day</td>
<td>1</td>
<td>2.444</td>
<td>7.50</td>
<td>0.023</td>
</tr>
<tr>
<td>Treatment x Time of Day x Group</td>
<td>1</td>
<td>1.026</td>
<td>3.15</td>
<td>0.120</td>
</tr>
<tr>
<td>Error Term</td>
<td>9</td>
<td>2.931</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Individuals across groups were more inactive when the placebo condition was performed than when the socialization game was performed as was shown in Table 3. With respect to hypothesis 5, the significantly higher rate of inactive behavior during the morning sessions leads to the rejection of the hypothesis of no difference.

With respect to hypothesis 6, the result of an analysis of variance to determine the difference between interpersonal distance scores for groups and treatment conditions are presented in Table 7. The propinquity of groups in the socialization was greater than for the placebo condition and this resulted in the rejection of hypothesis 6. The groups were found to be unequal on the interpersonal distance score ($F=11.06; \text{d.f.}=1.9 < .05$). As shown on Table 8, group 1 showed greater interpersonal distance (mean=6.93, SD=0.69) than group 2 (mean=5.53, SD=0.64).

Table 7 also indicates the interaction effects among the variables studied. There was a significant group by time-of-day statistical interaction as well as a significant treatment condition by time-of-day statistical interaction.

As shown in Figure 4, the overall mean distance of subjects from one another during the a.m. condition was less than the mean distance from one another during the p.m. condition when the socialization was performed and the opposite was true for the placebo condition.
Table 8
Means and Standard Deviations (SDS) of Interpersonal Distance

<table>
<thead>
<tr>
<th>Condition</th>
<th>Time of Day</th>
<th>Group 1 (N=6)</th>
<th>Group 2 (N=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean  SD</td>
<td>Mean  SD</td>
</tr>
<tr>
<td>Games</td>
<td>a.m.</td>
<td>5.34 0.94</td>
<td>4.58 0.58</td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>6.78 0.93</td>
<td>4.35 0.33</td>
</tr>
<tr>
<td>Placebo</td>
<td>a.m.</td>
<td>7.86 1.24</td>
<td>6.88 0.78</td>
</tr>
<tr>
<td></td>
<td>p.m.</td>
<td>7.74 0.65</td>
<td>6.32 0.88</td>
</tr>
</tbody>
</table>

Mean Distance (in feet)

Games  Placebo

Figure 4. Mean Interpersonal Distance of Subjects for the Treatment Conditions under the A.M. and P.M. Condition.
It may be observed from Figure 4 that there was a negligible difference in interpersonal distance for the a.m. and p.m. conditions under the placebo situation. However, in the socialization game, subjects maintained a greater distance for the p.m. condition than for the a.m. condition. The greater mean score for inactive behavior during the a.m. may have contributed to this result.

For hypothesis 7, a Pearson product moment correlation coefficient was computed to determine whether mean rate of friendly interaction (initiated) by the subjects across groups was related to the mean interpersonal distance. The negative coefficient of -0.38 (for 60 units of data) was significant at .003. The hypothesis of no relationship must be rejected. The data indicate that the friendlier the subjects were the less was interpersonal distance between them.

The hypothesis 8 of no relation between each subjects' mean rate of friendly behavior toward individuals in her group, and the frequency with which she named these individuals as preferred on the questionnaire was also examined in terms of a product moment correlation. The coefficient of .21 (N=60, p>.05) indicates the hypothesis cannot be rejected.

To test hypothesis 9, the overall rate of friendly interaction (initiated) under the game condition, was compared with the mean rate of friendly interaction (received) by a product moment correlation. The coefficients are presented in Table 9.
As illustrated in Table 9, the obtained correlation coefficient of FIT (friendly interaction initiated) and FRT (friendly interaction received) was significant at p < .001 under the socialization game condition. This coefficient indicates that subjects' overall output of friendly behavior was related to the amount of friendly interaction received from others. When these same variables were considered under the placebo condition, the coefficient of .27 did not exceed chance level. The scatter diagram presented in Figure 5 may provide a partial explanation for this result. The generally depressed output of friendly interactions among most subjects, combined with deviantly high friendly interaction in relation to friendly interaction received by three subjects, contributes to the weaker relation found under the placebo condition. The
Figure 5. Scatter Diagram of the Rate of Friendly Interaction Initiated vs. Received under the Placebo Condition.
effect of different activity on the group may have resulted in
different arrangement of reciprocity between subjects.

Whether the individual who directed friendly behavior to
others tended to receive more friendly acts from the same
subjects, (reciprocity) was further examined. Table 10 is a
matrix of data for the social game condition on which initia-
tors are listed in the first column and the mean frequency
of friendly interaction toward each of the other group members
are shown in the rows. That is, Subject 1 initiated an average
of 0.76 friendly acts across sessions to Subject 2, 0.07 to
Subject 3, and so on. Subject 2 was the recipient of friendly
acts from Subject 1, 0.76 and 0.35 from Subject 3.

Table 11 shows that not only were there certain indivi-
cuals who were friendlier than other; e.g., Subject 2, 3 and
4; but there were individuals to whom friendly interactions
were more frequently directed; e.g., Subjects 3 and 7. The
table illustrates that subjects' overall friendly interaction
output did not always relate to the amount of friendly inter-
actions that she received. However, the general social rule
that appears to operate here (in the social game condition) is
that one tends to receive in relation to what one give (or
gives in relation to what one receives.)
Table 10

**Friendly Interactions (Rates) for the Social Game Condition**

<table>
<thead>
<tr>
<th>Initiator</th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
<th>S5</th>
<th>S6</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>0.76</td>
<td>0.07</td>
<td>0.22</td>
<td>0.02</td>
<td>0.06</td>
<td>1.13</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>0.07</td>
<td>0.45</td>
<td>0.78</td>
<td>0.30</td>
<td>0.13</td>
<td>1.73</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>0.00</td>
<td>0.35</td>
<td>0.59</td>
<td>0.50</td>
<td>0.22</td>
<td>1.66</td>
<td></td>
</tr>
<tr>
<td>S4</td>
<td>0.01</td>
<td>0.99</td>
<td>0.73</td>
<td>0.14</td>
<td>0.07</td>
<td>1.94</td>
<td></td>
</tr>
<tr>
<td>S5</td>
<td>0.02</td>
<td>0.19</td>
<td>0.71</td>
<td>0.11</td>
<td>0.11</td>
<td>1.14</td>
<td></td>
</tr>
<tr>
<td>S6</td>
<td>0.02</td>
<td>0.20</td>
<td>0.42</td>
<td>0.00</td>
<td>0.25</td>
<td>0.89</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.12</td>
<td>1.73</td>
<td>2.38</td>
<td>1.70</td>
<td>1.21</td>
<td>0.59</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Initiator</th>
<th>S7</th>
<th>S8</th>
<th>S9</th>
<th>S10</th>
<th>S11</th>
<th>S12</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>S7</td>
<td>0.28</td>
<td>0.24</td>
<td>0.12</td>
<td>0.08</td>
<td>0.04</td>
<td>0.76</td>
<td></td>
</tr>
<tr>
<td>S8</td>
<td>0.53</td>
<td>0.17</td>
<td>0.00</td>
<td>0.32</td>
<td>0.06</td>
<td>1.08</td>
<td></td>
</tr>
<tr>
<td>S9</td>
<td>0.69</td>
<td>0.18</td>
<td>0.20</td>
<td>0.17</td>
<td>0.16</td>
<td>1.40</td>
<td></td>
</tr>
<tr>
<td>S10</td>
<td>0.49</td>
<td>0.43</td>
<td>0.05</td>
<td>0.17</td>
<td>0.16</td>
<td>1.20</td>
<td></td>
</tr>
<tr>
<td>S11</td>
<td>0.27</td>
<td>0.37</td>
<td>0.17</td>
<td>0.13</td>
<td>0.19</td>
<td>1.13</td>
<td></td>
</tr>
<tr>
<td>S12</td>
<td>0.06</td>
<td>0.16</td>
<td>0.14</td>
<td>0.03</td>
<td>0.27</td>
<td>0.66</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2.04</td>
<td>1.42</td>
<td>0.77</td>
<td>0.25</td>
<td>1.01</td>
<td>0.51</td>
<td></td>
</tr>
</tbody>
</table>

Note, S=Subject
For hypothesis 10, a one-way analysis of variance as shown in Table 12 indicated no difference between the combined experimental groups and the control group with respect to interpersonal knowledge score. Although as shown in Table 11, the means for the experimental groups were higher than the control group, the difference did not attain the .05 level of significance.

Table 11
Means and Standard Deviations of Interpersonal Knowledge Score of Experimental Groups 1 and 2, and Control Group 3

<table>
<thead>
<tr>
<th>Experimental Group 1 (N=5)</th>
<th>Experimental Group 2 (N=6)</th>
<th>Control Group 3 (N=7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean SD</td>
<td>Mean SD</td>
<td>Mean SD</td>
</tr>
<tr>
<td>63.6 17.5</td>
<td>60.3 14.1</td>
<td>43.1 21.9</td>
</tr>
</tbody>
</table>

a One subject in Group 1 refused testing.
b One subject in Group 3 was on home leave at time of testing.

Because a t test of the difference between the control group and the combined experimental groups' mean Peer Knowledge scores resulted in a t=2.10; d.f.=15; p > .05, with a larger sample size it may have been possible to obtain a significant result. The result is interesting in view of the fact that only two of the 11 socialization game sessions specifically emphasized peer knowledge.
CHAPTER V

DISCUSSION

This chapter will present some limitations of the study, then, a discussion of the results obtained in this study as they relate to the hypotheses, implications of the study, and suggestions for further research.

Limitations

A number of factors limit the generalizability of the result: First, although the population from which the samples were drawn were moderately retarded female residents with a mean age of 28, and a history of institutional residence averaging 13.8 years, there is no assurance that these independent variables alone would identify other populations which would react in the same way to the treatments that were used in this study. Second, the effect of treatments cannot be extended beyond the period and room used for observation and other conditions; namely, the 10 minute period in the room used for treatments when subjects were waiting for their treat; and the presence of the investigator and other equipment in that room. It is also possible, because the treatments were confined to Friday, Saturday, and Sunday of each week and to two time blocks during these
days, that the effects would not have been observed on other days nor during evening hours.

Circumstances that may have introduced error into the data include occasional absences of subjects from the planned activity, the possible confound due to the three different session-facilitators who assisted on the basis of their availability, and, on three occasions, failure of either the video camera or the recorder. In defense, however, of the data obtained, because the treatments were randomly scheduled, the circumstances should not have affected the data from one treatment any more than from the other.

The use of time point sampling to provide the measures of interpersonal behavior might be criticized as failing to identify qualitative aspects of behavior; and, to cite Gottleib, "The historical context in which ongoing behavior occurs." (1978, p.304). The time sampling method can be defended, however, for its objectivity and the relative ease of obtaining inter-observer agreement.

The consistency of subject's responses to two administrations of the three peer preference questions, although attaining the customary .05 level of probability, was (r=.283) below a desirable level for use in relation to other measures.

Discussion of Results

In this experiment two treatment conditions and variables of time-of-day, were compared with respect to their
short term effects on group structure in terms of rates of friendly, unfriendly and inactive behavior, and on interpersonal distancings. The effect of the two treatments on peer knowledge and peer preference was also examined.

The findings can be considered at more than one level. At one level they support the utility of the method that was employed. The use of videotape doubtless increased the validity or the accuracy of the interpersonal behavioral records, because observers could review the sequences as often as necessary to extract the data. The method allowed observers to focus on specific behavior without the confound or distraction of competing variables.

The random selection of subjects for the two experimental groups led to equivalence of the two groups that received the treatment sessions and the control group, in terms of age and years of institutional residence. The equivalence of the two experimental groups is also shown in terms of mean rates of friendly, unfriendly, inactive and the similarity of their distributions of peer knowledge scores.

The short term effect of training resulted in differences in group structure. After the socialization games there was greater propinquity and a higher rate of friendly interaction, and a lower rate of unfriendly interaction than occurred after the non-interactive placebo treatment sessions. This effect was obtained for both experimental groups and for both times
of day, although the effect was more marked in the afternoon than in the morning sessions. There was a greater frequency of inactivity in morning than in afternoon sessions, and, indeed, greater effort had to be exerted in order to get clients to participate in the morning. The temporal difference might be related to periodicity phenomena in line with McGrew's (1972) finding that daily and weekly periodicity are factors to be taken into account in understanding preschool children's behavior in the nursery school. As a simple explanation, however, residents had had no morning programs on the weekends prior to this study and were accustomed to sleeping late and to having little responsibility to a schedule. It took more effort in the morning, to interest them in either activity than was required in the afternoons.

It was found, as might be expected, that physical closeness of subjects was related to a rate of friendly interaction.

The study supported others' findings (e.g., Hartup, 1967) that the amount of friendly interaction given was positively related to the amount received. However, the "popular individual" as defined by the mean number of friendly interactions received from peers did not behave very differently from other individuals in terms of the mean number of friendly interactions initiated.

The peer knowledge questions were formulated in the hope that the two groups which had socialization game experiences and friendly interactions would be less egocentered and would
learn more about one another than subjects in the control group. Although the statistical comparison of the mean knowledge scores of the experimental groups and the control group failed to attain the .05 level of confidence, the difference (higher mean scores on peer knowledge) did favor the experimental groups, as can be noted in Table 11. One of the most accurate women was a member of the control group, her score accounting for the large standard deviation for that group, as the remaining six members had scores clustering near and below the group average. A replication with larger samples might well yield the expected difference in favor of the treatment groups.

The unexpected lack of a significant relationship between subjects' peer preference scores and the frequency of friendly interaction directed toward those individuals is contrary to findings reported by Hartup et al. (1967) that giving positive reinforcement to peers was significantly related to peer choices as indicated on a picture sociometric test. The failure to find this relationship in the present study may be due to the subjects' inconsistent responses to the peer preference questions as shown by a low test-retest score correlation. Subjects' consistency on these questions was much less than their consistency on the peer knowledge questions, perhaps reflecting a natural fluctuation in attitude toward one another on wards where behavior is sometimes unpleasant. Or, perhaps the questions were novel
questions and subjects had never formed an evaluative concept of one another. This may be supported by the egocentricity apparent in answers by nine subjects who named themselves either as one they liked or as one who did nice things for them.

Certainly, the sociometric results in this study did not reflect the "enduringness" of friendship choices discussed by Asher et. al. (1976) or the time-boundness that Gottlieb (1978) found characteristic of sociometric data relative to preferred peers.

Implications

Although the significantly higher rate of friendly interaction and significantly lower rate of unfriendly interactions following a brief socialization game experience may be only short term phenomena, the finding has implications for institutional programming. Poor interpersonal behavior is chiefly responsible for the subjects' being in an institution instead of a group home. The usual programs such as vocational training, arts and crafts, recreation, and academic classes do not provide the mutually reinforcing interpersonal experiences that the socialization games seem to provide. They are more similar to the placebo experiences in this study. Socialization games can be presented on a ward and could be presented by attendants as an alternative to boredom and television.

A further implication from the study is that afternoon
can be better utilized for the social game procedure than mornings, as this is a time when inactive behavior is low. This corresponds to McBride's (1970) ethological study that time-of-day is an important element in arranging activities, as this variable, in animal research, is closely related to affiliative behavior and spacing of animals in groups.

**Suggestions for Future Research**

Prosocial behaviors as well as interpersonal spacing behavior in a group of retarded women individuals as presented here are composed of many elements such as the person's previous history of interpersonal behavior, and dominance hierarchies, and variations in each are to be expected. Also the covariation of these elements seriously complicates the attempt to study the effect of the socialization game procedures. A conclusion that an aggressive retarded woman is or is not improving in her interpersonal behavior and showing interpersonal spacing behavior simply as a function of single element is probably overly simplistic.

Given that the socialization game experience resulted in a short term effect of friendly interaction and reduced interpersonal spaces (in other words propinquity among peers) further research should examine what it was about this socialization procedure that was effective. An important aspect of the socialization game probably included (a) role-taking experience which may contribute to the
improved social cognitive development in retarded children (Blancher-Dixon and Simeonsson, 1978) and increasing skills in interpersonal conflict resolution (Affleck, 1975a). (b) instruction and dialogue methods given in the form of discussion, induction and direction of what to do to the children may develop problem-solving style of thinking (e.g., ability to conceptualize alternative solutions to the problem) therefore have an effect on the social behaviors (Spivack, 1974). (c) modeling by the facilitator may also be helpful in providing individuals with principles of general strategies of social interaction (Leger, Harris, Causey, Finfrock and Weaver, 1976). In addition, games allow the subjects to practice rules and strategies of social interactions in a nonthreatening learning situation.

It will be useful to study the socialization game effect in the context of the role structure within the group as suggested by McBride (1970), who theorized that the concept of role as used in group subphases is particularly appropriate to many human groups, since they exist for only one particular activity, and simply disappear when the activity ceases, for example, at the end of working day. An example of this would be studying the social behaviors in terms of dominance subordinate relationships occurring within the personal distance in different activities.

Data also could be collected under separate verbal and
nonverbal categories which might indicate more specifically which behaviors change as a result of training program. Also, the behavioral code might be made more specific. For example, in the present study, withdrawing, and avoiding other individuals were coded the same and were not separately tabulated and examined for later comparison.

Socialization game procedures might or might not be effective with mentally retarded adults at all levels of function, and might or might not be useful with adult males. Future research might examine training procedures that are appropriate to lower and higher functioning retarded individuals and to males.

The socialization game training procedure might also be useful in group home settings.

Future research could examine longer-term effects of socialization games. Follow-up data is needed to learn whether socialization games make a cumulative contribution to prosocial behavior, and what environmental arrangements are required in order to produce lasting and broad generalization of prosocial behavior.

Summary

The study examined the effects of brief participation in socialization games (Moxley and Nevil, 1979) by two groups of retarded female residents of a state institution. The purpose was to test hypotheses that activities specifically designed to promote friendly interaction would have
a more positive effect on the behavior of these typically self centered and frequently aggressive women than the task oriented group activities (vocational training, arts and crafts, gross motor recreation, and academic classes) that are offered in the institution.

Subjects were randomly assigned to two groups which were provided socialization games and placebo activities (arts and crafts or illustrated story session) on a random schedule to provide equal exposure to both, over three days a week for an eight week period. The sessions were also scheduled randomly over a morning and an afternoon time block.

At the conclusion of the treatment period subjects were administered a peer knowledge and a peer preference questionnaire.

The results were a clear indication that at least a short term effect was a significantly higher rate of friendly interaction favoring the socialization games over the placebo activities. The interpersonal distance between subjects, which was least after the socialization games, was negatively correlated with rate of friendly interaction (friendly interaction corresponded with physical proximity). The rate of friendly acts initiated by subjects was related to the rate of friendly acts received. Subject's overt indication of friendliness toward individuals was, however, only poorly related to their stated peer preferences.
The low reliability of stated peer preferences is a possible explanation for this result.

The two groups which had experienced the socialization games and the placebo experiences both scored higher on the peer knowledge questionnaire than the control group of subjects who had not received these treatments, but because of the great variance of control group scores, the difference failed to attain the $p = .05$ level of significance.

Research is needed to examine the possible cumulative or longer range effects of socialization games and to identify the effective components of the treatment.

Meanwhile, the simplicity of the games and the ease of presentation suggests that they would be useful component of institutional programming.


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APPENDIX A

SOCIALIZATION ACTIVITIES

David Moxley
Nevalyn Nevil

The Nisonger Center
The Ohio State University
Columbus, Ohio
1979
TITLE: "I Like ______ Because"

TARGET AREA: (1) Knowledge of others; (2) Social interaction

OBJECTIVES: To provide opportunity for clients to learn about one another and fostering friendship among them.

MATERIALS: A cardboard with T.V. picture drawn on it. Polaroid picture of each client.

PROCEDURE: A game facilitator selects a polaroid picture of a client and places it on the cardboard where the T.V. is drawn. She/he then explains that this selected player appearing on T.V. is the "star of the group" and if anyone knows nice things about this "star" raise a hand. The selected participant is instructed to say about the "star person" as follows: "I like ______ because..." Candy or similar rewards are given for saying a nice thing.
TITLE: "Where's the Sponge"

TARGET AREAS: (1) Propinquity; (2) Appropriate physical nearness

OBJECTIVE: To reinforce propinquity between clients.

MATERIALS: A blindfold and a piece of sponge.

PROCEDURE: The facilitator selects two players and puts the blindfold on the first player. She/he then explains that she/he is going to hide a sponge in the other client's, e.g., pocket, back. When the blindfold is removed the first player is to guess where the sponge is hidden. The participants sitting in the circle will yell out "yes," or "no," as the first client proceeds to find the sponge on the other player by either verbalizing or pointing to the likely place where she/he may find the hidden sponge.
TITLE: "Making a Friend"

TARGET AREAS: (1) Social interaction; (2) Propinquity

OBJECTIVES: To provide an opportunity to learn an appropriate means of greeting visitors and; to help the client practice an appropriate means of making friends or saying nice things to their friends.

MATERIALS: A tape recorder

PROCEDURE: The facilitator explains to the group that when they hear music, walk around the room without bumping into anyone. When the music stops, the clients are to freeze and tell the person nearest them their names or share a few nice words or shake hands. And when the music starts again the clients are supposed to stop talking and move around the room until the music stops again.

This game can be done in groups of two or three.


1 record, 12', 33 1/3 rpm.
TITLE:  "Santa"

TARGET AREAS:  (1) Sharing; (2) Awareness of others

OBJECTIVES:  To encourage sharing among group members; to provide an opportunity for clients to learn about one another.

MATERIALS:  Santa's badge; small boxes with candies inside.

PROCEDURE:  The participants sit in a circle and the game facilitator selects a player to be Santa. The game facilitator says, "I have a gift box here for one of you," she/he then proceeds to describe someone in the group. She/he then gives the box to the Santa to deliver.

If the Santa fails to guess who the present is for, the facilitator asks group to help the Santa by raising their hands and help the Santa find the person. The person who helps the Santa also shares the present and will be the next player.
TITLE: "Good Friends Share"

TARGET AREA: Social Interaction

OBJECTIVES: To provide opportunity for social interaction between pairs of clients; to reinforce appropriate social manners.

MATERIALS: Die; 5 2 1/2", 2 3 1/2" and 1 5" circles made from colorful construction paper; a piece of green tagboard 22' square; 6 3x5" question cards.

PROCEDURE: To construct a game board: Make a path on the tagboard starting with the 2 & 1/2" circles, then the 3 1/2" circles and end with 5" circle. Use the strip as a path between the circles. Write the words, "Good Friends Share!" on the 5" circle.

Game: First, tell the client to roll the die and move the number of spaces on the game-board as shown by dots on the die. The facilitator, then ask the client to pull one of the question cards and read the question for her/him. The client is instructed to move ahead the number of spaces shown on the question card, if she/he gives a correct answer or stays where she is if she is incorrect.

Whenever the client reaches the 5" circle, she/he gets the prize.

Questions:

1. You are coloring a picture in your room. Someone comes up to you and says, "I can't do my picture because I don't have any crayons." If you know what to say, MOVE AHEAD 1.

2. You are playing cards with your friends. Someone (name specific client) comes up and says, "I live to play checkers." If you know what to say, MOVE AHEAD 2.

3. Your friend lost her cup and wants some coffee. You have an extra glass in your drawer. If you know what to say, MOVE AHEAD 3.
4. You had a party on the ward and everyone left paper on the floor. Your ward staff are cleaning up, but need some help. If you know what to say, MOVE AHEAD 2.

5. You want to watch T.V. The only empty seat is on a bench next to Linda. If you know what to say, MOVE AHEAD 1.

6. Your radio is broken and you want to listen to music. You see Mary listening to her radio. If you know what to say, MOVE AHEAD 2.
TITLE:       "Can You Pretend?"

TARGET:       Knowledge of others

OBJECTIVE:     To increase participant's knowledge of other clients through role-playing.

MATERIALS:     Box with client name slips in it.

PROCEDURE:     This game is designed to encourage clients to recognize and think about the women around them. Facilitators introduce the game by saying that we will be playing a game that involves mimicking each other.

A client is encouraged to volunteer. This client is asked to select another client's name from the "name box." Once a name is selected, the person is identified. Next, the client is asked to make believe she is this person. The goal is to get the clients to imitate each other.

A variation of this game is to whisper a name to the target client and to have the target client act like the person whose name was drawn. The group then tries to guess who is being imitated by the target client.
TITLE: "Helping the Blind"

TARGET AREAS: (1) Social interaction; (2) Propinquity

OBJECTIVES: (1) To provide opportunity for social interaction between pairs of residents; (2) to reinforce propinquity between residents.

MATERIALS: Blindfold for each resident.

PROCEDURE: Facilitator explains to group that it is important that we learn to depend on each other. Facilitator explains that one way to do this is to pretend that we are blind. Facilitator instructs residents to form line and to choose a leader to head the chain. All the residents except for the leader are instructed to put blindfolds on and to hold onto the waist of the person in front of them. The leader then guides the line through the room or possibly through an obstacle course made of chairs.
"Pick a Friend"

Sharing

To encourage sharing among group members.

M & M's

Client is selected and seated within circle. The selected client holds out both hands, palms up, and one M&M is placed in each one.

The seated client is instructed to look around the group and look at the client's clothing. She is told to select a person but not say her name. Instead the client is to give a clue about the person by saying something about the color of her clothing. For example, the seated client says: "I am thinking of someone wearing blue shoes." Everyone tries to identify the person and when she is, that person comes up and takes an M&M from one of the seated client's hands. The seated client gets the other M&M.
TITLE: "Guess Who"

TARGET AREA: Desensitization

OBJECTIVE: To increase client's tolerance of propinquity with other clients.

MATERIALS: No special materials.

PROCEDURE: Two facilitators demonstrate this game. One facilitator sits with his back to group. Other facilitator sneaks up behind the sitting facilitator, puts hand over eyes and asks "Guess Who?" The sitting facilitator then guesses who it is.

After modeling, this procedure is carried out with group members.
TITLE: "Blow Round"

TARGET AREAS: Group interaction; group cooperation; pro-pinquity

OBJECTIVES: (1) To provide a task that requires both group interaction and group cooperation; (2) to reinforce positive close physical contact among residents.

MATERIALS: (1) Ping Pong ball; (2) Table

PROCEDURE: Facilitator (F) introduces game of "Blow Round." Facilitator instructs residents to be seated at a table and to position their chin on the table. Facilitator then rolls a ping pong ball onto the table and tells the residents "to try to blow it over to the other side of the table." Throughout this game, residents are told to keep the ball in motion. Spectators should provide social praise for the efforts of the participants.
TITLE: "The Magic Box"

TARGET AREA: Social interaction (sharing)

OBJECTIVE: To provide resident an opportunity to share with another resident in a structured situation.

MATERIALS: (1) Polaroid photographs of each resident; (2) box with small pieces of sugarless gum, pennies, etc...

PROCEDURE: Before start of session facilitator (F) tapes two pieces of candy or two pennies on back of each resident's photograph.

Facilitator explains that she/he is going to pass around a "magic box." Facilitator emphasizes that the box is magic because it contains a prize. But, facilitator says that when a resident picks from the box the prize will be taped on the back of someone's picture. The resident is to remove prize and share some of it with the resident whose picture was selected. Facilitator then demonstrates by selecting a picture from the magic box and shares with another resident.
TITLE: The "Greeting Game"

TARGET AREA: Social Interaction

OBJECTIVES: (1) Resident will learn appropriate means of greeting visitors.

MATERIALS: No special materials are required.

PROCEDURE: Facilitator talks about how group will discuss ways of greeting (or saying hello to others). Facilitator notes that there are some "O.K." ways of greeting others while there are some "weird" ways of saying hello to visitors on the ward.

Another facilitator then joins facilitator. The two facilitators role play a "weird" greeting, (e.g., hugging a visitor or pulling at a visitor), and then the two facilitators role play an "O.K." greeting, (e.g., shaking hands or holding up hand and saying "Hi!"). After each role play facilitators stress that the enacted scene was either "weird" or "O.K."

The facilitators then enact some more role plays and get residents to rate them as either "weird" or "O.K." These role plays could involve the following:

**Weird**

1. hugging a visitor.
2. kissing a visitor.
3. pulling at a visitor.
4. grabbing visitor from behind.
5. grabbing visitor's belt.
6. making direct (within 5 inches) face contact with visitor.
7. repeating verbal phrases in order to obtain attention.
8. holding hands with visitor.
9. pulling up shirt in order to expose oneself to visitor.

**"O.K."**

1. shaking hands.
2. holding up hand to wave.
3. verbal phrases:
   a. "Hi!"
   b. "What's your name?"
   c. "My name is . . ."
(4) maintaining distance of 3 feet and observing visitor.

The session can end by involving residents in "O.K." role plays. Ask who would like to show the group an "O.K." role play.
"Knowing What John Likes"

Make clients more aware of one another

Something that can be used as a spinning pointer

Each is asked a question by the facilitator about what they like and dislike. The others in the group respond en masse to each answer by: 1) saying "me too" or "not me"; or 2) by nodding or shaking their heads; 3) by smiling or frowning.

Questions:

1. Who's your best friend?
2. Which attendant do you like best?
3. Name some things you like to do. What do you like the best?
4. Name 3 wishes.

One way of playing is to have each in turn answer question #1, then the facilitator spins a pointer and asks the person to whom the arrow points "Who is the best friend of the person indicated by the other end of the arrow?" Memory scores could be kept and rewards given to the top 3 rememberers.

As a variant, clients could have turns asking their own questions of one another.
APPENDIX B

GROUP AND TABLE ACTIVITIES
TITLE: "Beer Can Animal"

OBJECTIVE: Table activity

MATERIALS: Empty beer cans, construction paper, felt pens, glue and scissors.

PROCEDURE: Draw a Rudolf Reindeer, head ears, horns separately on a piece of construction paper and add details with felt pens.

Cut each shape out and make the shapes stick out from the can by cutting a small strip of paper and folding it back and forth until the entire strip is pleated.

Glue one end of the strip to the beer can and the other end to the shape that is to stand out. With this knowledge the clients can make three dimensional deer.

Note: The deer can be already drawn on a piece of paper for low functioning clients. Prompts and assistance are given freely during the activity.
TITLE: "Packing Form Drawing"

OBJECTIVE: Table activity

MATERIALS: Packing forms of all shapes, glue, and construction papers.

PROCEDURE: Select different types of packing forms (in the shape of peanuts, loops, etc.), and glue them with white glue to form the desired shape or letters on a piece of colorful paper or construction paper.

TITLE: "Paper Bag Puppet"

OBJECTIVE: Table activity

MATERIALS: Brown paper bags, glue, scissors, colorful paper.

PROCEDURE: Using a piece of colorful paper, draw and cut out the head and body of a person. Cut the face into two pieces horizontally at the mouth, with the top lip and the bottom lip as the dividing line. Glue the top part of the mouth just above the fold of the bag and the bottom lip and body below the fold.

Make the puppet "talk" by putting your hand inside the bag and opening and closing the folded area.
TITLE: "Paper Flower"

OBJECTIVE: Table activity

MATERIALS: Color paper, crayons, and scissors.

PROCEDURE: Fold a large piece of paper into four or more segments length wise. Draw outlined flowers with flower pedals touching the folded edges. Cut out the flower, leaving the pedals joined. Make a circle at the center of the flower and cut the circle out. Draw details on the flower with markers or crayons.
TITLE: "Collage with a Theme"

OBJECTIVE: Table activity

MATERIALS: Magazines, scissors, glue, and colorful construction paper.

PROCEDURE: Have the clients choose a theme, "my favorite things," to express and cut out pictures from magazines illustrating that theme. Paste to a background paper. Paint or draw around the shapes to unify the picture, if desired. Themes are usually about objects ("Food I like"), colors ("All the tints and shades of green"), shapes ("A design with circles and squares"), messages ("The hungry people of the world").
TITLE: "Paper Plate Santa"

OBJECTIVE: Table activity

MATERIALS: Paper plates, cotton balls, colorful paper, glue and crayons or felt markers.

PROCEDURE: Draw a hat on a piece of red paper and cut the hat out from it. Paste it onto the plate and then paste on cotton balls for beard and trim of the hat. Draw the face with crayons.
TITLE: "Story Time"

OBJECTIVE: Group activity

MATERIALS: Filmstrip projector, filmstrip.

PROCEDURE: "The Three Billy Goats Gruff," a folk tale is presented by using a filmstrip projector.

TITLE: "Story Time"

OBJECTIVE: Group activity

MATERIALS: Filmstrip projector, filmstrip.

PROCEDURE: "The Old Woman and Her Pig", a folk tale is presented to the group by using a filmstrip projector.

TITLE: "Stories"

OBJECTIVE: Group activity

MATERIALS: Filmstrip projector, filmstrip.

PROCEDURE: "The Little Red Hen", a folk tale is presented by using filmstrip projector.

TITLE: "Story Time"

OBJECTIVE: Group activity

MATERIALS: Filmstrip projector, a filmstrip.

PROCEDURE: "The Two Foolish Cats (Japanese Folktale)"
          is presented by using a filmstrip projector.

SOURCE: Sutherland, Z. Folktales from Many Lands. Chicago:
TITLE: "Story Time"

OBJECTIVE: Group activity

MATERIALS: Filmstrip projector, a filmstrip.

PROCEDURE: "Little Burnt-Face (Native American Folktale)" is presented by using a filmstrip projector.

TITLE: "Story Time"

OBJECTIVE: Group activity

MATERIALS: Filmstrip projector, a filmstrip.

PROCEDURE: "Jabuty the Strong (Brazilian Folktale)" is presented by using a filmstrip projector.

APPENDIX C

RESPONSE FORM FOR
PEER KNOWLEDGE AND PEER NOMINATION TEST

1. Names (mark wrong)
2. Go to school
3. Go to work
4. Go home to visit
5. Have been married
6. Get letters from people
7. Have a boyfriend
8. Have visitors
9. People who don't get up in A.M.
10. Like to watch TV
11. Like music
12. Like to draw pictures
13. Have locker keys
14. Yell and scream
15. Have seizures
16. Tallest
17. Shortest
18. Oldest
19. Youngest
20. Like to be with
21. The one you like most, etc.
22. Don't like to be with
23. Might hurt you
24. Might give things to you
25. Might say nice things to you

Interviewer

Name of the client

Date:___________
APPENDIX D

EXPERIMENTAL PROCEDURE

Recruitment: The investigator announces the activity by saying, "It's Friday (Saturday/Sunday) and time for social activities and the treat. Bring your cup for the treat."

Before the session: The investigator says to each client as she comes into the room, "Can you find a place to sit? Come ______ and sit here so we can get started."

If someone acts out, the investigator says to the client by using 4 step admonition:
1) "That disturbs our activity (fun)." If the person doesn't stop, then say:
2) "If you disturb so and so and this activity, you will have to leave room." If the person doesn't stop, then say:
3) "I'll have to have an attendant come in and have you taken out." If the person doesn't stop, then:
4) Get the attendant's help.

Experimental session: See Appendix A and B for the description of experimental activities used.

After the session: The investigator or assistants instruct the residents to pull the chairs into a line, with the chairs backs to the inside of room by saying: "The activity is over, will you help me pull the chairs into a line here? While you wait for the treat, I'd like you to stay in this part of the room, between the chairs and bolsters. This is free game time and you can do whatever you'd like to do. I'm setting the timer for 10 minutes for this kind of activity. When the bell rings, ______ will bring in the refreshments for you.

Research assistants leave the room to get the refreshments and wait for the bell outside of the room.

Refreshments: When bell rings assistant brings in refreshments and pours juice into the glasses. Additional treats are distributed evenly among the residents.

Close: The investigator announces the closing of the activity, saying, "This is all for today. Did you have good time? We'll see you ______."
APPENDIX E

Day & Time:___________
Group No.:___________
Session No.:_________
Treatment Condition:_________ Observer:_________

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APPENDIX F

SOCIAL BEHAVIOR CATEGORIES AND DEFINITIONS

Friendly Acts

Help Helps another person in some activity, e.g., helping another person stand up.

Give "An object, held in the subject's hand or hands is held out for another person to grasp and then is released; or the object may be placed on the person's lap." (Leach, 1972).

Offer "An object, held in the subject's hand or hands, is held out but not released." (Porter et al., 1972)

Hold hands "Grasping another's hand." (McGrew, 1972)

Hug "The arms are moved horizontally forward from a wide spread position toward another and then clasps around an individual. The movement is usually directed toward another individual's trunk in a peer-peer interaction or toward an adult's upper leg, if both are standing." (McGrew, 1972)

Pat "The flat hand is gently tapped once, or twice, or three times, on some part of the other person - usually on the upper part of the body." (Leach, 1972)

Take-Tug-Grab "A combination (i.e., anyone or more) of the following three: (1) taking an object from someone's hands (or an object which they are obviously using) when they have not held it out toward the subject. (2) Grab is a faster version of (1) and often with resistance from the other. (3) Tug is holding and pulling objects which another is also holding and does not immediately release." (Blurton-Jones, 1972)

Point "The subject extends his arm, and usually also extends one or more of the fingers, in a specific direction. This action may be accompanied by alternating glances at the object/person being pointed at and another person, who is usually also addressed: 'Look at that,' or 'What's that?' " (Leach, 1972)

Imitation Any motoric movement emitted by the person in an attempt to copy another's action, this behavior is usually accompanied by visual fixation and close watching of the model being copied.
APPENDIX F (continued)

Friendly Vocalization/Verbalization

Talk  "Talk has subdivisions 'ask' and 'command.'  Ask is a string of words, usually with a rising inflection, i.e., asking a question.  Command is usually a string of words conveying an order, and tends to be spoken emphatically and rather loudly.  Talk - The lips are moved and air expelled through them, and tongue so placed, to form words, or 'pseudo-words.'" (Leach, 1972)

Sing  "Any utterance of a continued (three or more seconds) rhythmical or musical nature." (Smith & Connolly, 1972)

Vocalization  "Any utterance other than defined above." (Porter et.al., 1978)

Laugh  "Open-mouthed smile together with audible vocalization (rapid or staccato expulsions of breath)." (Smith and Connolly, 1972)

Smile  "The mouth is partially opened and the mouth corners turned up, the eyes are partially closed; the teeth are covered by the lips or only partly visible." (McGrew, 1972)

Friendly Movement Patterns

Follow  "The subject moves (e.g., walks, runs, crawls) toward a person who is moving away from him." (Leach, 1972)

Approach  "Movement of a subject from a stationary position in which the distance is increased as follows: 1) The subject is no longer within arm's reach, or 2) the subject is no longer in contact with which other subjects are in contact." (Porter et.al., 1978)

Assist  "One person assists another to perform some manipulative game or task, by a complex array of actions; showing, taking from and doing for, giving, arranging furnitures or small objects, etc." (Blurton-Jones, 1972)

Cooperate  "Cooperates with request or command." (Smith and Connolly, 1972)

Manipulate Same Object  "Manual contact or use of the same object." (Porter et.al., 1978)

Unfriendly Acts

Face Avert  "Gaze directed away from the other person." (Branningan and Humphries, 1972)
APPENDIX F (continued)

Pout "The lower lip or both lips protrude forward, with the former curling down; the mouth is opened slightly." (McGrew, 1972)

Gesture of Threat "Threat of attack as indicated by verbal utterance, 'get out of the way,' 'I'll hit you,' or by expression or posture." (Smith & Connolly, 1972)

Hit and Beat "A forceful downward movement or flexed arm from above shoulder height. Plus any other form of hard blow to the object person with hand." (Blurton-Jones, 1972)

Bite "The upper and lower rows of teeth are brought rapidly and forcefully together, usually with the lips retracted. When directed to other individuals, biting is usually oriented to the arms, neck, or upper trunk, and is rarely severe enough to break the skin." (McGrew, 1972)

Push "The subject flexes the arms and then extends it with the hand flat against the other person's body, in one continuous, rather violent movement; or, the hand is placed on the person's body with the arm slightly flexed, and the arm is then extended." (Leach, 1972)

Pull "The subject grasps another person and tries to draw the person toward himself/herself. For a hard pull, the subject will press hard on the ground with her feet, with the knees slightly flexed, and after the person is grasped, lean away. Pulling may be reciprocal." (Leach, 1972)

Frown "The eyebrows are lowered and brought close together, usually with only a small amount of vertical furrowing; the mouth is normal or the lips may be compressed into a straight line." (McGrew, 1972)

Cry "Repeated usually low-pitched vocalization; 'waah,' 'aaah-hah.' " (Smith and Connolly, 1972)

Kick "The subject flexes one leg and swings it forward, so that the foot makes an impact on a person — usually the leg. If the subject is sitting, or raised off the ground, both legs may be kicking simultaneously." (Leach, 1972)

Unfriendly Vocalization/Verbalization

Shout "Either a single loud, monosyllabic noise — but without the high-pitched 'urgency' or a scream, or more usually, a sentence, spoken loudly and emphatically, e.g., a command, 'Don't do that.' " (Leach, 1972)
Scream "High-pitched wail, of piercing quality." (Leach, 1972)

Tease "A remark that is made to evoke anger responses or reactions in another peers. A threat is a verbalization that directly implies some physical aggression directed toward others such as 'I'll choke you.'" (Porter et al., 1978)

**Unfriendly Behavioral Patterns**

Withdraw "Movement of a subject from a stationary position in which the distance is increased as follows. 1) the subject is no longer within arm's reach, or 2) the subject is no longer in contact with the specified object with which other subjects are in contact." (Porter et al., 1978)

Expletives "Repelling movements occur in subjects' agonistic interactions. They seem to mean 'get away!' and are exhibited by aggressed-against subjects along with lean back, flinch, and wide eyes." (McGrew, 1972)

**Neutral Behavior**

Inactive "Immobile posture which is defined as gross movement of the trunk, limbs, and head ceases for at least three seconds. Often the gaze is fixed. The fingers may continue to move, often in automanipulation, but the movements are restrained and inconspicuous. Immobility may occur in any posture but most commonly while standing or sitting." (McGrew, 1972)
BEHAVIOR CODES

Friendly Interactions:

Friendly Acts

- Help: FH
- Give and Offer: FG
- Holds Hands: FHH
- Hug/Pat: FP
- Take-Tug-Grab: FTT
- Point: FPO
- Imitation: FI

Friendly Vocalization/Verbalization

- Talking/Singing/Vocalization: FVV
- Closeness/Watching/Sitting (Within 3 feet peer proximity): FCL
- Laugh/Smile: FLS

Behavioral Patterns

- Follow/Approach: FBF
- Help/Assisting/Cooperating: FHA
- Manipulating same objects: FMO

Unfriendly Interactions:

Unfriendly Acts

- Face Avert/Looking Away: UFV
- Pout: UPK
- Gesture of Threat: UT
- Hit and Beat: UBH
- Bite: UB
- Push/Pull: UP
- Frown/Crying: UF
- Kick: UK
APPENDIX F (continued)

Vocalization/Verbalization

Shout US
Scream/Yell USY
Talk/Tease UTT

Unfriendly Behavioral Patterns

Withdraw/Avoid UW
Expletive UE

Inactive Behavior:

Inactive/Neutral 0
APPENDIX G

30 Second Behavior Samples

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APPENDIX H

INTERPERSONAL DISTANCE SCORING FORM

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133
# 30 Second Interpersonal Distance Measure

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## Time and Date:

## Group No.:  

## Observer: ________

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APPENDIX I

Mean Rates of Friendly, Unfriendly, and Inactive
During A.M. and P.M. sessions for
Individual Members of the Experimental Groups

### Game Condition

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