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# A Descriptive Analysis of Behaviors Occurring Between Developmentally Disabled and NonDisabled Preschoolers

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A DESCRIPTIVE ANALYSIS OF BEHAVIORS OCCURRING  
BETWEEN DEVELOPMENTALLY DISABLED AND  
NONDISABLED PRESCHOOLERS

A Thesis

Presented to the

Department of Psychology

and the

Faculty of the Graduate College

University of Nebraska

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

University of Nebraska at Omaha

by

Paula Beckman Bell

April, 1977

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THESIS ACCEPTANCE

Accepted for the faculty of The Graduate College of the  
University of Nebraska at Omaha, in partial fulfillment of  
the requirements for the degree of Master of Arts.

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## Introduction

### Overview

Historically, a continuing controversy in the field of mental retardation has been concerned with the most effective educational placement of developmentally disabled children. During the 1940's this controversy centered on the relative merits of special schools for the mentally retarded as opposed to special classes within the public schools. Later, the controversy moved to special classes in the public schools versus the integration of retarded youngsters into regular classrooms (Cegleka & Tyler, 1970). The proponents of special classes within the public schools frequently argue that special classes are better able to make appropriate educational provisions for the developmentally disabled child (Johnson, 1950). Unfortunately, the weight of empirical evidence comparing various placement alternatives does not support this argument. Although some work has demonstrated that children in special classes showed greater gains in academic performance (Jordan, 1965), the bulk of the evidence indicates that there is either no difference in academic achievement between educationally mentally retarded (EMR) children placed in special classes and those placed in regular classes (Blatt, 1958); or where there are significant differences they favor children in integrated programs (Carroll, 1967; Guskin & Spicker, 1968; Flynn & Flynn, 1970; Cegleka & Tyler, 1970; Rubin, Krus & Balow, 1973). However, much of this research is open to a number of methodological criticisms (Guskin & Spicker, 1968; Cegleka & Tyler, 1970), suggesting that our knowledge in this area is at best equivocal.

An alternative to special class placement has been offered by

those who advocate "mainstreaming". Although various conceptualizations of mainstreaming differ, it generally involves the integration of developmentally disabled children into regular classrooms. There are a number of different strategies that exist concerning the implementation of the concept of integrated educational settings (Guerin & Szaltocky, 1974). These strategies exist on a continuum ranging from minimal participation of developmentally disabled children in nonacademic activities (such as recess and physical education) to full time integration in all activities, academic and non-academic. Integrated programs also vary in terms of the children that are allowed to participate, the kinds of resource support that is available, as well as the teaching strategies that are employed. An important argument that has been used as rationale for regular class placement is that contact between developmentally disabled and nondisabled children may facilitate improved acceptance of developmentally disabled children within the schools (Brabner, 1964). Research efforts have been conducted in an attempt to evaluate social acceptance in various placement situations (Johnson, 1950; Johnson & Kirk; 1950; Bladwin, 1958; Clark, 1964a, b; Renz & Simenson, 1969; Guerin & Szaltocky, 1974; Ray, 1974).

Although there is a general trend indicating that children who are retarded are less accepted than nonretarded peers, there are a number of methodological considerations that suggest that the results of this research are also equivocal. The vast majority of these studies utilize sociometric techniques (Johnson, 1950; Johnson & Kirk, 1950; Bladwin, 1958; Clark, 1964a, b; Renz & Simenson, 1969) despite indications that such techniques are frequently unable to predict

actual behavior (Marshall, 1957; LaPierre, 1967; Fishbein, 1967; Wicker, 1969; Kelman, 1974). A review of the research evaluating social acceptance will be elaborated later in the present discussion.

When the relative weakness of previous research findings is taken into consideration, it becomes difficult to identify one placement alternative as notably superior to the others. This difficulty is particularly obvious when the varying objectives for mainstreaming are considered. Some investigators identify educational objectives, while others identify social issues. As a result, professionals interested in the concept of integration must acknowledge that it presently exists as a belief or philosophy of what education for developmentally disabled youngsters should be. If integration is accepted as such, it becomes crucial to systematically explore strategies for its implementation that consider both the social and educational components.

Brabner (1964) identifies integration as a three part process involving a belief, a policy and, finally, a process. He states "...integration is first and foremost a belief upon which the process of integration is predicated." Wolfensberger (1972) advocates a philosophy of normalization which reflects much current thinking regarding the appropriate provision of services for individuals with handicaps. He defines normalization as:

"Utilization of means which are as culturally normative as possible in order to establish and/or maintain personal behaviors and characteristics which are as culturally normative as possible." (p. 28)

Nirge (1970), an originator of the normalization principle, pointed out that "imposed" subnormality is a big factor in the handicap that

is finally observed. This "imposed" subnormality is due to possible deficiencies within the environment or conditions created by society. These conditions would include unsatisfactory educational opportunities and lack of social contacts. It is this education and these contacts that aid in facilitating normalization. Nirge (1970) suggests that dealing with imposed subnormality should be an area of major emphasis when dealing with developmentally disabled children.

Wolfensberger (1972) points out that it is not enough to simply place handicapped children in regular classrooms and assume that the effect will be positive. He describes two essential components to integration, a physical component and a social component. He states:

"Ultimately, integration is only meaningful if it is social integration, i.e., if it involves social interaction and acceptance, and not merely physical presence. However, social integration can only be attained if certain preconditions exist, among these being physical integration, although physical integration by itself will not guarantee social integration." (p. 48)

Brabner (1964) expressed similar sentiments when he stated:

"In other words, the administrator cannot conclude that the mere physical juxtaposition of special classes and regular classes, or of retarded children and normal children in the cafeteria, the gymnasium or on the playground will eventuate through some curious osmotic social process in a merging of the special class program with the general program." (pp. 109)

In short, arguments regarding placement alternatives for developmentally disabled children have been a persistent concern and have focused on a wide variety of issues. Although there is an increasing trend toward integration of developmentally disabled children (Barngrover, 1971), results of research have not clearly identified integrated classrooms as substantially superior to segregated classrooms for the educational and social needs of the child. What we

must concede is that if we continue with a policy of integration, it is the result of a belief or philosophy that an integrated classroom is the least stigmatizing environment for developmentally disabled children. During the remainder of this introduction, an attempt will be made to systematically evaluate research efforts that have specifically focused on the acceptance of developmentally disabled youngsters in various classroom settings and identify gaps in our knowledge.

#### Definition of Developmental Disability

An understanding of the research related to the placement of developmentally disabled children requires an adequate definition of developmental disability. For the purposes of the present research, the definition of developmental disability that is used is one included in the Developmental Disabilities Assistance and Bill of Rights Act, signed by President Ford on October 6, 1975:

"...a disability of a person which -

- (A) (i) is attributable to mental retardation, cerebral palsy, epilepsy, or autism;
- (ii) is attributable to any other condition of a person found to be closely related to MR because such condition results in similar impairment of general intellectual functioning or adaptive behavior to that of mentally retarded persons or requires treatment and services similar to those required for such persons; or
- (iii) is attributable to dyslexia resulting from a disability described in clause (i) or (ii) of this subparagraph;
- (B) originates before such person attains age 18;
- (C) has continued or can be expected to continue indefinitely; and
- (D) constitutes a substantial handicap to such person's ability to function normally in society.

(Association of University Affiliated Facilities  
Reporter, Sept.-Oct., 1975, p. 1)

### Acceptance of Developmentally Disabled Children

Keeping the above definition in mind, two major trends can be identified in the research efforts that have been conducted in the area of the acceptance of developmentally disabled children. The first is to examine the peer acceptance of EMR children when they are placed in various classroom situations. The second is to evaluate the effects of physical handicaps on the acceptance of delayed children by peers without any known developmental disability.

Research dealing with EMR children has utilized children placed both in special classrooms (Clark, 1964a, b) and those placed in regular classrooms. Johnson (1950) and others (Johnson & Kirk, 1950; Bladwin, 1958 ; Guerin & Szatlocky, 1974) have examined the integration of mentally retarded children into regular classes. In a classic study, Johnson (1950) looked at the social position of 39 mentally handicapped children in the first through the fifth grades. He used a sociometric questionnaire to establish acceptance and rejection scores for each child. He classified children in the classrooms into mentally handicapped, borderline and typical groups on the basis of intelligence tests and academic performance. Although there was no significant difference in the acceptance scores of the borderline and handicapped children, the trend was for the borderline children to be better accepted than the mentally handicapped children. The children in the borderline group were significantly less accepted than the children in the typical group. Mentally handicapped children were significantly more rejected than both the typical and the borderline children. The



borderline children were more rejected than the typical children, but the difference was not statistically significant. When Johnson (1950) divided the mentally handicapped group, on the basis of IQ, into upper and lower groups, he found that the lower mentally handicapped group had the lowest acceptance scores, and that acceptance of each group increased successively with the mean IQ of the group in question. Mean rejection scores decreased as mean IQ increased.

Johnson and Kirk (1950) replicated the original study in a different school system to examine the notion that the traditional nature of the first system may have been a factor in the results obtained. They conducted a similar study in a system they felt was more progressive in terms of greater stress being placed on social adjustment and less on academic achievement. Only the mentally handicapped and typical groups were used. Their results were similar to the results found in the original study. It is interesting to note that authors in both studies questioned children afterward and found that the most prevalent reasons for rejection were behavioral in nature rather than academic (Johnson, 1950; Johnson & Kirk, 1950). It may be that the authors were actually measuring children's acceptance of specific behaviors as opposed to acceptance of EMR children.

Miller (1956) compared the social status of retarded children integrated into fourth and sixth grade classrooms to that of children with superior and average scores on individual intelligence tests in the same classrooms. Each subject was rated by his classmates as to his popularity, desirability as a friend and ease of learning. Since groups were comprised of children at various IQ levels, a strong bias would have been present in children's ratings in this area. He found that

children in the superior group were most wanted as friends by their classmates, followed by children in the average group and finally children in the retarded group. All differences were statistically significant with the exception of the difference between typical and retarded children at the fourth grade level. Although Miller (1956) found little acceptance of the retarded, little overt rejection was evidenced either, as the majority were placed in a neutral category by their classmates.

Baldwin (1958) also evaluated the social position of 31 mentally retarded children who has been placed in 22 fourth, fifth, and sixth grade classes. Using the Ohio Social Acceptance and Social Recognition Scales as well as a limited number of interviews, Baldwin (1958) found that the retarded children were significantly less accepted than their nonretarded grade mates. Nonretarded children in Baldwin's (1958) study also identified behavioral reasons for the lack of acceptance experienced by the EMR students.

Iano, Ayers, Heller and Walker (1974) used sociometric interviews similar to the ones described by Johnson (1950) to determine the social status of former special class students who were assigned to regular classes and provided with resource room support. They attempted to compare these scores with those of children who had been referred for resource room services, but who had never previously been diagnosed as exceptional or recommended for special services. They found that the highest mean acceptance scores were received by the students receiving no special services, the next highest to the students newly referred for resource room support and the lowest to the former special class students. This trend was reversed for mean rejection scores. However, the authors report that there was considerable overlap between the

former special class pupils in both acceptance and rejection scores. It should be noted that a special "back up class" was retained in two of three elementary schools for some of these students who "exhibited minimal social and academic skills." It may be that this selection factor was instrumental in influencing the overlap of scores that was identified.

In one of the few studies that specifically dealt with observed behavior, Guerin and Szatlocky (1974) evaluated the behavior of retarded and nonretarded children between 9 and 13 years of age as a function of the kind of integration program in which they were involved. All of the EMR children involved had IQ's falling between 54 and 72. Characteristics such as manipulatory behavior and excessively passive or aggressive behavior were evaluated. When the overall behavior of the retarded students was contrasted with the nonretarded students, the only significant difference was that the retarded girls were more manipulative than the nonretarded girls. When evaluating behavioral differences as a function of integration programs, the authors discovered that retarded students who were integrated for most of the day were significantly more self directed than retarded students with limited integration. It should be noted that this study did not specifically evaluate interaction between retarded and nonretarded peers.

Ray (1974) observed the freeplay behavior of seven nondelayed children and five children with Down's Syndrome in a preschool classroom. He discovered that nondelayed children interacted with nondelayed peers more than they interacted with delayed peers. He also discovered fewer instances of such behaviors as laughing and talking, as well as a number of nonverbal signals in the delayed children.

The results of this research consistently indicate that retarded children in regular classes are generally less accepted than nonretarded children. It should be noted that only one of the reported studies actually observed interactions between retarded and nonretarded children. It should also be noted that four of the studies identified behavioral reasons as possible contributors to differences in the acceptance of retarded children by nonretarded peers. However, little has been done to specifically identify what these behaviors are.

Clark (1964 a), along with Renz and Simenson (1969), evaluated the acceptance of EMR children that had been segregated into special classrooms in a regular school. Clark (1964 a) used elementary school children while Renz and Simenson (1969) used junior high students. Both used a sociometric procedure in which pictures of the special class children were shown to normal children and verbal descriptions were obtained. The normal child's responses were broken down into descriptive units. No consistent pattern of acceptance or rejection developed. Clark (1964 a) noted that significantly more subjects evaluated the pictured child's behavior as unfavorable than evaluated it favorably. It is uncertain how much exposure the children may have in terms of extracurricular contact with the EMR children (for example, during lunch, recess, neighborhood contact). Clark (1964 b) asked fourth and fifth graders to describe the class of a child in a special education class after being shown a picture of that child. While only 6% of the responses were derogatory, no child indicated a desire to be in the special class. Although this finding is interesting the data provides no indication as to how many of the children would have expressed a desire to be in another regular class. Academic limitations were named most frequently in descriptions of the

class.

Lapp (1958) evaluated the social acceptance and rejection of special class pupils when they participated on a part time basis in third through sixth grade classes. Sociometric interviews were conducted with each child in the special classes and each child in the regular classes. Acceptance scores of the special class children were significantly lower than the scores that could be expected from a group selected by chance from the regular classes. However, the rejection scores did not differ from what could be expected by chance. Lapp (1958) also found that special class children were more accepted and more rejected by peers in the special class than by peers in the regular classes.

Other research has attempted to make direct comparisons between various placement alternatives. Rucker, Howe and Snyder (1969) evaluated the social acceptance of EMR children at the junior high level as a function of participation in nonacademic or academic classes. Using a modified version of the Ohio Social Acceptance Scale, they found that the social position scores of the retarded subjects were significantly lower than those of the nonretarded subjects in both academic and nonacademic settings. There was no significant difference when social position scores of subjects in the academic classes were compared to those of subjects in the non-academic classes.

Strauch (1970) compared the expressed attitudes of junior high students participating in partially integrated classes with those of junior high students in schools that maintained segregated classes. Using the semantic differential technique to determine attitudes toward the following concepts: Me, the Mentally Retarded, Special Class Pupils, Regular Class Pupils, Normal People. No significant difference between

the contact and noncontact groups in their attitudes toward the Mentally Retarded and toward Special Class Pupils was observed. Both groups assigned negative scores on these concepts. They did perceive the concepts of Me, Normal People, and Regular Class Pupils significantly differently than they perceived the concepts of the Mentally Retarded and Special Class Pupils. The concept of the Mentally Retarded was assigned the lowest rating followed by the concept of Special Class Pupils.

Goodman, Gottlieb and Harrison (1972) used the responses of 36 nonEMR children in a nongraded elementary school to the Peer Acceptance Scale, an experimental sociometric instrument, to evaluate the acceptance of three groups of children. These groups of children included nonEMR children, EMR children, children integrated into the academic routine of the school, and EMR children segregated into the school's only self-contained classroom. The results indicated that nonEMR children rejected EMR children more and accepted them less than they did other nonEMR children. Integrated EMR children were rejected significantly more often than segregated EMR children by males. Specific IQ's were not reported for the children placed in either the segregated or the integrated EMR group. No indication was given as to the basis for placement in the integrated as opposed to the segregated class. It is possible that there were differences between the children in the EMR groups that may be contributing to the differences that were reported.

Gottlieb and Budoff (1973) evaluated the social acceptability of partially integrated and segregated (those EMR children who did not participate with nonEMR's in organized activities) retarded children in nongraded schools differing in architecture. Results of a sociometric

questionnaire showed that while EMR children in a school with no interior walls were known more often by normal peers, they were rejected more often than EMR children in the walled school. In addition, partially integrated EMR children were rejected more than segregated EMR children. It should be noted that no indication was given as to reasons for the placement of some children in segregated classes and some in partially integrated ones. If there were either behavioral or academic reasons for differential placement, the possibility exists that these reasons could have contributed to the observed differences.

Peterson (1974) compared responses of children ranging from fifth through eighth grade on two sociometric instruments (Agree-Disagree Scale and a Five Point Rating Scale) as a function of contact with developmentally disabled children. One group had no special class students in their school and the other group had a group of special class students who had been partially integrated into regular classes. On the Agree-Disagree Scale, students having contact expressed more favorable attitudes than the no-contact group. There was no significant difference on the Five Point Rating Scale. It is interesting to note the difference in results occurring simply as a function of the sociometric instrument used. The author suggested that this may have been due to the character of the instruments. He described the Five Point Rating Scale as a more abstract and stereotypic measure of attitudes while the Agree-Disagree Scale tended to reflect factual information within the rater's experience.

Sheare (1974) randomly assigned 400 nonretarded junior high students from three junior high schools to experimental and control groups. In the experimental group, EMR adolescents from the special classes within the schools were integrated in nonacademic classes, clubs and athletic

events. The control group did not have students from the special classes integrated with them. A three point scale (agree-disagree-undecided) was devised that utilized statements describing opinions about EMR students, their abilities and the amount of participation in which they were involved. Results of the questionnaire, administered at mid-year, revealed that the experimental groups consistently gave more positive ratings to EMR adolescents than the control groups.

The results of this research do not point to a consistent conclusion. Although there are consistent indications that developmentally disabled children are less accepted than nondisabled children, there is no consistent evidence that they are better accepted by nondisabled children in an integrated setting than in a segregated setting. It is important to note that in all but two of the studies previously mentioned, the results are based on sociometric and verbal report types of data. Only Ray (1974) and Guerin and Szatlocky (1974) have actually observed the behavior of the children involved.

A strong possibility exists that there is some restriction of range in the selection of children for the special classes. Guskin and Spicker (1968) identified inappropriate or biased sample selection as a major difficulty in previous research attempts. They point out that assignment to special classes in most school systems is not random, but usually based on referral by teachers for poor academic performance and unacceptable social behavior. As a result, comparisons made between children identified as EMR in special classes and children identified as EMR in regular classes frequently amounts to a comparison of EMR students who are not doing as well academically with EMR students who are doing better academically. Comparisons are also made between EMR children whose behavior is less



acceptable to teachers and other children with EMR students whose behavior is more acceptable. Goodman, Gottlieb and Harrison (1972) have also delineated a number of methodological questions that may have contributed to the diverse findings. One of these questions concerns itself with the importance of knowing who the judges of a child's acceptance are. Specifically, are the judges the EMR child's retarded peers or their nonretarded peers? Recall Lapp's (1958) findings in which it was discovered that special class children were more accepted and more rejected by special class peers than by children in the regular class.

In addition, with the exception of Ray (1974), all of the research used children who had been classified as EMR. Ray (1974) used children who had been diagnosed as having Down's Syndrome. It is likely that by the time they reach school age, they too would carry EMR or trainable mentally retarded (TMR) label. In the studies reviewed, the criteria for placement in the EMR group has been low academic achievement and low scores on various intelligence tests (Johnson, 1950; Johnson and Kirk, 1950; Lapp, 1958; Blatt, 1958; Bladwin, 1958; Renz and Simenson, 1969; Guerin and Szatlocky, 1974). Fitzgibbon (1967), in describing the EMR status said that placement of retarded children in EMR classrooms tends to be based on the child's ability to "benefit from education" (p. 274). The differentiation between EMR and TMR "was in the child's being able to learn to read" (p. 274).

It is noteworthy that none of these distinctions make any reference to physical disability. Blatt (1958) looked at 75 EMR's and discovered that there were more children with permanent or uncorrected physical impairments in special classes than in regular classes. If a lack of acceptance is found that is associated with physical disability, the

results of much of the HMR research may be confounded with physical disability.

#### Research Dealing with Physically Handicapped Children

The second major trend in the research deals with the impact of physical disability on acceptance. Asher (1974) found a dramatic shift in awareness of disability for nondisabled children between the ages of three and four. However, this shift in awareness was not related to verbal reports of liking. Jones and Sisk (1967) found that nondisabled children begin to perceive the limitations that physical disability imposes by the age of four. Billings (1963) used the projective responses of children in elementary school to pictures and discovered that nonhandicapped children held generally unfavorable attitudes toward crippled peers. Children in the oldest group (sixth grade) were significantly more unfavorable in their attitudes toward crippled children than the youngest group (first grade). A body of research has developed that indicated that, by the first grade, nonhandicapped children are preferred to handicapped children (Richardson, 1970) and that this preference even outweighs the effect of race on children's preferences (Richardson and Royce, 1968).

Although this research has dealt specifically with physical handicaps, little work has focused on the integration of physically handicapped children into classrooms with children who are not physically handicapped. Rapier, Adelson, Carey and Croke (1972) asked third, fourth, and fifth grade children to respond to a group administered rating scale requiring them to circle phrases best describing physically handicapped children. This was administered prior to the opening of an orthopedically handicapped unit on the school's grounds and readministered one year later.

At the time of the second administration, all participating classes had at least one orthopedically handicapped child in class. By the second administration, nonhandicapped children perceived handicapped children as less weak, in need of less attention and more curious.

Although this research has dealt specifically with physical handicaps, with the exception of Rapiér, Adelson, Carey and Croke (1972), most of it has failed to look at the integration of physically handicapped children into normal classrooms. The previous exposure of the respondents to physically handicapped individuals was questionable.

In addition, this research is also nonobservational in nature. The predominant methodology is to show the children photographs, drawings or other symbolic figures and ask for responses to the representations (Asher, 1974; Richardson, Goodman, Hastorf and Dornbush, 1961; Goodman, Richardson, Dornbush and Hastorf, 1963; Richardson and Royce, 1968; Richardson, 1970; Kleck, Richardson and Ronald, 1974). However, the importance of behavioral observation of social phenomena is becoming increasingly clear.

Research has documented that at least in some cases, discrepancies exist between verbal report measures and observed behavior. The classic piece of research in this area was conducted by LaPiere in 1934 (1967). He found a discrepancy in the way hotel personnel actually behaved toward Chinese customers and the response that they gave to a questionnaire asking them how they would behave toward Chinese customers. This research suggests that "verbalized reactions to symbolic situations" (p. 27) are not adequate predictors of behavior. Fishbein (1967), Wicker (1969), and Kelman (1974) have all sighted other research consistent with this suggestion. Marshall (1957) reviewed six published studies that attempted

to establish sociometric choice as predictor of social interaction in preschools and kindergartens. She concluded that there was no satisfactory evidence that the sociometric score predicted observed play behavior for preschool children (the studies she reviewed did not include developmentally disabled children). Previously cited research by Peterson (1974) demonstrated significant differences between attitudes toward special class EMR students and partially integrated students using one sociometric measure (Agree-Disagree Scale) and no significant differences on a five point rating scale. Bartlett, Quay and Wrightsman (1960) stated that: "...the issue of whether the subject's response to statements represents his true attitude is particularly crucial for the research area of attitude change." Similarly, it is crucial in the area of the acceptance of developmentally disabled children by peers. In light of this evidence, the scarcity of observational studies in the literature dealing with the acceptance of developmentally disabled children is alarming. Ray (1974) pointed out that the overwhelming tendency is to reach for handbooks of psychometric procedures, attitude scales and the like when attempting to understand the behavior of subgroups within our society. It appears that an adequate understanding of normal children's behavior toward the developmentally disabled must include observational work.

It is also important to consider the ages of the children used in the research. The research by Richardson (1970) used children ranging in age from five to eighteen. Recall that as early as first grade, children showed a preference for the picture of the child without a handicap over the pictures illustrating children with various physical handicaps. When the data was evaluated developmentally, it was found that the percentage of those who liked the picture of the nonhandicapped child the best rose

steadily until the third grade and then remained relatively consistent. Richardson (1970) found that, by the twelfth grade, attitudes toward disability resemble that of the same sex parent. It is possible that the preschool period is important in the development of differing behavior patterns toward the developmentally disabled. Meyerowitz (1962) demonstrated that even during the first year of school, significant differences exist between the self concept of mentally retarded children and the self concepts of nonretarded children. With the exception of the work by Jones and Sisk (1967), the work by Ray (1974) and the work by Asher (1975), all of the research has dealt with individuals who were at least elementary school age. It appears, however, the differentiation begins prior to school age. Recall that both Jones and Sisk (1967) and Asher (1975) found that children demonstrated an awareness of physical disability at age four.

Fuchigami and Shepard (1968), Wolfensberger (1972) and Hobbs (1975) all acknowledge the importance of the preschool period in the integration process. Wolfensberger (1972) emphasizes the importance of educational integration and sees it as having a strong impact in early childhood education. He points to it as being important in the breaking down of social barriers and that, at this age, normal peers can provide non-threatening models for handicapped individuals. Ray (1974) sees it as a time in which the young child is beginning to move into his environment and interact with individuals outside the family. It is also conceivable that the preschool period is critical as a time when attitudes toward the developmentally disabled can be effectively changed.

As far as integration research is concerned, preschools remain a relatively untapped population. The investigations that have used

preschool children as a target have differed in type of child used, in methodology and in final outcome (Ray, 1974; Asher, 1975). In Ray's (1974) research, all delayed children were diagnosed as having Down's Syndrome, a handicap which in itself does not involve any obvious physical impairment, although it does involve physical stigmata. In Asher's (1975) research, pictures of physically handicapped children served as stimulus objects. Jones and Sisk (1967) also used presence or absence of physical disability as a stimulus condition. Ray (1974) utilized direct observation and found significantly less interaction of nondelayed children with the delayed children. Asher (1975) used verbal reactions to pictures and found no significant difference in preference for children without handicaps over children with handicaps.

In view of the large differences, it is impossible to generalize too extensively between these pieces of research. Yet, they remain related because they deal in some way with behavior of nondisabled children toward disabled children. They are also related in that they use preschool aged children as subjects.

#### Reasons for Acceptance and Rejection

Given that a substantial portion of the literature indicates less acceptance for children with developmental disabilities than for children without such disabilities, a number of questions arise. Among the most important is whether there are specific characteristics common to developmentally disabled children that adversely influence the level of acceptance. Johnson (1950) asked children why they rejected the children they had rejected and tabulated the reasons given. He found that the mentally handicapped children in his study were usually rejected due to their behavior in class, on the playground and away from school. Typical reasons

given included bullying, fighting, swearing, cheating. Reasons for rejection were not usually related to age or poor academic achievement. In a similar study, Johnson and Kirk (1950) found the same results. Reasons given for rejecting mentally handicapped children were behavioral rather than academic in nature.

Challman (1932) attempted to determine the extent to which similarity on a number of variables influenced the formation of friendships between nondisabled children at the preschool level. He used an observational procedure in which the children forming different play groups were tabulated. Frequency with which each child was found with every other child was determined. He found that children showed a distinct tendency to interact with children of like age. In addition, similarity in what Challman (1932) identified as "sociality" also influenced friendships. "Sociality" was defined as a measure of organized social activity. Thus, those children who liked cooperative play activities were more apt to play together and become friends. Likeness in physical activity was also found to influence friendships to some degree. He found that closeness of mental age, I.Q., and height did not have much influence on the formation of friendships. McCandless, Bilous and Bennett (1962) studied the relationship between dependance on adults to popularity as judged by teachers in preschools. They divided the term dependancy into two parts, emotional dependancy (e.g., seeking comfort and support) and instrumental dependancy (e.g., asking for help with practical problems). They found that popularity and emotional dependancy were negatively related. Ray (1974) discovered fewer instances of such behaviors as laughing and talking, as well as a number of nonverbal signals, in delayed preschoolers when compared to nondelayed preschoolers. Dentler and

Mackler (1962) point out that an increasing body of evidence suggests that there is a relationship between a child's ability and sociometric status. They suggest that an effort should be made to isolate specific characteristics that may be important in a given situation.

The literature reviewed above focused on research concerning the acceptance of developmentally disabled children with and without physical handicaps. Pertinent methodological issues have been identified. Important gaps in available information have been revealed. These gaps include:

- 1) an overwhelming predominance of sociometric data despite consistent findings that such data rarely predicts actual behavior;
- 2) a lack of data utilizing preschool populations despite indications that this age group may be important in the normalization of developmentally disabled individuals;
- 3) little indication as to behavioral characteristics that may limit full acceptance despite evidence suggesting the probable importance of such characteristics; and
- 4) little knowledge regarding the possible confounding influence of physical disability.

The availability of such information is becoming more imperative with increasing emphasis on integration. It is the objective of the present study to consider some of these areas of missing information.

#### Purpose

On the basis of these gaps in the literature, the present research was designed to look at the following questions and predictions.

- 1) The major purpose of the present study was to identify patterns of behavior occurring between nondisabled and developmentally disabled preschoolers with and without physical handicaps. It was predicted, on the basis of work by Ray (1974), that preschoolers would show different patterns of behavior as a function of the presence or absence of developmental disability. It was also of interest to determine whether there were differences



in the patterns of behavior that developmentally disabled children directed toward preschool peers.

On the basis of the results by Richardson (1970), Ray (1974) and Asher (1975), it was predicted that 4 year olds would exhibit fewer positive behaviors toward developmentally disabled children with physical handicaps than toward those without. No difference in behavior toward the two groups of disabled children was anticipated for 3 year olds.

- 2) The next objective was to obtain some indication of the relationship between actual behavior and a verbal report measure indicating with whom the peer children desired to play. It was predicted that there would be no significant relationship between the two measures. In addition, it was of interest to determine what children in an integrated setting would say about developmentally disabled children. On the basis of Asher's (1975) research, it was predicted that there would be no difference between 3 and 4 year olds in terms of verbally expressed desire to play with developmentally disabled children.
- 3) Finally, it was of interest to know whether there were specific characteristics of disabled youngsters with and without physical handicaps that were related to the patterns of behavior that nondisabled children displayed toward them.

### Method

#### Facilities

Eastern Nebraska Community Office of Retardation (ENCOR) has contracted with nine private preschools to provide programs for developmentally disabled children. Two of these preschools were used in the present study. Children in both preschools were all 2 years of age or more.

Preschool 1 had a population of 17 nondisabled females and 14 nondisabled males. Eighty-five percent attended the preschool everyday, for six hours or more, while the remainder attended on a part-time basis. Eighteen children were 4 or more (4 year olds), 13 were under 4 years of age (3 year olds). There were three children with developmental disabilities in this preschool. Average daily attendance was 28 children.

Preschool 2 had a total population of 76 children. Forty-five percent attended daily for six hours or more, the remainder attended on a part-time basis. There were 48 children 4 years of age or more and 28 under 4 years of age.

#### Phase I

Subjects. Stimulus children from four groups were chosen from each preschool based upon the following characteristics:

Nondisabled Three Year Olds (ND<sub>3</sub>): These were children who were less than 4 years of age, had no apparent physical handicap, were not in the preschool as a function of placement by ENCOR and were randomly selected from the class population of children who were less than 4 years of age. Two of the children were tested on the WPPSI or Stanford-Binet. Both children scored above 90. One child could not be tested because she moved away before testing could occur. However, there was no reason to suspect any developmental disability at the time the data was collected. Chronological ages of children in this group ranged from 2 years 7 months to 3 years 7 months.

Nondisabled Four Year Olds (ND<sub>4</sub>): These were children who were 4 years of age or more, had no apparent physical handicap, were not in the preschool as a function of placement by ENCOR and were randomly selected from the class population of children who were four or more. All three children were tested on the Stanford-Binet or WPPSI and obtained scores of above 90. Chronological ages of children from this group ranged from 4 years 7 months to five years.

Developmentally Disabled (DD): These were children that attended the preschool as a function of placement by ENCOR and obtained scores on the Stanford-Binet, Bayley or WPPSI of between 40-50. They were able to walk

independently and used no physical apparatus to move around. The chronological ages of these children ranged between 4 years 4 months to 5 years 4 months. Developmental ages obtained by these children ranged from 2 years 1 month to 2 years 11 months.

Developmentally Disabled with Physical Handicap (DDP): These children attended the preschool as a function of placement by ENCOR and obtained scores on the Stanford-Binet, Bayley or WPPSI of between 10 and 30. None were able to walk independently and all had some sort of physical apparatus aiding them in functioning (e.g., walker, wheel chair, leg braces, standing frames). The chronological ages of these children ranged between 3 years 5 months to 5 years 7 months. Developmental ages of children in this group ranged from 9 months to 12 months.

A set of stimulus children consisted of one child from each of the four groups matched for sex and race. One set was chosen from Preschool 1. Two sets were chosen from Preschool 2. Permission for testing, photographs and participation in the study was obtained from parents of all stimulus children.

Apparatus. Two devices were developed for the recording of observational data. Both are illustrated in Appendix A.

The Behavior Record was devised to provide an ongoing record of the behaviors that children directed toward each other. Rather than simply tabulating frequencies of behaviors, it was decided that more information would be provided if the observer rated responses as positive, negative or neutral and indicated which child was initiating the interaction. Descriptions of positive, negative and neutral behaviors are described as follows:

Positive Behaviors: Included those behaviors directed toward another

child that were inferred to be positive by the observer. Examples of such behaviors included: extending invitations to the other child; offering to cooperate with the other child in some activity; smiling; including the other child in some game; expressions of affection such as hugging, kissing, etc.

Negative Behaviors: Included those behaviors directed toward another child which the observer inferred to be negative. Examples of such behaviors included: taking toys away from the other child, verbally degrading or negatively evaluating the other child; striking, kicking, pushing the other child; openly denying involvement of the other child in an activity.

Neutral Behaviors: This category was in recognition of the possibility that there may be behaviors that were questionable or neutral. Therefore any behavior that the observer could not logically fit into the positive or negative categories was considered neutral.

The Behavior Checklist was devised utilizing some of the behaviors described by Parten (1932) and by Ray (1974) in addition to some behaviors described by the author. Operational definitions of these behaviors were used as follows:

Solitary Play:\*\* Child is involved in his own activities, without reference to the play of other children. Uses toys different from children within speaking distance and does not attempt to get close to other children.

Parallel Play:\*\* Child plays independently, but is involved in an activity that brings him among other children. Uses toys that are like those of children around him, but does not try to influence or modify the activity of the children near him. Plays beside, rather than with the children near him.

Associative Play: \* Group play in which there is recognition by group members of their common activity. Conversation may involve their common activity. Attempts may be made to influence the activities of others engaged in the activity. There may be borrowing and sharing of toys.

Vocalize:\* Utterance without discriminable words. Does not include screaming, laughing or crying.

Talks:\* Utterance containing one or more discriminable words.

Shout:\* Loud utterance without high pitch of scream. May be loud command ("stop that").

Laugh:\* Sound produced by a series of short repeated expirations and long inspirations of breath accompanied by some characteristic noise (e.g., "Ha ha"). Typically accompanied by smile. Mouth is usually open.

Cry:\* Repeated, usually low pitched vocalizations (e.g. waaah, ahh). The more intense the cry, the louder the sound produced.

Standing: Child remains stationary in a position vertical to the floor, bearing his weight on both legs.

Sitting : Buttocks positioned on chair or floor with back perpendicular to thighs.

Assisted Movement: Child receives help from another individual to go from point A to point B. This help may be administered by an adult or another child. Includes such things as being carried, pushed by someone else while in a wheel chair.

Squats: Child's feet are on the floor with legs bent. Buttocks are near, but not touching floor.

Crawling:\* Body moves quadrupedally, usually forward, ventral surface off ground. Palms, forearms, knees, and toes may touch ground

in varying combinations.

Scots:\* Body is moved by leg flexion and extension with buttocks, belly or back in contact with the floor.

Walks: Moves body from point A to point B alternately shifting weight from leg to leg. Movement is slower than movement while running. May be assisted by walker or crutches, but not by another individual.

Runs:\* Child moves forward rapidly, using the legs alternately, both off the ground simultaneously, and the body is usually tilted slightly forward.

Climbs:\* Child uses objects such as slide, chair, table, etc. For example, with a slide, child places hands on a rung, grips firmly and then places one or both feet on a rung below; then the hands are placed on a higher rung and so on. The hands pull the body up and the legs push.

Smiles:\* A blanket term used to cover a wide range including a) slight raising of the mouth corners, with lips closed; b) wide open mouth with mouth corners retracted horizontally and both rows of teeth are visible.

Grimace:\* A general term used to cover various wrinkling contortions of the facial musculature.

Tongue Out:\* Tip of tongue show between lips.

Mouthing: Hand or object (other than food) is in the child's mouth.

Eyes Closed: Both eyes are completely covered by the eyelid such that the eyes are not visible to the observer.

\*These definitions have been derived either directly or in modified form from Ray (1974).

\*\*These definitions have been derived either directly or in modified form

from Parten (1932).

Procedure. Each stimulus child was observed during 12 five minute observations. Observations consisted of two parts. During the first three minutes, the observer recorded all behaviors that the stimulus child and peer children directed toward each other. These behaviors were rated as positive, negative or neutral according to the definitions previously described. Behaviors occurring concurrently were counted as one behavior (child smiles and offers toy to another child). The observers also indicated whether the behavior was self-initiated or in response to the behavior of another child. During the remaining two minutes of the observation, the observer checked off observed behaviors of the stimulus child on the behavior checklist at 15 second intervals. Order of observation was randomized within each preschool. After spending three observation sessions in the preschool becoming familiar with children and teachers, two observers made 10 trial observations in Preschool 1 to obtain an estimate of interrater reliability. Two observers were also present during 20% of actual observations for reliability purposes.

#### Phase II

Subjects. Since attendance varied from day to day, average attendance was tabulated for each preschool. One half the average number of children from each were randomly selected for participation in Phase II. This resulted in 14 children (nine 4 year olds and five 3 year olds) from Preschool 1 and 21 children from Preschool 2 (12, 4 year olds and nine 3 year olds). The number of 3 and 4 year olds in Phase II was roughly proportionate to the total number of 3 and 4 year olds attending each preschool.

Apparatus. Photographs were taken of each stimulus child standing

in the same location within his or her own preschool.

Procedure. During individual interviews with children selected for participation in Phase II, photographs of each stimulus child in the subjects preschool were presented in random order. After being asked to identify the photograph, the child was asked the following question: "Do you like to play with (name) at school?"

### Results

#### Interrater Reliability.

An estimate of interrater reliability was obtained by using the percent agreement method described by Kazdin (1975). Reliability on the Behavior Record was obtained by computing the total frequency of behaviors for each observer. Since data on the Behavior Record was not separated into small time segments, reliability of occurrence was obtained by dividing the smaller frequency by the larger frequency and multiplying by 100. Similarly, reliability of nonoccurrence was computed by dividing total periods in which both observers agreed that a behavior did not occur by the total periods in which one or both observers felt that the behavior did not occur. Preliminary observations were those conducted prior to the actual data collection. Reliability of occurrence on the preliminary data was 79%, reliability of nonoccurrence was 91.5%. Reliabilities on individual items on the Behavior Record are presented in Table I.

Since 15 second time intervals were recorded on the Behavior Checklist, it was possible to compute reliability of occurrence by simply determining whether the two observers agreed or disagreed that a specific behavior occurred at each time interval. Reliability of



Table I  
Interrater Reliability on Behavior Record

		BEHAVIORS DIRECTED BY STIMULUS CHILDREN		BEHAVIORS DIRECTED BY PEER CHILDREN	
		Occurrence	Nonoccurrence	Occurrence	Nonoccurrence
PRELIMINARY RELIABILITY	SI Positive	93 %	100 %	70 %	100 %
	SI Negative	67 %	100 %	80 %	88 %
	SI Neutral	50 %	88 %	50 %	89 %
	R Positive	88 %	80 %	88 %	100 %
	R Negative	83 %	100 %	75 %	88 %
	R Neutral	67 %	88 %	50 %	89 %
	Overall	82 %	92 %	76 %	91 %
	<hr/>				
RELIABILITY ON 20 % OF OBSERVATIONS	SI Positive	93 %	94 %	91 %	94 %
	SI Negative	75 %	91 %	70 %	91 %
	SI Neutral	86 %	100 %	75 %	92 %
	R Positive	67 %	92 %	63 %	92 %
	R Negative	100 %	100 %	57 %	93 %
	R Neutral	77 %	100 %	73 %	85 %
	Overall	84 %	90 %	74 %	91 %

occurrence was computed by dividing the number of agreements that a behavior occurred by the number of disagreements plus agreements and multiplying by 100. Reliability of occurrence on the preliminary data was 87.6%; reliability of nonoccurrence was 98%. Reliability of occurrence on 20% of the actual observations was 85.8%; reliability of nonoccurrence was 98%. Reliability of individual items are presented in Table II. It was decided that reliabilities were sufficiently high to proceed with the remaining data analysis.

### Behavior Record

The behavior patterns of stimulus children were evaluated by summarizing the data from the Behavior Record in four ways. The data was initially examined to determine whether behaviors directed by stimulus children and by peers was influenced by age of peer. Data was then examined to evaluate the relative frequencies of positive, negative, and neutral behaviors. Data was also examined to evaluate the relative frequencies of self-initiated and response behaviors. Finally, data was examined to evaluate any potential differences in the chains of behaviors that occurred for each group of stimulus children.

Influence of Peer's Age on Behavior. Behaviors of stimulus children and peers were considered in three ways. The data for 3 and 4 year old peers was initially considered together. It was then considered separately for peers who were under 4 years of age (3 year olds) and for peers who were 4 years of age or more (4 year olds). Three major trends resulted. It was possible for each trend to occur 12 times. This was possible since total behaviors, as well as positive, negative, neutral, self-initiated and response behaviors were tabulated for behaviors directed by stimulus children and for behaviors directed by peer children. Means and standard deviations for each of these types of behaviors as they

Table II  
Interrater Reliability on Behavior Checklist

	PRELIMINARY DATA		20 % OF OBSERVATIONS	
	Occurrence	Nonoccurrence	Occurrence	Nonoccurrence
Solitary Play	94 %	96 %	92 %	96 %
Parallel Play	75 %	92 %	88 %	95 %
Associative Play	83 %	90 %	89 %	93 %
Vocalize	83 %	99 %	91 %	99 %
Talks	87 %	99 %	88 %	99 %
Shouts	100 %	100 %	75 %	100 %
Cry's	100 %	100 %	none	100 %
Laughs	100 %	100 %	67 %	100 %
Stands	86 %	93 %	79 %	92 %
Sits	86 %	99 %	89 %	91 %
Assisted Movement	none	100 %	none	100 %
Squats	80 %	99 %	66 %	100 %
Crawls	100 %	100 %	78 %	99 %
Scoots	none	95 %	100 %	100 %
Walks	84 %	95 %	73 %	98 %
Runs	100 %	100 %	73 %	99 %
Climbs	100 %	100 %	86 %	99 %
Smiles	97 %	87 %	77 %	98 %
Grimace	80 %	97 %	100 %	100 %
Tongue Out	100 %	100 %	70 %	99 %
Mouth	none	100 %	71 %	99 %
Eyes Closed	none	100 %	66 %	100 %

Table III

Means and Standard Deviations For Positive, Negative,  
Neutral, and Total Behaviors Directed by Peers

	ND 4	ND 3	DD	DDP
Total Behaviors	$\bar{X} = 57.67$ SD= 17.21	$\bar{X} = 39.33$ SD= 15.50	$\bar{X} = 24.33$ SD= 6.51	$\bar{X} = 7.33$ SD= 5.16
Total by Three Year Old Peers	$\bar{X} = 11.33$ SD= 4.93	$\bar{X} = 28.67$ SD 16.04	$\bar{X} = 7.33$ SD= 6.65	$\bar{X} = 2.00$ SD= 0
Total by Four Year Old Peers	$\bar{X} = 46.33$ SD= 15.14	$\bar{X} = 10.67$ SD= 1.53	$\bar{X} = 17.00$ SD= 1.73	$\bar{X} = 5.33$ SD= 5.13
All Postive Behaviors	$\bar{X} = 37.67$ SD= 17.04	$\bar{X} = 22.00$ SD= 10.15	$\bar{X} = 10.33$ SD= 1.53	$\bar{X} = 6.67$ SD= 5.69
Positive Behaviors by Three Year Old Peers	$\bar{X} = 6.00$ SD= 2.45	$\bar{X} = 16.00$ SD= 9.16	$\bar{X} = 4.33$ SD= 4.04	$\bar{X} = 1.33$ SD= .57
Positive Behaviors by Four Year Old Peers	$\bar{X} = 31.67$ SD= 14.74	$\bar{X} = 6.00$ SD= 1.00	$\bar{X} = 6.00$ SD= 3.61	$\bar{X} = 5.53$ SD= 5.13
All Negative Behaviors	$\bar{X} = 11.67$ SD= 5.13	$\bar{X} = 10.33$ SD= 4.16	$\bar{X} = 8.00$ SD= 8.66	$\bar{X} = .66$ SD= .57
Negative Behaviors by Three Year Old Peers	$\bar{X} = 2.67$ SD= 1.15	$\bar{X} = 7.00$ SD= 5.00	$\bar{X} = 1.00$ SD= 1.73	$\bar{X} = .67$ SD= .58
Negative Behaviors by Four Year Old Peers	$\bar{X} = 9.00$ SD= 4.36	$\bar{X} = 3.33$ SD= 1.53	$\bar{X} = 7.00$ SD= 6.93	$\bar{X} = 0$ SD= 0
All Neutral Behaviors	$\bar{X} = 8.33$ SD= 7.25	$\bar{X} = 7.00$ SD= 5.00	$\bar{X} = 6.00$ SD= 2.45	$\bar{X} = 0$ SD= 0
Neutral Behaviors by Three Year Old Peers	$\bar{X} = 2.67$ SD= 1.53	$\bar{X} = 5.67$ SD= 4.73	$\bar{X} = 2.00$ SD= 2.00	$\bar{X} = 0$ SD= 0
Neutral Behaviors by Four Year Old Peers	$\bar{X} = 5.67$ SD= 3.79	$\bar{X} = 1.33$ SD= 1.15	$\bar{X} = 4.00$ SD= 2.65	$\bar{X} = 0$ SD= 0

Table IV

Means and Standard Deviations For Positive, Negative, Neutral,  
and Total Behaviors Directed by Stimulus Children

	ND 4	ND 3	DD	DDP
Total Behaviors	$\bar{X} = 59.67$ SD= 17.93	$\bar{X} = 40.67$ SD= 16.04	$\bar{X} = 24.30$ SD= 6.51	$\bar{X} = 11.00$ SD= 5.69
Total Toward Three Year Old Peers	$\bar{X} = 12.00$ SD= 3.46	$\bar{X} = 30.00$ SD= 16.70	$\bar{X} = 7.30$ SD= 7.02	$\bar{X} = 2.00$ SD= 0
Total Toward Four Year Old Peers	$\bar{X} = 47.67$ SD= 16.65	$\bar{X} = 10.66$ SD= 1.53	$\bar{X} = 17.00$ SD= 1.73	$\bar{X} = 5.67$ SD= 5.89
All Positive Behaviors	$\bar{X} = 39.33$ SD= 14.22	$\bar{X} = 26.00$ SD= 11.79	$\bar{X} = 12.30$ SD= 1.53	$\bar{X} = 2.30$ SD= 1.53
Positive Behaviors Toward Three Year Old Peers	$\bar{X} = 6.00$ SD= 3.46	$\bar{X} = 19.33$ SD= 12.05	$\bar{X} = 5.00$ SD= 4.58	$\bar{X} = 1.00$ SD= 1.00
Positive Behaviors Toward Four Year Old Peers	$\bar{X} = 33.30$ SD= 13.20	$\bar{X} = 6.67$ SD= 1.53	$\bar{X} = 7.33$ SD= 3.21	$\bar{X} = 1.33$ SD= 1.15
All Negative Behaviors	$\bar{X} = 11.67$ SD= 5.13	$\bar{X} = 8.60$ SD= 5.51	$\bar{X} = 8.00$ SD= 6.24	$\bar{X} = .33$ SD= .58
Negative Behaviors Toward Three Year Old Peers	$\bar{X} = 4.33$ SD= .58	$\bar{X} = 6.33$ SD= 6.03	$\bar{X} = 2.00$ SD= 1.73	$\bar{X} = 0$ SD= 0
Negative Behaviors Toward Four Year Old Peers	$\bar{X} = 7.33$ SD= 5.03	$\bar{X} = 2.33$ SD= .58	$\bar{X} = 6.00$ SD= 5.20	$\bar{X} = .33$ SD= .58
All Neutral Behaviors	$\bar{X} = 8.67$ SD= 1.53	$\bar{X} = 6.00$ SD= 1.73	$\bar{X} = 4.00$ SD= 2.00	$\bar{X} = 5.66$ SD= 3.79
Neutral Behaviors Toward Three Year Old Peers	$\bar{X} = 1.67$ SD= .58	$\bar{X} = 4.33$ SD= 1.53	$\bar{X} = .33$ SD= .58	$\bar{X} = 1.33$ SD= 1.15
Neutral Behaviors Toward Four Year Old Peers	$\bar{X} = 7.00$ SD= 1.73	$\bar{X} = 1.67$ SD= .58	$\bar{X} = 3.67$ SD= 2.52	$\bar{X} = 4.33$ SD= 4.93

Table V

Means and Standard Deviations For Self-Initiated and Response Behaviors Directed by Stimulus Children and Peers

	Peers			
	ND 4	ND 3	DD	DDP
Self-Initiated Behaviors by All	$\bar{X} = 24.66$ SD = 11.15	$\bar{X} = 16.66$ SD = 4.73	$\bar{X} = 12.00$ SD = 3.61	$\bar{X} = 7.00$ SD = 5.29
Self-Initiated Behaviors by Three Year Old Peers	$\bar{X} = 5.67$ SD = 4.62	$\bar{X} = 11.67$ SD = 2.88	$\bar{X} = 2.67$ SD = 2.52	$\bar{X} = 2.00$ SD = 0
Self-Initiated Behaviors by Four Year Old Peers	$\bar{X} = 19.00$ SD = 8.89	$\bar{X} = 5.00$ SD = 2.00	$\bar{X} = 9.33$ SD = 2.31	$\bar{X} = 5.00$ SD = 5.29
Responses by All Peers	$\bar{X} = 33.00$ SD = 6.08	$\bar{X} = 22.67$ SD = 12.34	$\bar{X} = 12.33$ SD = 3.21	$\bar{X} = .33$ SD = .58
Responses by Three Year Old Peers	$\bar{X} = 5.67$ SD = .58	$\bar{X} = 17.00$ SD = 13.74	$\bar{X} = 4.67$ SD = 5.03	$\bar{X} = 0$ SD = 0
Responses by Four Year Old Peers	$\bar{X} = 27.63$ SD = 6.35	$\bar{X} = 5.67$ SD = 1.53	$\bar{X} = 7.67$ SD = 2.08	$\bar{X} = .33$ SD = .58
Stimulus Children				
Self-Initiated Behaviors Toward All Peers	$\bar{X} = 27.33$ SD = 5.13	$\bar{X} = 19.67$ SD = 10.41	$\bar{X} = 10.00$ SD = 3.61	$\bar{X} = 0$ SD = 0
Self-Initiated Behaviors Toward Three Year Old Peers	$\bar{X} = 5.67$ SD = .58	$\bar{X} = 13.67$ SD = 11.37	$\bar{X} = 4.00$ SD = 4.58	$\bar{X} = 0$ SD = 0
Self-Initiated Behaviors Toward Four Year Old Peers	$\bar{X} = 21.67$ SD = 5.03	$\bar{X} = 6.00$ SD = 1.00	$\bar{X} = 6.00$ SD = 1.00	$\bar{X} = 0$ SD = 0
Responses Toward All Peers	$\bar{X} = 32.00$ SD = 14.84	$\bar{X} = 21.00$ SD = 6.24	$\bar{X} = 14.33$ SD = 3.06	$\bar{X} = 7.67$ SD = 5.69
Responses Toward Three Year Old Peers	$\bar{X} = 6.33$ SD = 3.21	$\bar{X} = 16.33$ SD = 5.51	$\bar{X} = 3.33$ SD = 3.06	$\bar{X} = 2.00$ SD = 0
Responses Toward Four Year Old Peers	$\bar{X} = 26.00$ SD = 14.00	$\bar{X} = 4.67$ SD = 1.53	$\bar{X} = 11.00$ SD = 2.00	$\bar{X} = 5.67$ SD = 5.69

occurred in each stimulus group are presented in Tables III, IV and V. It should be noted that in some cases, standard deviations are quite large, suggesting substantial individual differences. Frequencies for individual stimulus children are presented in Appendix B.

The first trend was observed when all peer children were considered together. The mean frequencies of total behaviors directed by peers toward stimulus children in each group are presented in Figure 1 to provide an illustration of this trend.

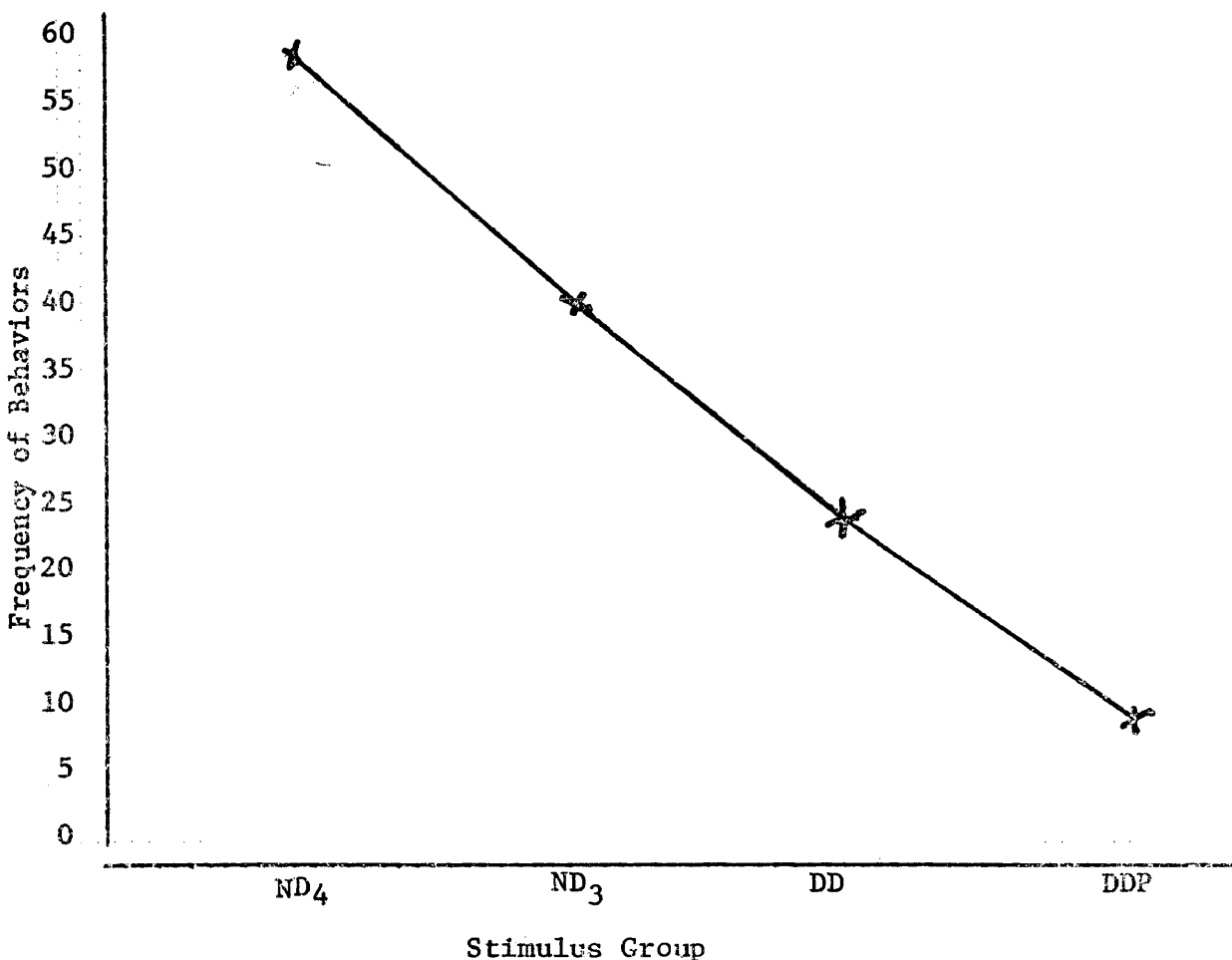


Figure 1: Mean Frequency of Total Behaviors that All Peers Direct Toward Each Group of Stimulus Children.

The order of frequency for the four groups of stimulus children from highest to lowest was: ND 4, ND 3, DD and DDP. This trend was consistent

11 out of 12 times where it was possible to occur. The only exception was that stimulus children in the DD directed fewer neutral behaviors toward peers than did children in the DDP group. This trend suggests a decrease in frequency behaviors directed by and toward stimulus children as mental age decreased.

The second trend was observed when 3 year olds were considered separately. Mean frequencies of total behavior 3 year old peers directed toward children in the four stimulus groups are presented in Figure 2.

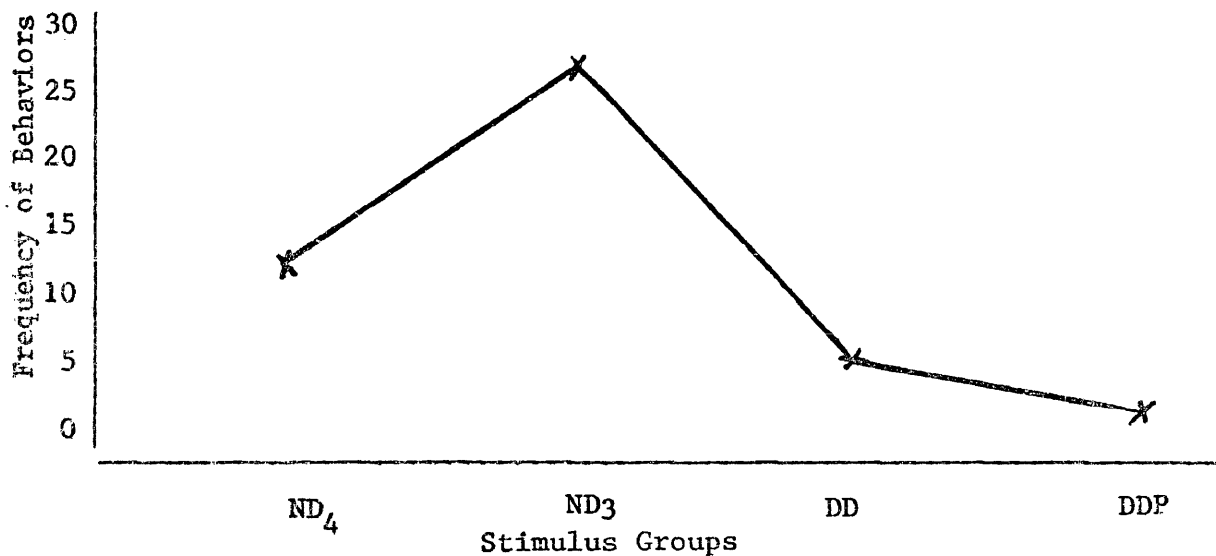


Figure 2: Mean Frequencies of Total Behaviors Directed by Three Year Old Peer Children Toward Each Group of Stimulus Children.

The order of frequency for the four groups of stimulus children from highest to lowest was ND 3, ND 4, DD, and DDP. This trend was the same for 11 out of 12 opportunities for it to occur. The one exception was that stimulus children in the DDP group directed more neutral behaviors toward 3 year old peers than did stimulus children in the DD group. Examination of this trend suggests that stimulus children in the ND 3 group had a much larger number of behaviors directed by or toward them than did stimulus children in the other three groups.



The third trend was observed when 4 year olds were considered separately. Mean frequencies of total behaviors that 4 year old peers directed toward stimulus children in the four groups are presented in Figure 3. The order of frequency for the four groups from highest to lowest was ND 4, DD, ND 3, and DDP. This trend was the same eight out of 12 times that it could have occurred. The four exceptions were:

a) peers directed an equal number of positive behaviors toward stimulus

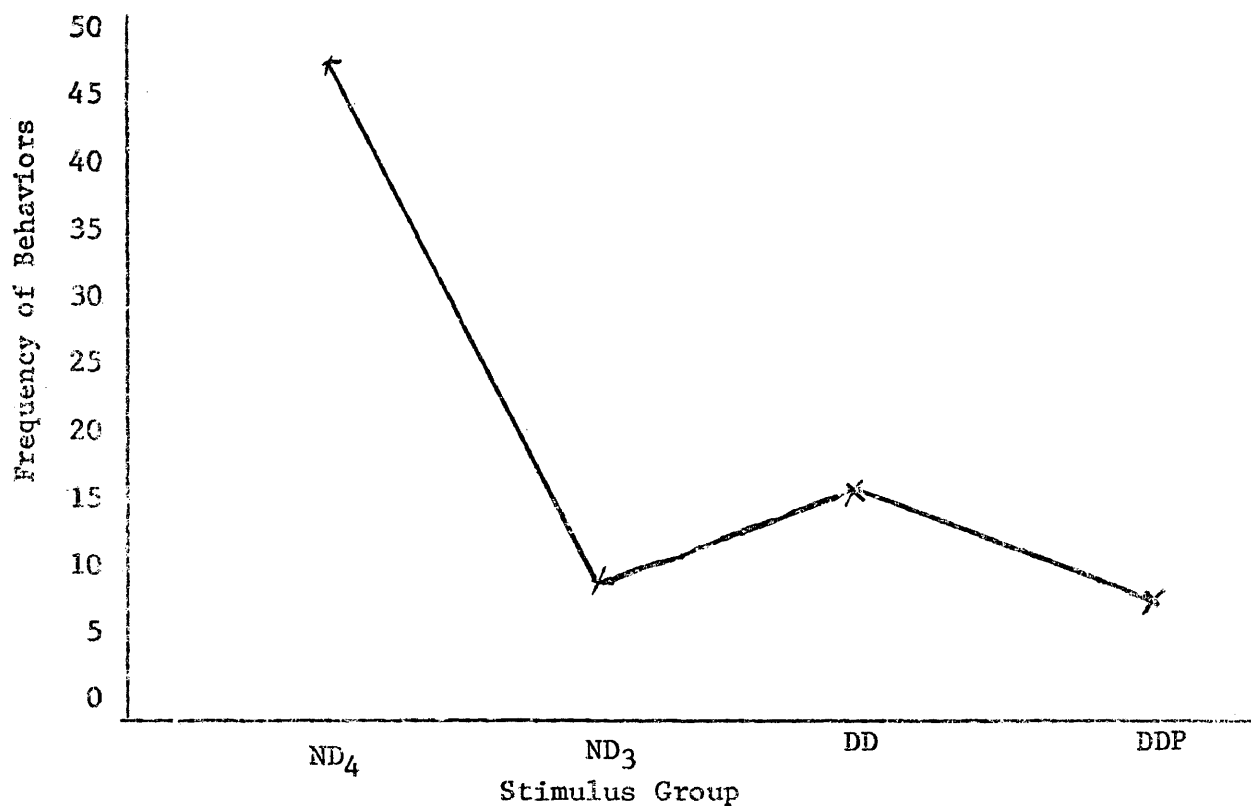


Figure 3: Mean Frequencies of Total Behaviors Directed by Four Year Old Peer Children Toward Each Group of Stimulus Children.

children in the ND 3 and DD groups; b) stimulus children in the DD and ND 3 groups directed the same number of self-initiated behaviors toward four year old peers; c) children in the DDP group directed more neutral behaviors toward 4 year old peers than did children in the ND 3 and DD groups; and d) children in the DDP group directed more response

behaviors toward 4 year old peers than did children in the ND 3 group. When considering the third trend it is noted that although there was a difference in mean frequencies between children in the ND 3 and DD groups, that difference was not very large, and the major increase appeared to be for children in the ND 4 group.

Positive, Negative and Neutral Behaviors. The mean frequencies of positive, negative and neutral behaviors directed by stimulus children and by peer children are presented in Figures 4 and 5.

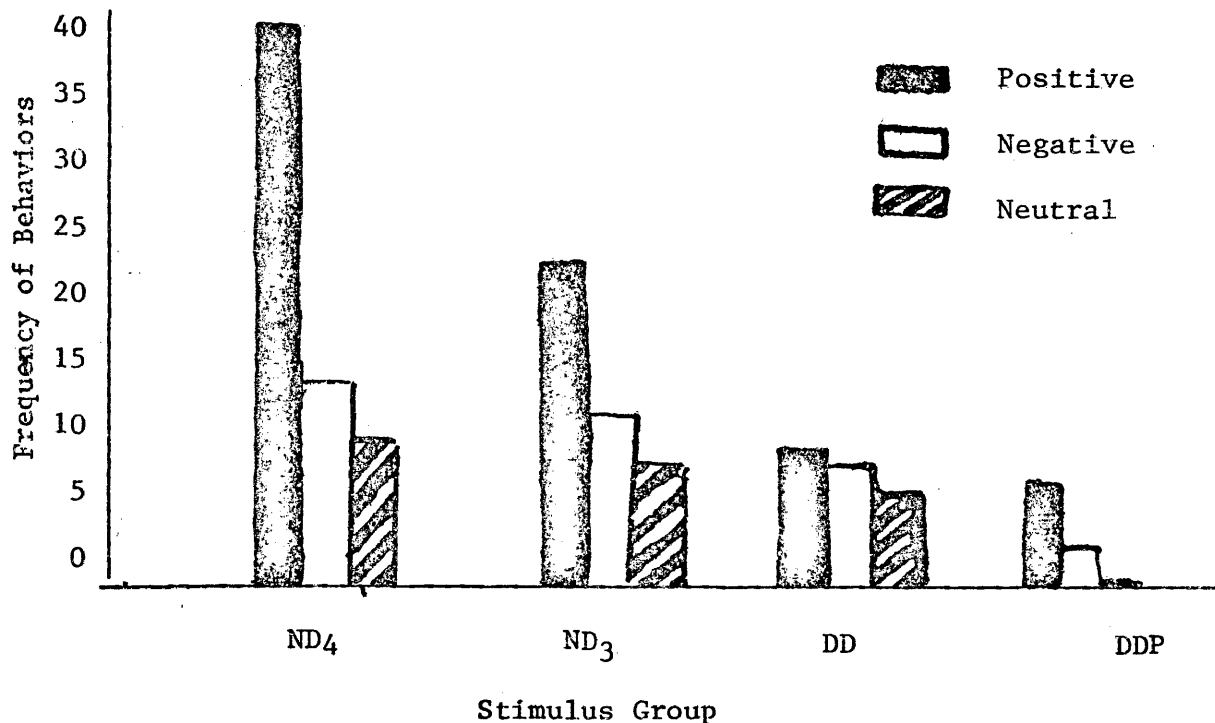


Figure 4: Mean Frequency of Positive, Negative and Neutral Behaviors Directed by Peer Children.

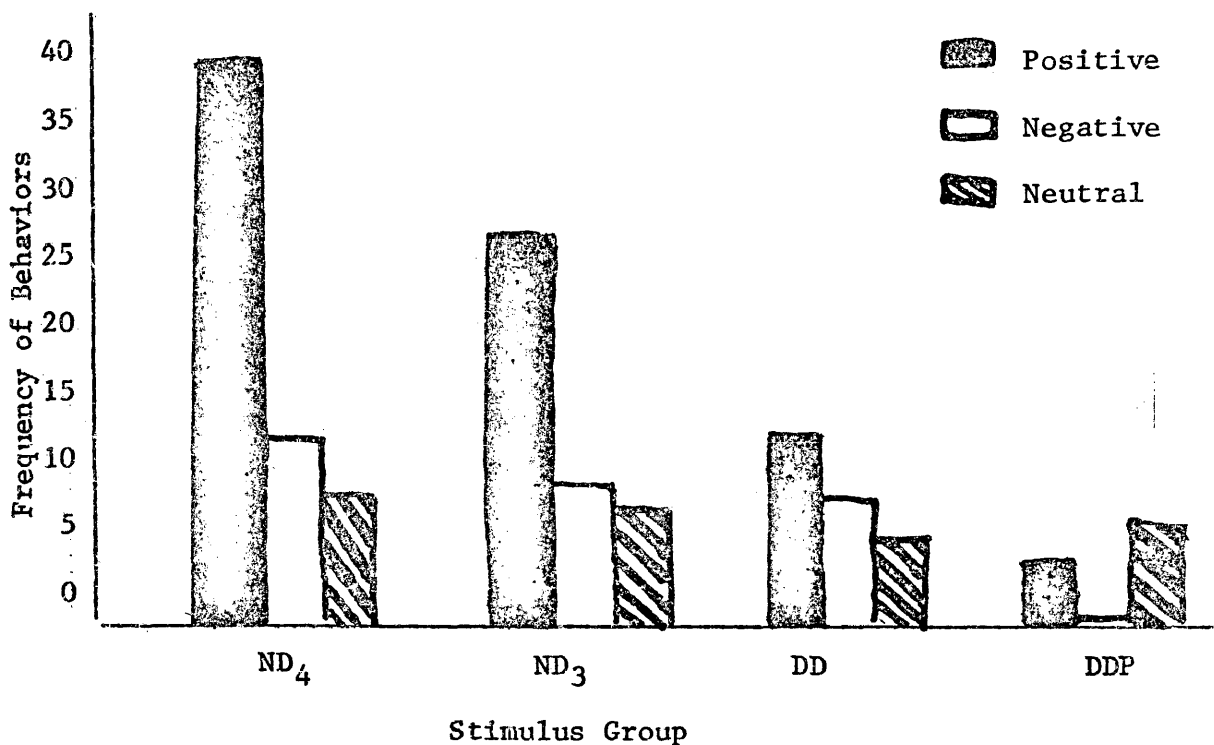


Figure 5: Mean Frequency of Positive, Negative and Neutral Behaviors Directed by Stimulus Children.

An examination of this data indicated that in seven out of eight cases, where it was possible to occur, stimulus children and peers directed primarily positive behaviors, followed by negative and neutral behaviors respectively. The one exception was that stimulus children in the DDP group directed more neutral than positive or negative behaviors. A closer examination of the data indicated that the ratio of positive to negative behaviors varied according to stimulus group. When behaviors that peers directed were considered, the ratio of positive to negative behaviors was lower for stimulus children in the DD group (1.3:1) than for children in the other stimulus groups (ND 3=2:1, ND 4=3:1 and DDP=10:1). This was also true when behaviors that stimulus children directed were considered (DD=1.5:1, ND 3=3:1, ND 4=3.4:1, DDP=6:1).

Self-Initiated and Response Behaviors. Total frequencies of behaviors

were separated into the number of self-initiated and response behaviors that peers directed toward stimulus children. These frequencies are presented in Figure 6.

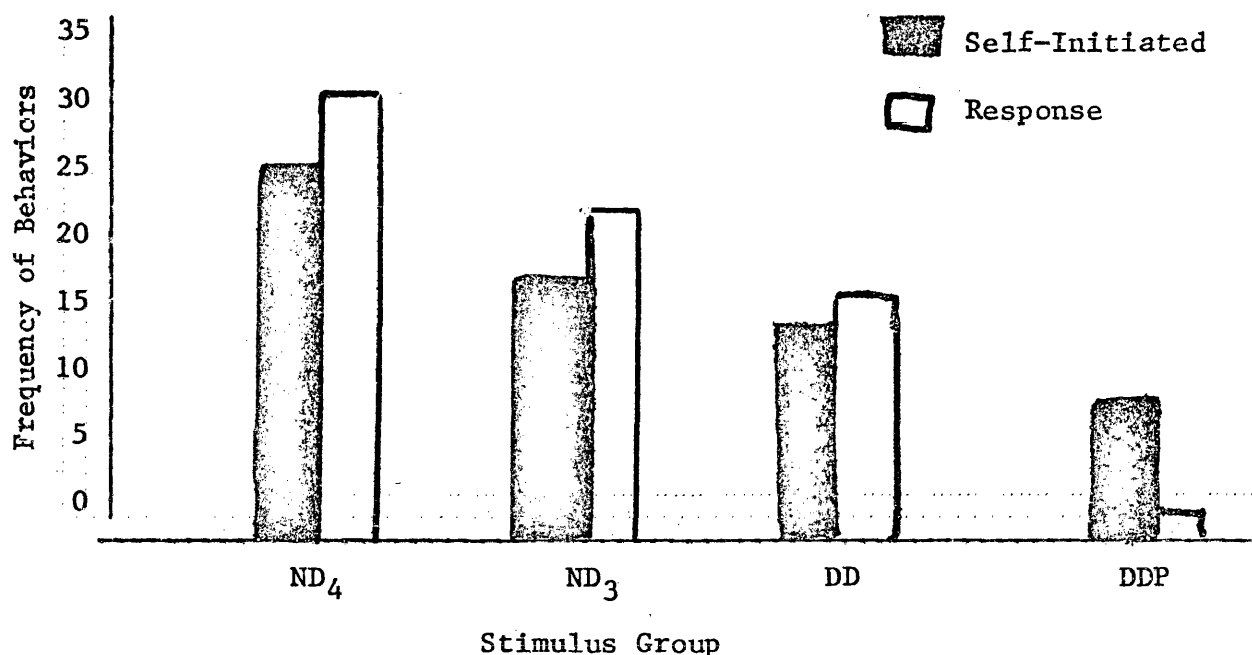


Figure 6: Mean Frequency of Self-Initiated and Response Behaviors Directed by Peer Children.

Examination of the frequencies indicated that peer children directed a higher frequency of responses than they did self-initiated behaviors toward stimulus children in all except the DDP group. Similar findings were discovered for behaviors directed by stimulus children. This data is presented in Figure 7.

Behavior Chains. Chains of three or more reciprocal behaviors (child A initiates, child B responds to child A; child A responds to child B) were tabulated for each stimulus child across the 12 observations. These sums are presented in Table VI. An examination of the means indicates that stimulus children in the ND 4 group were involved in the highest frequency of behavior chains, followed by children in the ND 3, DD and DDP groups.

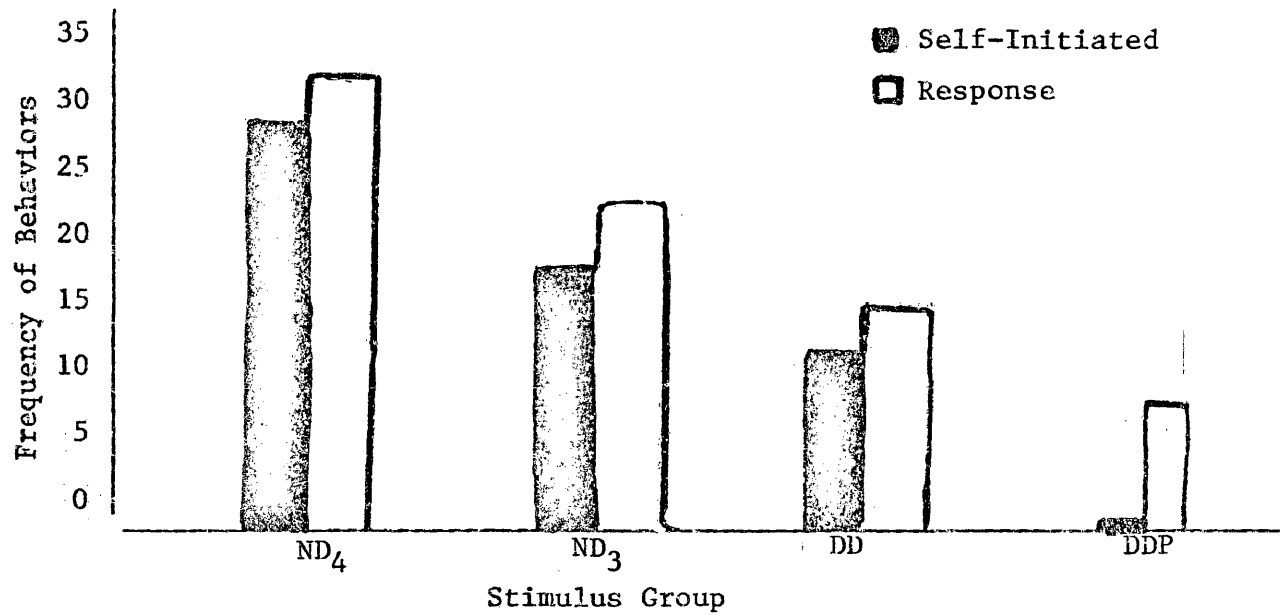


Figure 7: Mean Frequency of Self-Initiated and Response Behaviors Directed by Stimulus Children.

Table VI

Total Number of Behavior Chains for Individual Stimulus Children

GROUP	CHILD	TOTAL
ND 4	1	7
	2	15
	3	7
ND 3	4	1
	5	8
	6	6
DD	7	2
	8	2
	9	4
DDP	0	0
	0	0
	0	0

### Behavior Checklist

Individual items on the Behavior Checklist were summed for each stimulus child over the 12 observations to determine whether there were specific items that occurred with greater frequency in some stimulus groups. Means for each stimulus group are presented in Table VII. Frequencies for individual stimulus children are presented in Appendix C. Figure 8 presents an illustration of means for solitary play, from highest to lowest was: DDP, DD, ND 3, ND 4. Order of frequency of parallel play from highest to lowest was: DD, ND 3, DDP, ND 4. Order of frequency for associative play was: ND 4, ND 3, DD, DDP.

Figure 9 illustrates mean frequencies of verbal behavior. Order of frequency of talking, laughing and shouting, highest to lowest was: ND 4, ND 3, DD, DDP. Order of frequency of vocalizing, highest to lowest was DD and DDP, ND 3 and ND 4. Order of frequency for crying, highest to lowest was: ND 3, DDP, DD and ND 4.

Changes in Behaviors. An additional way of evaluating data from the behavior checklist was attempted after it was collected. It appeared that stimulus children in the DD and DDP groups changed activities less frequently than did stimulus children in the ND 3 and ND 4 groups. To evaluate this, the number of times each child changed his type of play (solitary, parallel or associative) and the number of times each child changed his type of mobility (standing, sitting, walking, etc.) were tabulated for each observation and summed across the 12 observations. Means were computed for each stimulus group and are presented in Figure 10 for type of play. Results indicated that stimulus children comprising the ND 3 and ND 4 group changed activities more frequently than children

Table VII

Means of Each Category of Behaviors on the Behavior  
Checklist For Each Stimulus Group

Behavior	ND 4	ND 3	DD	DDP
SOLITARY PLAY	9.33	28.00	42.00	69.67
PARALLEL PLAY	13.67	20.00	33.30	17.67
ASSOCIATIVE PLAY	72.67	48.00	20.67	6.00
VOCALIZE	.33	5.33	7.00	7.00
TALK	29.00	13.67	2.33	0
SHOUT	9.00	5.67	1.33	0
CRY	1.00	2.67	1.33	1.67
LAUGH	4.33	2.67	.67	0
STAND	17.67	22.33	37.33	12.00
SIT	34.00	34.00	38.00	72.33
ASSISTED MOVEMENT	0	0	0	3.67
SQUATS	2.67	2.33	3.00	0
CRAWLS	2.67	1.67	0	2.33
SCOOTs	0	2.33	0	3.00
WALKS	16.33	14.33	10.67	0
RUNS	6.67	5.33	1.67	0
CLIMBS	13.67	12.33	3.33	0
LAYS	2.33	.33	0	5.33
SMILES	24.00	15.67	17.33	10.33
GRIMACE	3.00	5.67	3.67	4.33
TONUE OUT	.67	.33	6.67	.67
MOUTH	.33	0	2.33	8.67
EYES CLOSED	1.00	0	.33	2.00

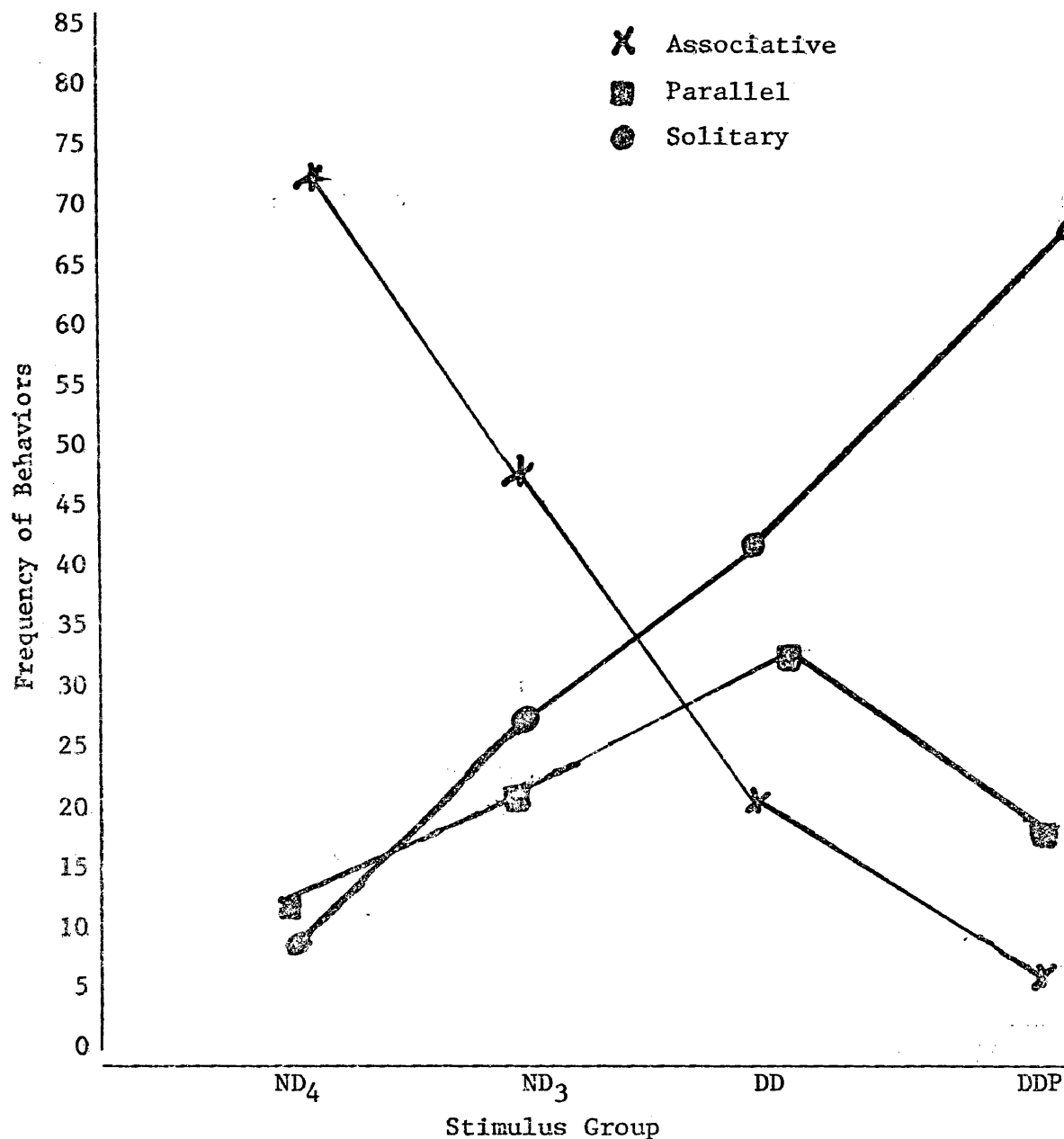


Figure 8: Mean Frequencies of Solitary, Parallel, and Associative Play for Each Stimulus Group.

in the DD and DDP groups.

Figure 11 illustrates the differences in stimulus groups in the frequency with which they changed mobility status (standing, walking, etc.). This data indicated that stimulus children in the ND 4 group had the most changes, followed by stimulus children in the ND 3 group, the DD



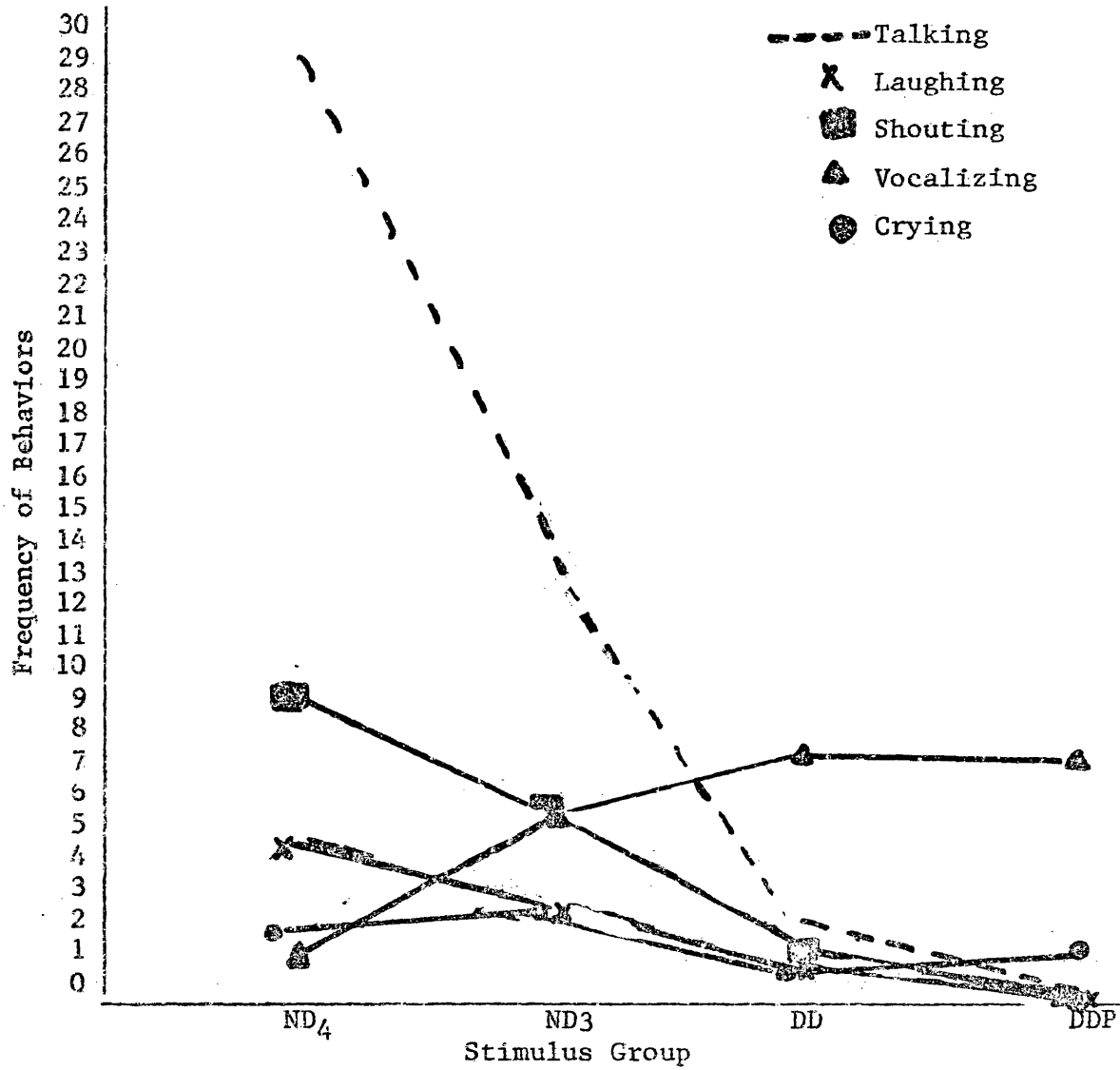


Figure 9: Mean Frequencies of Vocalizations, Talking, Crying, Shouting and Laughing as a Function of Stimulus Condition.

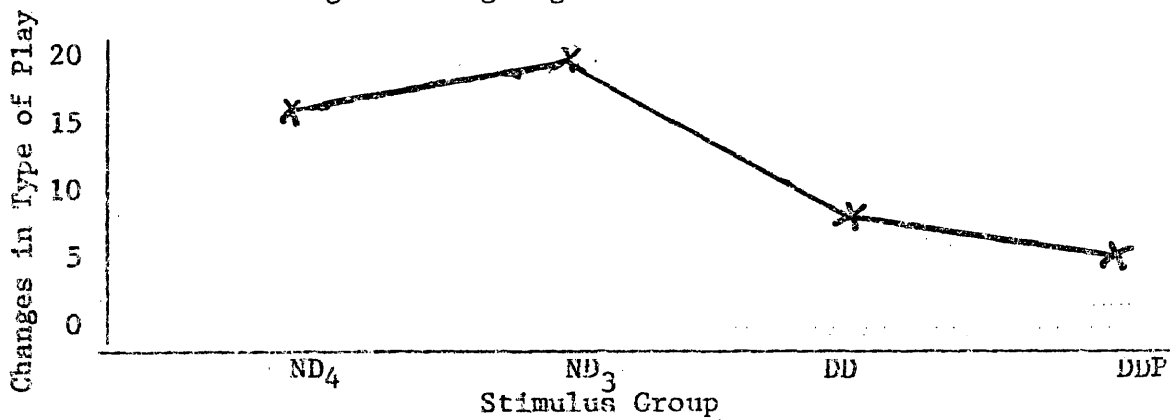


Figure 10: Mean Changes in Type of Play For Each Stimulus Group.

group and finally the D<sub>2</sub> group.

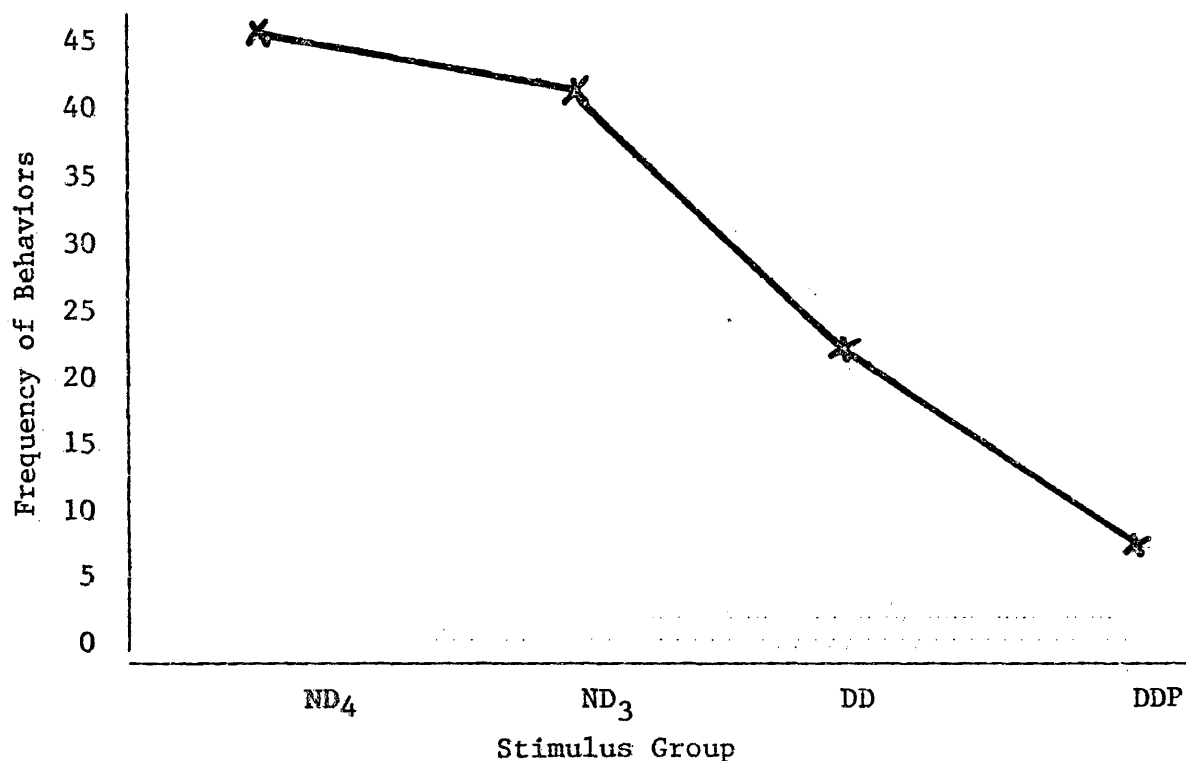


Figure II: Mean Frequency With Which Children in The Various Stimulus Groups Changed Mobility Status.

#### Verbal Report Data

All peer children selected for Phase II of the present study responded to all pictures of stimulus children attending their preschool. Since there were four stimulus children in Preschool 1, this resulted in a total of 56 possible responses from the 14 peer children. Preschool 2 had eight stimulus children, resulting in 168 possible responses from the 21 peer children. If a peer child was unable to name the child in the photograph, that response was eliminated from the data. This resulted in the elimination of five responses. There were a total of 219 yes or no responses to the question "Do you like to play with (name) at school?" Of these, 83% of the obtained responses were yes, indicating a strong yes bias. Percentages of yes responses were also

computed separately for each preschool, for individual stimulus children and for 3 and 4 year old peer children. These percentages are presented in Tables VIII and IX.

Table VIII

Percentage of "Yes" Responses to the Question  
"Do you like to play with this child at school?"

		Preschool		
		1	2	
AGE	3	85%	94%	92%
	4	72%	78%	76%
		76%	84%	

The data was then analyzed to evaluate the relationship between peer's responses to the question "Do you like to play with (name) at school?" and behaviors directed toward stimulus children by peer children. An indication of this relationship was obtained by computing the probability of independence of verbal and behavioral responses using the McNemar Test for the Significance of Changes (Siegel, 1956) for individual stimulus children. The arrangement of these tables is presented in Table X.

When expected frequency was small, the Binomial Test (Siegel, 1956) was used. Probabilities of independence for individual stimulus children are presented in Appendix D. Using the individual probabilities of independence, a Chi Square Test of Combined Probabilities (Guilford, 1973) was computed, yielding a significant overall chi square of

Table IX

Percentage of "Yes" Responses of Three and Four Year Old Peers to the Question "Do you like to play with this child at school?"

	Stimulus Child	3	4
ND 4	1	100%	100%
	2	87%	75%
	3	80%	89%
ND 3	4	89%	80%
	5	89%	67%
	6	80%	55%
DD	7	100%	58%
	8	100%	92%
	9	100%	55%
DDP	10	89%	92%
	11	100%	58%
	12	80%	55%

Table X

Arrangement of Probability Tables For Individual Stimulus Children

Direct Any Type of Behaviors

		No	Yes
What Children Say	Yes	A	B
	No	C	D

$\chi^2=130.24$  (df=12,  $p < .001$ ). Table XI presents a summary of the frequencies of total behaviors of all stimulus children combined to give the reader a general description of the frequencies obtained in each category.

Table XI

Summary of Frequencies of Total Responses Directed Toward  
Stimulus Children  
Direct Any Type of Behaviors

		No	Yes
What Children Say	Yes	132	52
	No	28	9

Significant relationships were also found when data was analyzed separately for both Preschool 1 ( $\chi^2=22.23$ ,  $df=4$ ,  $p \ll .001$ ) and Preschool 2 ( $\chi^2=108.00$ ,  $df=8$ ,  $p \ll .001$ ).

Similar analyses were performed on the overall data for each of the groups of stimulus children. All four stimulus conditions reached significance. The results of the obtained chi square are presented in Table XII.

Table XII

Chi Square Values Computed for Each of the Stimulus Conditions

Relationship Between Verbal Report Data And  
Observed Play Behavior

ND 4	ND 3	D D	DDF
$\chi^2=28.03$	$\chi^2=26.94$	$\chi^2=34.26$	$\chi^2=40.998$
$df=3$	$df=3$	$df=3$	$df=3$
$p \ll .001$	$p \ll .001$	$p \ll .001$	$p \ll .001$

The data was also analyzed to determine the relationship between verbal responses and positive, negative and neutral behaviors that peer children directed toward stimulus children. This data also utilized probabilities of independence on individual stimulus children in the Chi Square Test of combined probabilities. The obtained Chi Square for all stimulus

children in the study was significant for positive behaviors ( $\chi^2=141.99$ ,  $df=12$ ,  $p<.001$ ), as well as for negative behaviors ( $\chi^2=140.82$ ,  $df=12$ ,  $p<.001$ ), and for neutral behaviors ( $\chi^2=167.66$ ,  $df=12$ ,  $p<.001$ ).

Observed frequency data for all positive behaviors were totaled over all stimulus children and are presented in Table XIII. Similarly, observed

Table XIII

Summary of Frequencies of Positive Responses to Stimulus Children  
Positive Behaviors Directed by Peer Child

		No	Yes
What Children Say	Yes	147	37
	No	31	7

frequencies for all negative behaviors directed by peer children were totaled over stimulus children and are presented in Table XIV. Finally,

Table XIV

Summary of Frequencies of Negative Responses to Stimulus Children  
Negative Behaviors Directed by Peer Child

		No	Yes
What Children Say	Yes	162	22
	No	33	5

observed frequencies for all neutral behaviors directed by peer children were totaled for all stimulus children and are presented in Table XV.

The data concerning the relationship between the children's verbal

Table XV

Summary of Frequencies of Neutral Responses to Stimulus Children

		No	Yes
What Children Say	Yes	174	11
	No	37	0

responses and positive, negative and neutral behaviors was also analyzed for each stimulus group. The results of the chi square test of probabilities are presented in Table XVI. All tests were statistically

Table XVI

Results of Chi Square Tests of Combined Probabilities  
For Each Stimulus Condition  
and Positive, Negative or Neutral Rating

	ND 4	ND 3	DD	DDP
Positive	$x^2=29.98$ df=3 $p < .001$	$x^2=31.42$ df=3 $p < .001$	$x^2=39.59$ df=3 $p < .001$	$x^2=40.998$ df=3 $p < .001$
Negative	$x^2=35.45$ df=3 $p < .001$	$x^2=31.36$ df=3 $p < .001$	$x^2=33.01$ df=3 $p < .001$	$x^2=40.998$ df=3 $p < .001$
Neutral	$x^2=40.998$ df=3 $p < .001$	$x^2=42.83$ df=3 $p < .001$	$x^2=42.83$ df=3 $p < .001$	$x^2=40.998$ df=3 $p < .001$

reliable at the  $p < .001$  level. Similar analyses were performed on the data when it was tabulated separately for each preschool. The obtained chi squares are presented in Table XVII. All tests were statistically reliable at the  $p < .001$  level. The fact that all of these tests reached significance, in addition to the way that the frequencies were distributed, suggests an inverse relationship between

Table XVII

Results of Chi Square Test of Combined Probabilities  
As A Function of Preschool and Positive, Negative  
or Neutral Rating

		Rating		
		Positive	Negative	Neutral
Preschool	1	$x^2=32.41$ df=4 p < .001	$x^2=28.42$ df=4 p < .001	$x^2=46.05$ df=4 p < .001
	2	$x^2=109.58$ df=8 p < .001	$x^2=112.40$ df=8 p < .001	$x^2=121.61$ df=8 p < .001

what children say they like to do and what they actually do when they gave a yes response. However, when they gave a no response, they were also unlikely to play with the child. This indicates that the reported significance may be due in large part to the previously described "yes" bias.

### Discussion

#### Restatement of Hypotheses and Summary of Major Findings

The present study attempted to answer a number of questions relevant to the integration of developmentally disabled children into preschools serving nondelayed children. The primary question was to determine whether preschool children show different patterns of behavior when interacting with developmentally disabled children with and without physical handicaps than they do with nondisabled peers. A prediction was made, on the basis of work by Ray (1974), that preschoolers would show different patterns of behavior toward children with developmental disabilities than toward children without developmental disabilities.

Generally, peers and stimulus children in all four groups directed



the highest frequency of positive, then negative and finally neutral behaviors toward each other. However, there were differences in the ratio of positive to negative behaviors that changed with stimulus group. In addition, peers and stimulus children from the four groups generally directed more response behaviors than self-initiated behaviors. It is important to note, that in general, the absolute frequency of behaviors decreased with the mental age of children in the four stimulus groups.

The prediction that 4 year old peers would direct fewer positive behaviors toward developmentally disabled children with physical handicaps than toward those without, was confirmed. No difference in frequency of positive behaviors was predicted for 3 year old peers, but it was discovered that fewer positive behaviors were directed by and toward children in the DDP group than toward children in any of the other stimulus groups.

The second issue considered was the relationship between frequency and type of interactions with children and a verbal report measure indicating with whom the peer children desired to play. It was predicted that there would be no significant relationship between the two measures. It was discovered that most children expressed a desire to play with stimulus children, but failed to do so. In addition, it was of interest to determine what children in an integrated setting would say about developmentally disabled children in response to the question "Do you like to play with (name) at school?" On the basis of Asher's (1975) research, it was predicted that there would be no difference between 3 and 4 year olds in their responses to this question. The present study indicated that 4 year olds expressed a desire to play with pictured stimulus children less frequently than 3 year olds. This tendency was

not specific to children who were identified as having developmental disabilities.

Finally, it was of interest to know whether there were specific characteristics of disabled youngsters with and without physical handicaps that were related to the patterns of behavior that were displayed. Results indicated that there were characteristics that were related to the patterns of behavior displayed, particularly in the areas of communication and type of play.

#### Behavioral Record

In general, the findings of the present study lend support to the results of previous research (Johnson, 1950; Johnson and Kirk, 1950) suggesting that developmentally disabled children are less accepted than nonretarded peers. The primary contribution of data from the present study in support of this conclusion was provided by the behavior record. Data from the present study is different from the bulk of research in the area of acceptance of developmentally disabled children into classrooms comprised mainly of nondisabled children. The primary difference was the emphasis on observed play behavior rather than verbal report and sociometric findings.

Data from the behavior record, as well as from the other measures has revealed a number of consistent trends. However, prior to a consideration of these trends, there are two findings that must be presented for a realistic interpretation of results in the present study. First, consideration of the standard deviations reported in Tables III, IV, and V, suggest large individual differences between children within the same stimulus group. This suggests that despite the consistency of the reported trends, characteristics of individual

children must be kept in mind when implementing integration programs and when interpreting results. Second, although an attempt was made in the present study to evaluate the effect of physical handicap on level of acceptance, such an analysis was not possible. The major difficulty in accomplishing such an analysis stemmed from the fact that the children available for the stimulus condition involving physical handicaps (DDP) obtained lower scores on the standardized intelligence tests that were administered. Given the differential level of functioning between the two groups of children, it is impossible to identify whether the difference in results for these children was a function of degree of retardation or physical handicap. One possibility, given the previously cited work indicating that unfavorable attitudes are held toward physically handicapped peers (Billings, 1963; Richardson, 1970; Richardson and Royce, 1968), and given Johnson's (1950) finding that "lower" functioning mentally handicapped children were less accepted than children in the "upper" mentally handicapped group is that both characteristics of children in the DDP stimulus group contributed to the obtained results. Although a population that would have permitted isolation of these variables was unavailable, it provides interesting possibilities for future research efforts.

Keeping these limitations to the data from the present study in mind, it is possible to consider results obtained from the behavioral record more realistically. One striking trend was that children in all stimulus groups most frequently had positive behaviors directed toward them, followed by negative and neutral behaviors respectively. The

same was true for behaviors that stimulus children directed toward peers, with only one exception. However, it is important to consider that the ratio of positive to negative behaviors was higher for children in the ND 3, ND 4 and DDP groups than for children in the DD groups. There are two possible explanations for this difference. The first is that children in the DD group were simply not being responded to as positively as were children in the other stimulus groups. The second is that this was an instance where individual differences influenced the reported data. An examination of Tables III and IV indicates that mean frequencies of negative behaviors directed by and toward stimulus children in the DD group were usually accompanied by standard deviations that were nearly equal in size.

Generally, the data lends support to the observation that children in the DD and DDP groups may not be overtly rejected as the data provided by Johnson (1950) and others (Johnson and Kirk, 1950; Iano, Ayers, Heller and Walker, 1974) have indicated, but may be simply ignored as suggested by the work done by Miller (1956), Lapp (1958) and Renz and Simenson (1969). The exception to this trend was the finding that more of the behaviors directed by stimulus children in the DDP group were neutral, followed by positive, and finally negative behaviors. This finding suggests that for some reason, children in this group do not display as much affect when they direct behaviors toward other children. Data from the behavior checklist will be discussed in greater detail later, but also is consistent with this finding. Table VII and Figure 9 illustrate that in the present study, children in the DDP group exhibited a much lower frequency of talking, shouting, laughing and

smiling. Previous work by Charlesworth and Hartup (1967) found that preschool children showed an increased tendency to give social reinforcers involving attention and approval with increased age. Examples of reinforcers in the attention and approval category included, among other things, general conversation, smiling and laughing. This finding leads to speculation that stimulus children in the DDP group were not as socially reinforcing to their peers and thus contributed to lower frequencies of behaviors being directed toward them. Research efforts designed to explore differential social reinforcers provided by various groups of children might provide some insight into the reason for the lower levels of behaviors in which children in the DDP group were involved. In addition, research efforts aimed at identifying similarities between children in the DDP group and other children who exhibit low levels of interaction with their peers may provide valuable information related to social development that cuts across intelligence levels. Such efforts could be the basis for intervention techniques designed to increase the reinforcement value of children in this group. An example of such strategies was provided at the end of one of the observation sessions when a teacher gave a child in the DDP group a pan of water to play in. A number of children gathered around this child for the first time during the observation session. Activities such as this situation did provide greater physical proximity. While the play of these children was directed primarily toward the water, similar situations may serve to facilitate closer contact among children.

To some extent, the present study was too simplistic in its

recording of behaviors that children directed toward each other. While the positive, negative and neutral ratings were able to tap the general affect of the observed interaction, there appeared to be a qualitative aspect of affect that was not differentiated with the assignment of these ratings. For example, if a peer child approached another child, patted him on the head, smiled and left, it would have been recorded as a positive behavior. However, this action is quite different in quality than if the same child were to approach another child and asked him to participate in a game. Although both would have been recorded as positive behaviors, the former is a nurturing behavior that really requires no response from the child who is the recipient of the positive behavior. On the other hand, the latter requests participation at an associative level. Observational methods that would involve more detailed recording of specific behaviors might help to discriminate these qualitative differences.

Another finding contributed by the behavioral record was an indication of the relative frequencies of self-initiated and response behaviors and the frequencies of behavior chains that occurred in each stimulus group. These findings corresponded with the tendency described by Ray (1974) for the responses of each participant in a social interaction to serve as a stimulus for the other member. Reciprocity might account for the higher frequency of responses that were observed. Considering reciprocity as a possible explanation for the higher frequency of response behaviors, the exception to this in the present study becomes particularly interesting. Stimulus children in the DDP group had more self-initiated behaviors directed toward them by their

peers than response behaviors. They also had no behavior chains recorded. This exception suggests the possibility that children in the DDP group were unable to establish reciprocity or maintain social contact with their peers. Ray (1974) suggested that the reward value derived from a reciprocal interaction system may be absent on the basis of his findings with delayed toddlers. This interpretation may be applicable to children in the present study's DD and DDP groups as well, and would be supported by the higher frequency of self-initiated behaviors directed by peer children toward stimulus children in the DDP group and by the lower frequencies of behavior chains occurring for children in the DD and DDP groups. Since Ray's (1974) suggestion was based on lowered frequencies of playing with objects, talking, nonverbal gestures and facial expressions, and less involvement with peers for children in the delayed group, the data are not directly comparable. Further research aimed at the exploration of the reciprocity theory would be valuable in an understanding of relations between disabled and nondisabled youngsters. Mechanisms that would enhance the ability of developmentally disabled children to maintain reciprocity would be a valuable contribution to work concerning the potential reward value of children's behaviors. One such possibility has been advanced by Ray (1974) and is supported by findings from the behavior checklist used in the present study. It involves the importance of verbal and nonverbal communication in the social relationship. To the extent that such communication is important in the maintenance of social reciprocity, the lowered levels of some of these behaviors (laughing, talking, smiling) found in the present study and in the work by Ray (1974) are likely to

adversely influence the overall frequencies of behaviors directed by and toward children in the DD and DDP groups. However, to the extent that language behavior ultimately occurs in a social relationship (Ray, 1974) it remains important to provide a child with a social environment that will help facilitate his or her development. It may be true that intervention is needed to make the environment one in which the child can benefit from the socialization experience, both in terms of his or her ability to communicate and in terms of frequency of contact with other children.

In a further attempt to identify differential patterns of behavior that occur as a function of stimulus group, data from the behavioral record was compared in terms of the frequency with which behaviors were directed by and toward stimulus children in each of the various groups. The results suggested three major trends. These trends were the same when the behaviors were directed by or toward stimulus children in each of the four groups.

The first trend was a result of total behaviors that all peer children directed toward stimulus children and that stimulus children directed toward all peer children. This trend indicated that the most behaviors of any kind were directed by and toward stimulus children in the ND 4 group. This was followed by stimulus children in the ND 3 group, the DD group and the DDP group. When results were considered separately for 4 year old peer children, the second major trend was produced. This trend indicated that the most behaviors were directed by and toward stimulus children in the ND 4 group, followed by stimulus children in the DD, ND 3 and DDP groups respectively. Data for



3 year old peers indicated that the most behaviors were directed by and toward stimulus children in the ND 3 group, followed by stimulus children in the ND 4, DD and DDP groups respectively.

An examination of this data suggests that stimulus children in the nondisabled groups tended to interact most frequently with nondelayed peers of similar ages. Considering these three trends in conjunction with the developmental ages of stimulus children in the disabled group (25 to 35 months) and of stimulus children in the developmentally disabled/physically handicapped group (9.1 to 12 months), it appeared that for the most part, children interacted with other children closest to their own developmental age. The major exception to this trend was the finding for 4 year olds showing that more behaviors were directed by and toward stimulus children in the DD group than stimulus children in the ND 3 group. Developmental ages of children in the DD group were slightly lower than the chronological age of children in the ND 3 group, while the chronological ages of children in the DD group were greater than the chronological ages of children in the ND 3 group. It may be that to some extent, chronological age played an interactive role, influencing observed behavior in cases where children have reached a minimal level of functioning, but was unable to exert an influence if the child has not reached a certain level of development. In Hartup's (1970) review of literature on peer interaction in normal children, he reported that with increasing age, children participate in more associative and parallel play and less frequently in solitary play and onlooker behavior. It is possible that children must reach the level where they are participating less frequently in solitary play for chronological age to exert any effect on level of interaction. Figure

8 illustrates extremely low levels of solitary play and high levels of associative play in stimulus children in the ND 4 group. The reverse was found for stimulus children comprising the DDP group. Children in the DDP group participated in less parallel play than children in the ND 3 and DD groups. Considering this in light of the explanation concerning the possible interactive effect of chronological age, it would support the notion that children in the present study's DDP condition had not yet reached a level where it was possible for chronological age to exert an effect over developmental age. It is also possible that there may be something other than chronological age that is functioning in the interaction effect. Such things as mobility may also have an effect and would be a potential area of exploration in further research efforts.

It is important to note that the trend that was observed when all peers were considered together may have been influenced by the greater number of 4 year old peers in both preschools. Since 4 year olds interacted most with other 4 year olds; a preschool with equal numbers of 3 and 4 year olds may show less difference between stimulus children in the ND 3 and ND 4 groups.

#### Behavior Checklist

Data from the behavior checklist did indicate that there was a predominance of some behaviors in certain groups of stimulus children. As previously mentioned, Figure 8 illustrates a predominance of solitary play in stimulus children comprising the DDP group and a predominance of associative play in children in the ND 4 group. When considering the developmental ages obtained by children in the DD and DDP groups, this

is consistent with previously cited research findings (Hartup, 1970) pointing toward an increase in the amount of associative play with increased age.

Figure 9 illustrates the trends discovered for vocal behavior. These results suggest that talking, laughing and shouting increased with developmental age while vocalizing increased as developmental level decreased. While it is logical that talking is related to developmental level, it is quite possible that a lower frequency of talking adversely influences interaction or that less interaction may inhibit the development of talking and laughing. This is consistent with work by Ray (1974) showing fewer instances of laughing and talking in delayed children. As Ray (1974) pointed out, it is likely that lower frequencies of both verbal and nonverbal behaviors may adversely influence a child's ability to establish and maintain social reciprocity that is an important part of a child's social development.

While trends in nonverbal aspects of the observational scheme were not as strong, some interesting results occurred. Children in the ND 4 group displayed the highest frequency of smiling and the lowest frequency of grimacing. This would also be consistent with Ray's (1974) findings and the previously discussed importance of verbal and nonverbal communication. While these findings are interesting, it should be noted that it was somewhat difficult to record the behaviors occurring on this category of the checklist accurately due to the frequent movement of the children, particularly children in the nondisabled groups. However, given that most of the reliability for the facial expression categories was 70% or greater, the results deserve some attention.

The post hoc analysis of data from the behavior checklist presented in Figures 10 and 11 provided some interesting information. Stimulus children in the ND 3 and ND 4 groups changed both type of play and mobility status much more frequently than did children in the DD and DDP groups. This difference is particularly apparent for changes in mobility status. There is also a substantial difference between stimulus children in the DDP group for changes in mobility status. While this difference might be expected for children in the DDP group as a result of their physical limitations, there is no apparent reason for fewer changes in mobility for children in the DD group. Obviously to the extent that physically impaired children are unable to walk, run, climb and the like, it will impair their ability to participate in activities requiring such skills and engage in the social interaction that such activities provide. One possibility is that children in the DD group may have some motor delay even though they do not have physical handicaps defined by the present study. Delayed motor development may have some effect on the ability of the children to participate in various motor activities and thus influence interaction with them. A decreased tendency to spontaneously change activities may have a marked effect on a child's ability to maintain the interest of other children. It may be that increased levels of interaction between developmentally disabled preschoolers and their nondisabled peers would be facilitated if the kinds of activities they were engaging in changed more frequently. This may make them more interesting to their peers and thus more socially rewarding and would be consistent with the previously discussed notions concerning the reward value of the child. Research designed to consider

the effects of amount of change in play behavior and mobility status as well as other potential groups of behaviors might provide insight into possible intervention strategies.

#### Verbal Report Measure

A review of work concerning the relationship between sociometric indexes of acceptance and actual behavior (Marshall, 1957; LaPierre, 1967; Fishbein, 1967; Wicker, 1969; Kelman, 1974) led to the expectation that there would be no relationship between observed play behavior and a verbal report measure of desire to play with a particular child. Although data illustrated in Tables XII, XVI, and XVII suggest a relationship between observed behavior and the interview data obtained in the present study, a closer analysis of the data does indicate that there were discrepancies between what children said and what they did. An examination of the distribution of responses presented in Tables XI, XIII, XIV, and XV reveal that the overwhelming majority of peer children interviewed expressed a desire to play with stimulus children in all groups but failed to do so during the observation periods. It supports LaPierre's finding in 1934 (1967) that there was a discrepancy between verbal report measures and actual behavior. Although there is a discrepancy, it appears to be a highly predictable one. When children gave a "yes" response to the interview question, they were unlikely to play with the child in the photograph. However, if children said that they did not want to play with a particular stimulus child they were not likely to do so.

To a large extent, this finding is due to the "yes" bias that obviously exists in the children's response patterns. This response set

is clear upon an examination of the data concerning the percent of "yes" responses presented in Tables VIII and IX. While this bias probably accounts for much of the significance, it demands that we question the results of data based on verbal report and sociometric techniques. For example, Asher (1974) found that a shift in awareness of disability occurred between the ages of 3 and 4 that was not related to verbal report measures of liking. However, this shift in awareness may be very much related to the actual amount of interaction that occurs between two children. It is becoming increasingly apparent that it is crucial to identify what is meant by acceptance. If those individuals involved in research on mainstreaming, as well as the development of service models that incorporate the concept of mainstreaming, are interested simply in verbal acceptance, then our present level of knowledge may be adequate. If, however, the real interest is in the facilitation of the most normalizing contacts possible, it is essential to explore alternative measures to give us a data base from which to work. Although there was a discrepancy between the verbal report measure used in the present study and observed play behavior, there is a need to document the same finding over a variety of verbal report techniques. It is possible that another verbal report measure would yield different findings. For example, a forced choice method, in which a child was required to select a most preferred playmate might provide a better predictor of observed interaction. However, this data substantiates the need to be critical of the use of sociometric instruments alone as indexes of acceptance and measures of the effectiveness of an integration program. The somewhat lower percentage of "yes" responses to the

interview question for children in Preschool 1, may indicate that the size of the preschool has an effect. Because of the smaller size of Preschool 1, the children in this class may have had more chances to interact with the stimulus children and may be more aware of whether they want to play with particular stimulus children. In the present study, children in Preschool 1 had a somewhat lower percentage of "yes" responses than children in Preschool 2. Since it was a smaller school, this may suggest that a smaller school may allow children more contact which leads to more accurate responding on the part of the child to questions regarding who they wish to play with. However, it is important to keep in mind, the relatively few stimulus children available and the large individual differences between stimulus children. Research efforts could attempt to isolate class size as a variable in integration programs. If size of class is related to opportunities for contact or frequency of interaction, there would be major implications for individuals responsible for the implementation of mainstreaming programs. Similarly, the ratio of children with developmental disabilities to children without developmental disabilities may also influence contact between children and the facilitation of more interactions between them.

The somewhat lower frequency of "yes" responses in 4 year old peer children, as illustrated in Tables VIII and IX, may reflect an increasing ability to discriminate behavioral differences in playmates. The large differences between verbal responses to individual children within the same stimulus group suggests that at least in terms of verbalized acceptance, 4 year olds discriminate on factors other than presence or absence of developmental disability. On the basis of this finding, a

careful analysis of possible characteristics that contribute to verbalized expressions of desire to play with a particular child may be warranted.

#### Implications for Research and Intervention

The findings of the present study have a number of implications for future research as well as for program development and implementation. One major implication revolves around the verbal report findings. At the very least these findings lend support to reported cautious (Ray, 1974; Marshall, 1957, LaPierre, 1967; Wicker, 1967; Fishbein, 1967) regarding the interpretation of sociometric and verbal report data. While findings from the present study cannot be generalized across the wide variety of sociometric techniques available, results from these studies need to account for the potential discrepancy between the results of the particular sociometric technique involved and observed behavior. There is a need to systematically evaluate the relationship between observed behavior and sociometric findings and limit the conclusions drawn from such findings to those studies in which no such discrepancy exists between the measures.

In addition, observational techniques need to be developed that are sensitive to qualitative differences in the interaction patterns that occur between disabled and nondisabled preschoolers. Observational data that gives an indication as to the length of interactions would contribute to the social reciprocity concept discussed by Ray (1974).

An argument that has been advanced by a number of investigators (Bruininks, Rynders and Gross, 1974; Dentler and Mackler, 1962; Ceglieka and Tyler, 1970) is that there is a need to stop considering retarded



children as a homogeneous group and to begin to consider the social acceptance of various subgroups of children labeled as developmentally disabled. To the extent that even within the trends identified by the present findings, there were individual differences, results of the present study lend support to that contention. Dentler and Mackler (1962) suggest that future research should consider more discrete performance measures in relation to more discrete status indicators. For example, a child's motor skills could be assessed in relations to the frequency with which he or she is chosen as a teammate during gym or recess. It is possible that data obtained in this manner would result in information that is more sensitive to differences between individual children. An important implication that would result from this kind of data may be that there is no one right way to manage the educational placement of all developmentally disabled children. If major differences between individual children are found, it would require that a very flexible program of placement alternatives be developed that would assess the placement needs of children based on individual differences as opposed to the intelligence subgrouping the child has been assigned to on the basis of more global assessment techniques. While children in these various subgroupings may have a number of similar needs, they may also have a number of vastly different needs to which attention should be given. Procedures for implementation of programs that are more flexible in terms of meeting the individual needs of children must be evaluated and refined. Eventually, a program could be developed in which a child who does very well in the regular class in some subjects, such as math, would be kept in the regular class for

those subjects and removed for ones in which the competition in the regular class was detrimental.

While the results of the present study do indicate that developmentally disabled children are interacted with less frequently than nondisabled children, they do not necessarily suggest that the practice of integration is unwarranted. Bruininks and Rynders (1971) point out that little will be accomplished by an unqualified endorsement of either a special class or a regular class approach to the education of mentally retarded children. What these results indicate, is that operating from the premise that normalization and mainstreaming are worthwhile goals for all children to some degree, conditions need to be adjusted for each child so that he or she is offered the opportunity to maximize his or her educational and social potential.

An important consideration, both in previous research attempts as well as in future research efforts, is to remember that there are vast differences in both special and regular classes in terms of curriculum and the skills of teachers. Comparisons that do not account for these differences are probably inappropriate. Therefore, efforts should be made to evaluate these differences and identify programs that appear to have the most success in the facilitation of social relations between disabled and nondisabled children.

In addition, it appears that the exploration of techniques specifically designed to facilitate interaction is imperative. Initial efforts in this area have suggested that such intervention can be effective. Chennault (1967) reported success in improving the peer acceptance of unpopular EMR students within their special classes at

the elementary and junior levels, through work on a skit with more popular classmates. Devoney, Guralnick, and Rubin (1974) found that when nonhandicapped peers were brought into a preschool group of handicapped children, the social play of the handicapped peers improved slightly. When this intervention was combined with structured intervention from the teacher, the social play of handicapped peers increased even more. No report was given as to the statistical significance of these differences. Structured intervention without the presence of nonhandicapped children had produced no change in the social play of handicapped preschoolers. More research is needed to evaluate the effect of intervention in type of play (associative, parallel or solitary), as well as some of the factors that appear to bear some relationship to interaction between children, such as verbal and non-verbal communication.

#### Summary

In conclusion, in the present study an attempt has been made to contribute observational data to the literature regarding the integration of developmentally disabled children into settings comprised primarily of nondisabled youngsters. A descriptive analysis of the data revealed a number of trends that provide a basis for further research. In addition, it has emphasized the need to focus attention on observational findings.

The clearest implication of the present study centered on the need to identify strategies for intervention in the area of social relations between disabled and nondisabled children. Previous attempts to integrate developmentally disabled children with nondisabled children have not resulted in unqualified acceptance, either verbally or

behaviorally of the child with developmental disabilities. However, these findings do not suggest that the concept of integration should be abandoned or indicate that integration can not provide a needed base for greater acceptance of the child with developmental disabilities. What it suggests is simply that we are at the beginning stages of work in the area and we must now move toward an understanding of how the process can best be facilitated. Hopefully, results of the present study have contributed to the identification of potential areas that could be explored in such an effort.

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APPENDIX A  
Observations Forms





**APPENDIX B**

**Frequencies of Items For Individual  
Stimulus Children on Behavior Record**

## BEHAVIORS ALL PEERS DIRECTED TOWARD STIMULUS CHILDREN

Child	Total Behaviors	Self-Initiated Behaviors	Response Behaviors	Positive Behaviors	Negative Behaviors	Neutral Behaviors
1	38	12	26	18	6	14
2	65	29	36	48	13	4
3	70	33	37	47	16	7
4	24	15	9	13	7	4
5	55	22	33	33	9	13
6	39	13	26	20	15	4
7	24	13	11	12	3	9
8	18	8	10	9	3	6
9	31	15	16	10	18	3
10	13	13	0	13	0	0
11	6	5	1	5	1	0
12	3	3	0	2	1	0

ND 4

ND 3

DD

DDP

BEHAVIORS THREE YEAR OLD PEERS DIRECT TOWARD STIMULUS CHILDREN

CHILD	Self-					
	Total Behaviors	Initiated Behaviors	Response Behaviors	Positive Behaviors	Negative Behaviors	Neutral Behaviors
1	9	3	6	3	2	4
2	8	3	5	5	2	1
3	17	11	6	10	4	3
4	12	10	2	8	2	2
5	44	15	29	26	7	11
6	30	10	20	14	12	4
7	9	5	4	5	0	4
8	0	0	0	0	0	0
9	13	3	10	8	3	2
10	2	2	0	2	0	0
11	2	2	0	1	1	0
12	2	2	0	1	1	0

ND 4

ND 3

DD

DDP

## BEHAVIORS FOUR YEAR OLD PEERS DIRECTED TOWARD STIMULUS CHILDREN

CHILD	Self-					
	Total Behaviors	Initiated Behaviors	Response Behaviors	Positive Behaviors	Negative Behaviors	Neutral Behaviors
1	29	9	20	15	4	10
2	57	26	31	43	11	3
3	53	22	31	37	12	4
4	12	5	7	5	5	2
5	11	7	4	7	2	2
6	9	3	6	6	3	0
7	15	8	7	7	3	5
8	18	8	10	9	3	6
9	18	12	6	2	15	1
10	11	11	0	11	0	0
11	4	3	1	4	0	0
12	1	1	0	1	0	0

ND 4

ND 3

BD

BDR



BEHAVIORS STIMULUS CHILDREN DIRECTED TOWARD ALL PEER CHILDREN

Child	Self-					
	Total Behaviors	Initiated Behaviors	Response Behaviors	Positive Behaviors	Negative Behaviors	Neutral Behaviors
1	39	23	16	23	6	10
2	71	26	45	49	13	9
3	69	33	36	46	16	7
4	24	8	16	16	3	5
5	56	28	28	39	9	8
6	42	23	19	23	14	5
7	24	9	15	12	6	6
8	18	7	11	11	3	4
9	31	14	17	14	15	2
10	14	0	14	4	0	10
11	6	0	6	2	0	4
12	3	0	3	1	1	3

ND 4

ND 3

DD

DDP

BEHAVIORS STIMULUS CHILDREN DIRECTED TOWARD THREE YEAR OLD PEERS

Child	Total Behaviors	Self-Initiated Behaviors	Response Behaviors	Positive Behaviors	Negative Behaviors	Neutral Behaviors
1	10	6	4	4	4	2
2	10	5	5	4	5	1
3	16	6	10	10	4	2
4	12	1	11	8	0	4
5	45	23	22	32	7	6
6	33	17	16	18	12	3
7	9	3	6	6	3	0
8	0	0	0	0	0	0
9	13	9	4	9	3	1
10	2	0	2	2	0	0
11	2	0	2	0	0	2
12	2	0	2	1	0	2

ND 4

ND 3

DD

DDP

BEHAVIORS STIMULUS CHILDREN DIRECTED TOWARD FOUR YEAR OLD PEERS

Child	Self-						Total Behaviors	Neutral Behaviors
	Total Behaviors	Initiated Behaviors	Response Behaviors	Positive Behaviors	Negative Behaviors	Neutral Behaviors		
1	29	17	12	19	2	8		
2	61	21	40	45	8	8		
3	53	27	26	36	12	5		
4	12	7	5	8	3	1		
5	11	5	6	7	2	2		
6	9	6	3	5	2	2		
7	15	6	0	6	3	6		
8	18	7	11	11	3	4		
9	18	5	13	5	12	1		
10	12	0	12	2	0	10		
11	4	0	4	2	0	2		
12	1	0	1	0	1	1		

ND 4

ND 3

DD

DDP

APPENDIX C

Frequencies of Items For Individual Stimulus  
Children on Behavior Checklist

		PLAY			
		Child	Solitary	Parallel	Associative
ND 4	1		12	33	51
	2		2	1	93
	3		14	7	74
ND 3	4		36	34	26
	5		11	8	77
	6		37	18	41
DD	7		62	29	5
	8		25	42	29
	9		39	29	28
DDP	10		62	22	14
	11		57	28	11
	12		90	3	3

Child	MOBILITY										Lays Down
	Stands	Sits	Assisted Moves	Squats	Crawls	Scoots	Walks	Runs	Climbs		
1	13	50	0	0	0	0	8	3	22	0	0
2	18	25	0	0	6	0	23	13	9	1	0
3	22	27	0	8	2	0	18	4	10	6	0
4	31	34	0	0	0	6	23	4	2	0	0
5	23	18	0	4	5	0	8	11	25	0	0
6	13	50	0	3	0	1	12	1	10	0	0
7	41	51	0	0	0	0	4	0	0	0	0
8	42	26	0	0	0	0	23	2	1	0	0
9	29	37	0	9	0	0	5	3	9	0	0
10	0	95	10	0	0	0	0	0	0	0	0
11	24	64	0	0	7	0	0	0	0	0	0
12	12	58	1	0	0	9	0	0	0	16	0

## SPEECH

		Vocalize	Talks	Shouts	Crys	Laughs
	1	0	24	8	2	2
ND 4	2	1	26	15	1	7
	3	0	37	4	0	4
	4	2	5	0	5	2
ND 3	5	9	27	9	0	4
	6	5	9	8	3	2
	7	4	5	2	2	0
DD	8	3	1	0	2	0
	9	14	1	2	0	2
	10	7	0	0	0	0
DDP	11	9	0	0	1	0
	12	5	0	0	4	0

## FACES

Child	Smiles	Grimace	Tongue Out	Mouth	Eyes Closed
1	28	5	0	1	3
ND 4 2	31	4	2	0	0
3	13	0	0	0	0
4	15	6	0	0	0
ND 3 5	16	3	1	0	0
6	16	8	0	0	0
7	15	3	19	4	1
DD 8	22	2	0	3	0
9	15	6	1	0	0
10	7	1	0	15	2
DDP 11	11	2	2	11	0
12	13	10	00	0	14



## APPENDIX D

## Probabilities For Individual Stimulus Children

## Probabilities For Individual Stimulus Children

Child	Total Behaviors	Positive Behaviors	Negative Behaviors	Neutral Behaviors
1	.0005	.0005	.0005	.0005
ND 4 2	.015	.025	.005	.0005
3	.109	.031	.008	.005
4	.015	.005	.005	.0005
ND 3 5	.0005	.0005	.0005	.0005
6	.188	.062	.062	.002
7	.0005	.0005	.0005	.0005
DD 8	.0005	.0005	.0005	.0005
9	.145	.011	.227	.002
10	.0005	.0005	.0005	.0005
DDF 11	.0005	.0005	.0005	.0005
12	.005	.005	.005	.005