

Social Interactions Among Preschool Children

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Abstract: To obtain information on the potential benefits of integration, this study investigated the nature and extent of social interactions among preschool children at different developmental levels. Communicative and parallel play interactions of mildly, moderately, severely, and nonhandicapped children were observed during free play across two time periods. The results revealed that (a) nonhandicapped and mildly handicapped children interacted with each other more frequently than expected on the basis of availability, and they interacted with moderately and severely handicapped children less frequently than expected; (b) moderately and severely handicapped children interacted with all four developmental groups as expected by the criterion of availability; and (c) whenever this pattern of interaction changed over time, it was typically in the direction of enhancing the differences noted in the first statement. These findings are discussed in terms of the potential value of integrated programs for children of varying developmental levels.

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■ As a result of a variety of forces that can be categorized as social-ethical, legal-legislative, and psychological-educational (Bricker, 1978), extensive efforts are currently under way to integrate handicapped and nonhandicapped children at the preschool level (Guralnick, 1978a). From a psychological-educational perspective, a number of logical arguments can be advanced and some empirical data presented to support the contention that integrated environments can have a positive impact on the less advanced children (Guralnick, 1976, 1978b). Some examples through which the development of young handicapped children can be fostered include the availability of advanced models during play, the experiencing of more realistic social consequences, and the observation of more appropriate communicative interactions.

One question that continually arises, however, concerns the nature and degree of social integration that actually occurs among similar age children of different developmental levels. Clearly, some level of positive social interaction among such children is necessary in order to permit the participants to avail themselves of the potential benefits associated with the integration process.

Unfortunately, the available data on this issue provide equivocal results. For example, Ray's (1974) analysis of the interactions of delayed and nondelayed toddlers revealed that these groups interacted with each other only on a very limited basis. Somewhat more posi-

tive findings were obtained, however, in a recent study by Peterson and Haralick (1977) in which evidence of more effective social integration was noted. Nevertheless, even in this instance, over 70% of the nonisolate play interactions of nonhandicapped children included other nonhandicapped children. Moreover, when only handicapped playmates were available, nearly 62% of the play of nonhandicapped children was isolate play and less than 10% was cooperative. This preliminary study did not present a breakdown of the developmental levels of playmates that were chosen, but it is possible that most of the integrated play interactions that occurred included the mildly handicapped children, thereby indicating some degree of separation especially for the more severely handicapped children.

Along these same lines, Ispa and Matz (1978) studied the social play and types of peer interactions that develop in an integrated setting. Analyzing data obtained from two integrated classrooms operating within a cognitively oriented framework, they found clear evidence for the presence of social integration. It is important to note that most of the handicapped children manifested relatively mild handicaps, were older by slightly more than 1 year on the average than their nonhandicapped peers, and, perhaps most importantly, exhibited levels of social play as measured by the Parten (1932) scale that were virtually identical to the nonhandicapped group. These conditions, among others, appear to be very favorable in terms of promoting social integration.

The overall purpose of the present investigation was to provide an in-depth analysis of the nature and extent of social interactions among preschool children at different developmental levels. Given the limited amount of available empirical data, this study was designed to generate sufficient information across a wide range of children to permit an understanding of previous findings as well as to identify relevant conceptual issues. Accordingly, direct positive and negative communicative interactions as well as parallel play patterns among mildly, moderately, severely, and nonhandicapped preschool children were analyzed during free play in an integrated program. In addition, changes in these interactions that might take place over time were examined.

METHOD

Subjects

Thirty-seven 4 to 6 year old children enrolled in an integrated preschool program participated in the experiment. For design and analysis purposes, the children were divided into four developmental groups: 12 nonhandicapped (NH), 9 mildly handicapped (Mi), 5 moderately handicapped (Mo), and 11 severely handicapped (S) children. Categorization of children into groups was generally in accordance with the American Association on Mental Deficiency's classification manual (Grossman, 1977) but was based jointly on their performance on standardized developmental tests and their expressive language usage as measured by mean length of utterance (MLU). Mean chronological ages, Peabody Picture Vocabulary Test scores, and MLU at the start of the study for each group were, respectively: NH: 4-11, 97.7, 5.5; Mi: 5-11, 63.0, 4.8; Mo: 5-10, 33.3, 3.7; and S: 5-3, inadequate basal level, less than 1.0.

Setting

Recordings were obtained during morning integrated free play periods. Classroom play areas included the usual assortment of toys and related materials to which all children had access. Teaching staff were assigned to various functional play areas and encouraged interactive and constructive play, particularly among children of different developmental levels.

Recording and Procedure

Prerecordings (September-November) and postrecordings (April-June) were carried out on a time sampling basis for each of the 37 children. Specifically, each child was observed for a consecutive 4 minute period. This period was divided into repetitive cycles of 10 seconds for observation of the target child and a 5 second interval for recording. Four such recordings per child for each of the two time periods were obtained. Ratings began 2 to 3 minutes after the start of the play period to allow time for the flow of play activities to develop. Children were rated on a random basis with restrictions to ensure an equal distribution of ratings over time. Three trained raters (see Reliability) shifted from child to child recording as unobtrusively as possible.

Behavior Categories and Coding

In order to determine the frequency and nature of communicative interactions for the different children, separate categories for positive and negative motor or gestural communications and for positive or negative vocal or verbal communications were selected. Definitions were based on the work of Strain and Timm (1974) but also required clear evidence of communicative intent.

Coding procedures for this general category were designed to reflect the frequency of occurrence of communicative behaviors per 10 second interval as well as to permit an identification of the child or children to whom the communication was addressed. (If a behavior was directed toward the group, the two peers nearest the target child were identified.) Specifically, the occurrence of any of the four communication categories to any child for each interval was recorded with the following restrictions: although the same behavior (e.g., positive vocal or verbal behavior) could be categorized as having occurred more than once during an interval, in order to be so categorized that behavior must have been addressed to different children. The same behavior addressed to the same child, even though occurring during seemingly different episodes during the 10 second interval, was recorded only once. Different communicative behaviors as defined above addressed to the same child, however, were categorized separately.

Communicative behaviors of the target child (i.e., the specific child being observed) to others were referred to as *giving* responses. Also recorded were the interactions of the other children to the target child for the same four communication categories. This was referred to as *receiving*, and analyses were carried out separately for giving and receiving for the communication categories.

In order to obtain information as to the distribution—in terms of developmental level—of children associating with target children during parallel play episodes (a maximum of two children were recorded in accordance with a criterion of proximity), recordings of children engaging in this type of play were obtained.

Reliability

After each of three observers reached criterion (85% agreement for 4 consecutive days) prior to the start of the investigation, reliability

checks in which two raters observed the same child were obtained at least once per week throughout the course of the study. Percentage agreement on a cell by cell basis revealed that reliability was high, averaging over 95% agreement (range 81%–99%).

Analysis of the Data

In order to determine the nature and extent to which children at different developmental levels (DL's) interacted with one another, frequencies of communicative interactions of each DL group to all other DL groups were obtained. To correct for the fact that the number of children available for interaction differed for the four developmental level groups, a derived score was obtained for each child interacting with each DL group. These scores were obtained and analyzed separately for giving and receiving and separately for positive vocal-verbal (V-V), positive motor-gestural (M-G), and positive totals (the sum of V-V + M-G). Negative interactions occurred with such a low frequency as to preclude a meaningful calculation of derived scores.

Specifically, the score for a particular child was obtained by taking the total interactions of that child (e.g., positive V-V for the receiving dimension) and calculating an expected interaction score for each DL group based on the number of children available in each group with whom that child could interact. For example, if 25% of the children at a given time were NH children and a moderately handicapped child had a total of 100 positive V-V's, then we would expect 25 positive V-V's to be addressed to the NH group on the basis of availability. Accordingly, derived scores were obtained by subtracting the expected scores from the observed scores for each child.

A positive derived score reveals a preference for interacting with that group, a score of 0 indicates that interactions occurred to the degree expected due to the availability of children without regard for any other characteristics, and a negative score indicates interactions occurring at a level lower than would be expected from the availability of children. The proportions used to calculate expected scores were corrected for absences and other relevant factors.

The derived scores were subjected to 2(pre vs. post) \times 4(DL) \times 4(DL group interacted with) mixed measures analyses of variance (ANOVA) for each dependent variable. Please

note that the main effect for DL is not relevant since it averages to zero given the nature of the derived score.

RESULTS

Separate analyses for giving and receiving for each of the positive communication categories (M-G, V-V, and totals) were carried out. Since the key trends can be summarized in the total positive communication scores, only those results are presented here.

The analysis of total positive giving communications revealed two significant effects: DL(within), $F(3,99) = 22.30, p < .001$ and the DL(within) \times DL interaction, $F(9,99) = 6.13, p < .001$. For receiving, significant main effects for DL(within), $F(3,99) = 40.07, p < .001$ and time, $F(1,33) = 4.75, p < .05$ were obtained. The DL(within) \times DL interaction also reached significance, $F(9,99) = 7.24, p < .001$.

Figures 1 through 4 illustrate the general outcomes of this study as reflected in the pretest data. Each figure represents the derived score for a DL group interacting with each of the DL groups including its own. The most prominent pattern, as reflected by the significant DL(within) \times DL interaction, is that the different developmental groups were communicated with differently by some of the developmental groups but not others. Most apparent is that the NH and Mi groups (Figures 1 and 2) communicated with each other significantly more than expected by the criterion of availa-

bility, and considerably less with Mo and S children. Moderately and severely handicapped children, on the other hand, communicated with all groups generally in accordance with their availability (Figures 3 and 4). This pattern held for both receiving and giving. Moreover, the change that occurred from pretesting to posttesting essentially served to enhance this basic pattern.

For parallel play, the $2 \times 2 \times 4$ mixed measures ANOVA carried out on the derived scores revealed a significant main effect for DL(within), $F(3,99) = 7.24, p < .001$, and a significant DL \times DL(within) interaction, $F(9,99) = 3.36, p < .005$. Although some similarities to the communication interaction pattern were noted, there was considerable variability here and less of a tendency for parallel play interactions to be drawn along developmental lines. The NH and Mi children did engage in less parallel play with the severely handicapped children than expected by availability, although there was substantial involvement with the moderately handicapped children.

DISCUSSION

The analyses of the interactions based on derived scores among children at different developmental levels during free play revealed three clear patterns: (a) nonhandicapped and mildly handicapped children interacted more frequently with each other than expected on the basis of availability and less frequently than

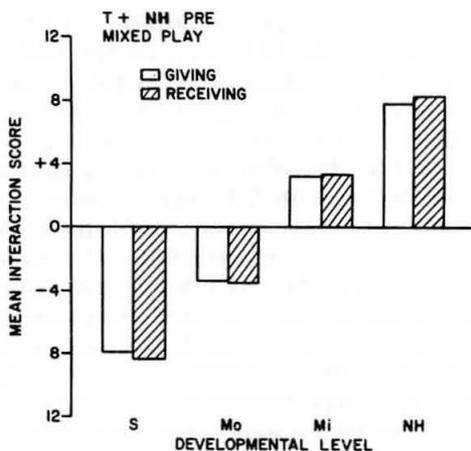


Figure 1. Mean interaction (derived) scores for total positive communications (T+) directed to and received from each developmental level group during the preperiod for the nonhandicapped children.

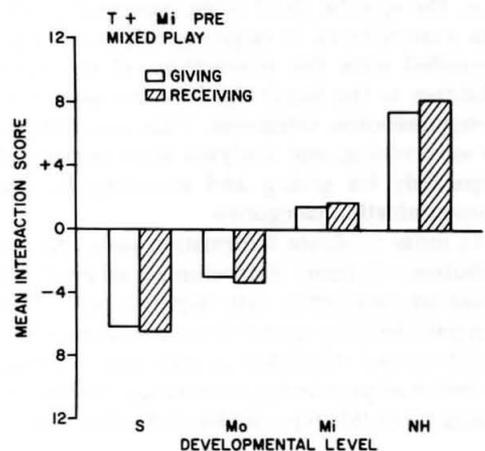


Figure 2. Mean interaction (derived) scores for total positive communications (T+) directed to and received from each developmental level group during the preperiod for mildly handicapped children.

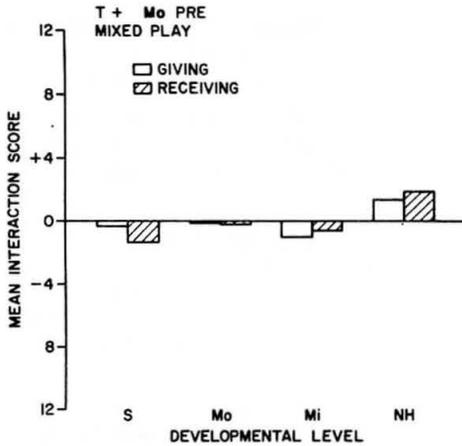


Figure 3. Mean interaction (derived) scores for total positive communications (T+) directed to and received from each developmental level group during the preperiod for the moderately handicapped children.

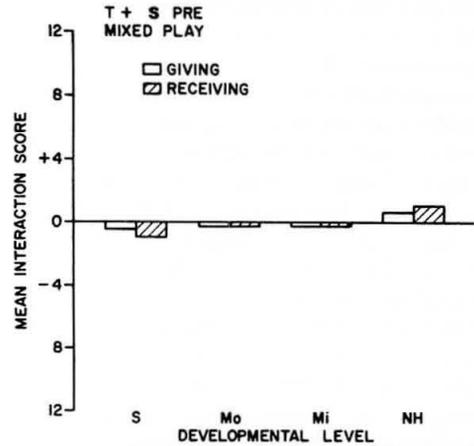


Figure 4. Mean interaction (derived) scores for total positive communications (T+) directed to and received from each developmental level group during the preperiod for the severely handicapped children.

expected with moderately and severely handicapped children; (b) moderately and severely handicapped children interacted with all four developmental groups as expected by the criterion of availability; and (c) whenever this pattern of interaction changed over time, it was typically in the direction of enhancing the differences noted in the first statement.

For the most part, these results are compatible with and provide a framework for interpreting the limited number of previous findings. They clearly reveal that communicative interactions between nonhandicapped and mildly handicapped children occur at a very high level and that, from this perspective, total integration can be considered to be achieved. In fact, the mildly handicapped children tended to show a preference for interacting with NH children. It is important to note that, as in the Ispa and Matz (1978) investigation, the mildly handicapped children were older by about 1 year and had highly similar social play skills as measured by the Parten (1932) scale.

As indicated, the analysis of data on NH and Mi children revealed only limited social interaction between the advanced groups and the less advanced children. This finding is similar to that obtained in Ray's (1974) study in which children varied widely in terms of developmental level, and social separation along those lines occurred. Moreover, the pattern of sepa-

ration obtained in the present study tended to increase over time so any expectations with regard to facilitating social integration through contact were not supported.

However, a more detailed analysis indicated a smaller separation on the basis of derived scores for those interactions involving motor or gestural communications. Apparently, the more advanced children did make certain adjustments in the nature of their communications when communicating with the less advanced children (see Guralnick & Paul-Brown, 1977).

The fact that moderately and severely handicapped children interacted about equally with all four developmental groups suggests more of a failure to differentiate among playmates than an indication of true social integration. The play encounters of these children were typically brief and poorly organized with all groups. Of course, they did communicate with and received communications of a positive nature from more advanced children.

Parallel play interactions among the groups also followed this pattern, but much greater variability was observed. It appears that, in conjunction with the fact that there were only a limited number of negative comments addressed to Mo and S children or other evidence of active rejection, NH and Mi children potentially provide useful models during play.

CONCLUSIONS

The question of whether sufficient social integration during free play has been achieved requires clarification. Certainly, by any standard, nonhandicapped and mildly handicapped children are effectively socially integrated and are in a position to benefit from experiences in integrated settings. Whether this statement can apply to the less advanced children depends on the criteria that are employed. Unquestionably, social interaction between the less advanced and more advanced children occurred. In fact, from the perspective of severely and moderately handicapped children, their interactions were distributed about equally to all groups. For nonhandicapped and mildly handicapped children, interactions were not equally distributed by any means; yet, approximately 14% of their positive communicative interactions were directed to their less advanced peers. Moreover, the percentage of interactions was substantially higher, approximately 30%, when looking at parallel play.

It seems that the determination as to whether these outcomes for the less advanced children constitute a sufficient degree of social integration to enable them to benefit from integration must await (a) a conceptual scheme and associated criteria with respect to the goals of integrated programs and (b) a basis for judging whether those interactions have the potential for producing a positive developmental impact. Perhaps some minimally acceptable or threshold level of interaction can be specified on an individual basis in combination with criteria for evaluating the quality and nature of these interactions. In any event, should such a scheme be forthcoming, the criteria can be applied to these data and to those of studies to follow.

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