# SOCIAL PARTICIPATION AMONG PRE-SCHOOL CHILDREN

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GENETIC Sociology is as yet a little developed field of science. Investigators of social behavior have overlooked the period when adjustment to the group is first acquired and praticed. In so doing, they have ignored a source that ought to contribute not only to the explanation of child behavior, but to the understanding of adult group habits which persist from childhood. By the time individuals have acquired their "human nature", their overt group responses are determined by such a multiplicity of factors such as customs, mores, traditions, social controls, past experience in groups, emotions and native equipment, that many scientists have despaired of ever finding any uniformities in their behavior. The genetic approach to the study of social motivation and adjustment promises to reveal group behavior which is only slightly affected by these complex social factors. The reactions of children are more or less spontaneous and overt and therefore perceptible to investigators.

Most of the investigations on the genesis of social behavior that have been made up to the present time are to be found in the psychological and educational rather than in the sociological literature.

Throughout the literature which deals with the subject of the behavior of young children are scattered varied and often contradictory theories and generalizations regarding social development, traits, and habits. In the first place, there is no uniformity in the use and meaning of the term "social". Very often a moral or ethical connotation is expressed or implied. Sometimes altruistic behavior is regarded as synonymous with social. Then again, self-sufficiency in group life is conceived of as "social behavior". Occasionally, "social" is employed to denote "play" behavior. More recent scientific approaches usually use the term synonymously with "group" without reference to the subjective and moral elements involved.

[1] From the Institute of Child Welfare, the University of Minnesota. Condensed for periodical publication by Mary Shirley. Two other articles on social behavior of young children by this author will appear later.

The biographical studies included observations of social behavior incidental to psychic behavior. Following the method of Preyer, very comprehensive records of the behavior of little children were made by scientifically-minded parents and others interested in child nature. The works of Major, Moore, Shinn, Fenton, Hall, Tracy, Waddle, Compayre, Hogan, Hug-Hellmuth, Drummond, Rasmussen, Stern, Baldwin, and Cooley are noteworthy. Although the generalizations are usually based upon the behavior observed in one or two children, they present points of view that suggest further research. Stern's book in particular contains an excellent treatment of play behavior. It should be mentioned also that since the investigator is usually a part of the group situation in the home and since there are very few groups of individuals of pre-school age in the homes where these investigations are made, adult social behavior becomes inextricably recorded with child social behavior.

One of the first studies to employ the method of group rather than individual observation on pre-school children was directed by Ruth Andrus (1) in several nursery schools about New York. Sixty-nine student observers each made a diary record while watching one child's activity and later classified the data under the general categories of mental, emotional, motor, and social-moral habits. Despite subjectivity of the ratings and overlapping of the categories this inventory of habits and the rating scale derived from it are improvements over the general impressionistic method of determining a young child's social development.

Gesell (14) listed certain types of personal-social behavior that might be expected at various age levels, after having observed five hundred children, fifty at each of ten age levels.

Ethel Verry's (34) study of mental and social attitudes of children in pre-school play groups indicates the wealth of data that may be obtained by observing the spontaneous groupings of children. She distinguishes five social attitudes: treating playmates as objects, assuming an adult attitude, seeking attention, doing as others do, and coöperating with the group. She found a growth in both the number and complexity of coöperative activities with an increase in age.

Another study of spontaneous grouping is that recorded by Chevaleva Janovskaja (8) in which children in pre-school institutions were observed by teachers over a period of two years.

From diary records, Bott (5) devised a schedule of observation that enabled observers to note the materials used in play, the child's relations with adults, and his relation to other children.

His relations with adults were grouped under the categories of: child asserts; child negates; child resists; adult stimulates; adult restrains; and with children were classified as: talking; interference; watching; imitation; and coöperation.

Bridges (6) in an investigation of the occupational interests of three-year-old children, observed ten children during the free-play hour for several days, recording the time each child took out a set of material and the time when he put it back to change to something else. She found marked uniformities in the toy preferences, both for the group as a whole and for each of the sexes.

Challman[2] investigated "Factors influencing friendship among pre-school children" by recording spontaneous play groups. He developed friendship indices for the children, using sigma deviations and studied the relation of sex, age, mental age, height, extroversion, attractiveness of personality, and sociality to friendship.

Thomas (32) describes three general techniques: (1) those in which each child is followed for a given period in the nursery school and a given overt social-behavior act recorded each time it recurs; (2) those in which, within the larger nursery school situation, a specific social situation is recorded each time it recurs; (3) those in which the psychological test situation, involving more limited social and material stimuli, is used instead of the nursery school for recording data of the sort described under (1) and (2). Because the data do not lend themselves to scientific analysis, the emphasis of these studies is upon method rather than results.

One of the first truly experimental investigations of social behavior was that of Charlotte Bühler (7) made upon 114 nursing children in a New York milk depot. She invited pairs of these children into a room, gave them various toys, and then recorded their reactions. By the end of the first year of life she found children had developed definite personality traits.

Somewhat similar to the study just mentioned, but considerably more objective and controlled, was the investigation carried on by Marjory Walker[3] wherein social reactions of fourteen children in a conflict situation were observed. Children were invited, two at a time, into a test room where one toy had been placed. The shutters in the room enabled the investigator to look into the room and observe the two children without being seen by them. Reac-

[2] Child Development, III, 146–158. 1932.

[3] Walker, Marjory. Social Interaction from the Standpoint of Domination and Subordination. (Unfinished Ph.D. thesis, University of Minnesota.)

tions were recorded in five-second periods on a schedule prepared after much preliminary observation.

Sorokin (27) attempted to measure the differences in efficiency in the performance of set tasks under the incentive of individual and of group reward. Altruism was also studied by noting the diligence with which the children worked when they were to receive the prize for themselves and when the friend of their choice was to receive the reward. It is of value to know that children of pre-school age lend themselves very well to this type of experimentation.

Marston's study of introversion and extroversion (21) in which trait ratings were correlated with the results of experiments designed to measure four traits, namely, social resistance to a stranger, compliance with the request to perform a difficult task, interest reactions to a varied and novel environment, and self-assertion to the denial of a wish, may rightly be considered a study of social interaction. Marston found marked differences in the types of reactions which children made to the various test situations. Of much significance is his finding that introversion tends to increase with age, even at these early age levels. The experiment was conducted in such a way that the investigator was always an element in the situation. Since most life situations are of this type, *i.e.*, an adult is usually present, perhaps the research workers of the future will concern themselves more with the child-adult interaction than with the child-child behavior.

This rather cursory review of some of the investigations [4] which have taken place in the field of genetic sociology and psychology should account for the present state of organized knowledge in these sciences. As yet, the study of child behavior is too new to expect more than scattered individual attempts to find ways and means of penetrating the field which was first revealed to us only fifty years ago.

## DESCRIPTION OF SUBJECTS AND OF METHOD OF OBSERVATION

This investigation was carried on in the Nursery School of the Institute of Child Welfare at the University of Minnesota. The applicability of the findings of this study to children as a whole is a function of the similarity of the subjects studied to children in general. In so far as these individuals are representative children, and if the sample is sufficient, the generalizations should hold true. The 42 children observed are summarized as

[4] Further references may be found in the article by Frank K. Shuttleworth (26).

to intelligence, sex, occupational category of the father, age and size of family in Table I.

The intelligence tests which have been given to the children seem to indicate that their average mental ability is above normal, although the I.Q.'s range from 81 to 145. The occupations of the fathers were grouped into categories based upon the Barr Scale for Occupational Intelligence and the Taussig Industrial Classification.[5] Group I is composed of the highest or professional class while the semi-skilled laborers constitute Group V. The occupations are representative of the economic groups of the city of Minneapolis, except for the fact that there is an over-weighting with children from the professional classes. The children were from mixed national stock and came from families where the number of children ranged from one to five.

TABLE I

DISTRIBUTION OF THE CHILDREN OF THIS STUDY IN AGE, SEX, I.Q., PATERNAL OCCUPATION AND FAMILY SIZE

| Age at October, 1926 | No. Cases Boys | Girls | I.Q. | Cases | Occupational Class | Cases | Family Size | Cases |
|---|---|---|---|---|---|---|---|---|
| Under 2 | 2 | 2 | 80–89 | 2 | Group I | 13 | 1 child | 5 |
| 2–2, 11 | 9 | 5 | 90–99 | 3 | Group II | 6 | 2 children | 15 |
| 3–3, 11 | 8 | 6 | 100–109 | 8 | Group III | 11 | 3 children | 11 |
| 4–4, 11 | 3 | 7 | 110–119 | 11 | Group IV | 6 | 4 children | 5 |
| | | | 120–129 | 11 | Group V | 6 | 5 children | 6 |
| | | | 130–139 | 3 | | | | |
| | | | 140–149 | 4 | | | | |
| Total | 22 | 20 | | 42 | | 42 | | 42 |

*Period of Observation*

The observations extended from October 26, 1926, to June 10, 1927, with the majority of the observations during the months from January to April. The records from October to January were made when the technique of observing was being developed. During May and June the records were not kept daily because weather conditions permitted the children to play outside and it was thought that elements might enter into outside play which did not exist in indoor play. To complete records, however, some observations on outdoor play were made for subjects who entered the nursery school late in the year.

In order to provide a minimum of variation in the conditions of observation, the investigation was carried on at the same hour every day that the children were in the nursery school. The hour

[5] Descriptions of both of these scales may be found in Terman *et al.*, "Genetic Studies of Genius", Stanford University Press, 1925, pp. 66–72.

selected for observation was a morning period from 9:30 to 10:30 during the free-play period. At this hour every child is permitted to play with any toys he wishes and with any children, or with none at all, as he desires. The teachers make relatively few suggestions to the children, but are in sight of the children in order to help settle any problems that may arise. The sandboxes are opened at the beginning of the hour, the kiddie-kars are placed in the gymnasium upstairs, and practically all toys are accessible to the children without assistance from adults in the room. Since there are not enough toys of every type to supply each child, there is a ruling that the child who gets a toy first, may play with it until he leaves it, or in the case of the swings and large apparatus, the children must take turns. A few activities are directed by adults during this hour, such as painting water-color pictures, washing dolls' clothes, or making valentines; but in no case are the children solicited to join in these activities. If they do join, it is of their own volition.

There are about two assistants or teachers to every room. Occasionally there are four or five observers who sit quietly near the door, and who do not speak to anyone except to nod a reply to the questions from the children. As a rule, the players are quite oblivious to the presence of adults and pursue their activities as if no grown-ups were around.

*Categories of Social Participation*

Two aspects of social participation may be considered, *extensity,* or the number of social contacts made by an individual, and *intensity,* or the kind of groups participated in and the rôle of the individual in those groups. The number of social contacts may be measured by recording the number of different groups in which a child played. Such a record, however, fails to bring out the differences in social participation between the child who is actively playing in a group and one who is merely an accidental member. Intensity of participation may be determined in two ways: first, by the extent of group integration, *i.e.,* whether the group is organized in such a way that certain duties and responsibilities are demanded of its members, or whether it is only a congregation of independent individuals; and second, by the status of the individual in the group, *i.e.,* whether or not he is helping to shape the plans and activities of the group, *i.e.,* that is to say, his leadership.

After several weeks of preliminary observation of the children

at play the extensity and group integration were combined in such a way that a scale of social participation with rigidly defined categories was worked out. One child, for example, did not seem to be playing at all. He usually stood in the middle of the room, pulling at a handkerchief which was tied to his blouse. His head dropped from one shoulder to the other. If asked what he wanted to do, he would merely shake his head; if a toy were placed in front of him, he would not look at it. This type of behavior was called *unoccupied,* although the child was really playing in the manner designated by Stern as the play limited to the child's own body. In order not to confuse this type of play with solitary play, unoccupied behavior was defined as follows:

> *Unoccupied behavior*—The child apparently is not playing, but occupies himself with watching anything that happens to be of momentary interest When there is nothing exciting taking place, he plays with his own body, gets on and off chairs, just stands around, follows the teacher, or sits in one spot glancing around the room.

Closely related to the unoccupied behavior is the play in which the child observes a group of children playing, but he himself does not overtly enter into the play activity. He is an *onlooker.* Such behavior was described as follows:

> *Onlooker*—The child spends most of his time watching the other children play. He often talks to the children whom he is observing, asks questions, or gives suggestions, but does not overtly enter into the play himself This type differs from the unoccupied in that the onlooker is definitely observing particular groups of children rather than anything that happens to be exciting. The child stands or sits within speaking distance of the group so that he can see and hear everything that takes place.

A third type of play behavior is that which is usually called playing alone or *solitary play.* Contrary to general opinion there is no clear-cut distinction between group and solitary play. This is particularly true when the play space available for thirty-six children is too meager to permit them to get out of speaking or hearing distance of one another. For this reason, in borderline cases, a purely arbitrary distinction was used to discriminate between group and non-group play. It was decided that a child who played with toys different from those of the children within speaking distance of himself, and one who centered his interest upon his own play, making no effort to get close to and speak to other children, was playing alone. This play was defined thus:

*Solitary independent play*—The child plays alone and independently with toys that are different from those used by the children within speaking distance and makes no effort to get close to other children. He pursues his own activity without reference to what others are doing.

Closely related to such individual play is a type of group play which was called:

*Parallel activity*—The child plays independently, but the activity he chooses naturally brings him among other children. He plays with toys that are like those which the children around him are using, but he plays with the toy as he sees fit, and does not try to influence or modify the activity of the children near him. He plays *beside* rather than *with* the other children There is no attempt to control the coming or going of children in the group.

A common example of this type of play may be observed in the group who congregate around the sandbox. Several children stand close to one another around the sandbox, each child going after and using the toys with which he wishes to play in the sand (usually cups). Children come and go all the time, but those remaining at the sandbox pay no attention to the movements of others; they are absorbed in their own activities. This type of play is not solitary play, yet it is independent play in a group. To what extent children choose to play with toys because they bring them into physical proximity to other children one can not observe; only the overt facts, not the motives, are observable. Suffice it to say that parallel play better resembles group play, and is a more socialized form of play than solitary independent play.

Two other types of group play were *associative* play and *cooperative* or *organized supplementary play.* Associative play is group play in which there is an overt recognition by the group members of their common activity, interests, and personal associations. Organized supplementary play is the most highly organized group activity in which appears the elements of division of labor, group censorship, centralization of control in the hands of one or two members, and the subordination of individual desire to that of the group. Associative play is a less well organized form of the group activity in which the children play with one another, while organized supplementary play is the type in which the efforts of one child are supplemented by those of another for the attainment of a final goal. They were characterized as follows:

*Associative play*—The child plays with other children. The conversation concerns the common activity; there is a borrowing and loaning of play material; following one another with trains or wagons; mild attempts to control which children may or may not play in the group. All the members engage in similar if not identical activity; there is no division of labor, and no organization of the activity of several individuals around any material goal or product. The children do not subordinate their individual interests to that of the group; instead each child acts as he wishes By his conversation with the other children one can tell that his interest is primarily in his associations, not in his activity. Occasionally, two or three children are engaged in no activity of any duration, but are merely doing whatever happens to draw the attention of any of them.

*Coöperative or organized supplementary play*—The child plays in a group that is organized for the purpose of making some material product, or of striving to attain some competitive goal, or of dramatizing situations of adult and group life, or of playing formal games. There is a marked sense of belonging or of not belonging to the group. The control of the group situation is in the hands of one or two of the members who direct the activity of the others The goal as well as the method of attaining it necessitates a division of labor, taking of different rôles by the various group members and the organization of activity so that the efforts of one child are supplemented by those of another

To illustrate the difference between parallel, associative and organized supplementary play, the sandbox situation may be cited.

*Sandbox situation*

*Parallel activity*—Several children are engaged in filling cups in the sandbox. Each child has his own cup and fills it without reference to what the other children are doing with their cups There is very little conversation about what they are making No one attempts to tell who may or may not come to the sandbox, so children are coming and going all the time Occasionally one finds a child who remains at the sandbox during the entire period. The children play *beside* rather than *with* one another

*Associative play*—The children begin to borrow one another's cups, they explain why they need two cups, they advise and offer sand to one another. They call a child to the sandbox, and ask those present to make room for him The others may or may not move over, depending upon their own wishes No child or children dictate what the various children shall make, but each makes whatever he pleases. Someone may suggest that they all make a road but in that case each child makes his own road, or none at all, as he chooses, and the other children do not censor him. There is much conversation about their common activity.

*Organized supplementary play*—One child suggests that they are all making supper. Soon the various family rôles are assigned or adopted and the children speak about their shares in preparing the meal. Domination by one or more of the children occurs, one child being informed that he can't cook because he's the baby. The group becomes closed to some children and open to others, depending upon the wishes of the leaders. The children are criticized by one another when they do not play their rôles correctly. They are not permitted to leave the sandbox unless it is known what they are going to do next.

### *One Minute Sampling Observational Method*

In order to obtain a measure of the frequency of group participation each nursery school child was observed for one minute daily according to the method of repeated short samples described by Goodenough (15). To prevent spectacular behavior on the part of a given child from being a factor in the observer's transition from child to child the order of observation was determined by a prearranged list of the children's names that was systematically varied from day to day. Further errors of sampling were guarded against by dividing the hour into five-minute intervals and rotating observations so that each child was observed an equal number of times during the first 5 minutes of the hour, the second 5, the third 5, and so on.

Mimeographed forms provided space for recording: (1) the names in the order of observation; (2) the initial letter indicating the degree of participation, u—unoccupied, s—solitary, o—onlooker, p—parallel, a—associative, and c—coöperative; (3) the names of all other children in the group; (4) the number of children in the group; (5) a key letter indicating leadership behavior;[6] (6) a T or a Q to indicate that the child under observation was talking or was quiet; (7) a brief description of the activity in which the child was engaged; (8) his remarks; and (9) duration of the activity estimated in terms of v—short time, m—most of the minute, e—entire minute.

#### RELIABILITY AND CONSISTENCY OF OBSERVATIONS

The number of minute samples necessary to insure an unvarying picture of social participation was determined by assigning arbitrary weights to each category, summing the scores for the odd and even days for individual children, and running correlations.

[6] The topic of leadership will be dealt with in a later paper.

The weights were as follows:

| | | |
|---|---|---|
| Unoccupied behavior | (U) | —3 |
| Solitary play | (S) | —2 |
| Onlooker behavior | (O) | —1 |
| Parallel play | (P) | 1 |
| Associative play | (A) | 2 |
| Coöperative or Organized Supplementary play | (C) | 3 |

For 19 children observed over a 20-day period the composite scores for the 10 odd days correlated with those for the 10 even days by the rank difference method yielded a coefficient of .76. When twenty odd-even day observations were weighted, scored, ranked and correlated the coefficient was .90. Hence twenty one-minute observations give a reliable portrayal of a child's participation in group activities. Since there were 35 children twenty-one observations permitted every child to be observed three times during the seven five-minute sections of the play period. Because of the comparatively high reliability of twenty samples, many of the conclusions drawn from the data obtained in this investigation are based upon this number.

*Errors of Observation*

As a check upon the objectivity of the descriptive categories three assistants kept records simultaneously with the writer. These observers received no preliminary instruction other than a printed sheet containing the definitions of the symbols used. Each was given a stop-watch which she set in motion upon the signal of the investigator, and all four observed the same child for a minute, and then filled in the schedule in accordance with her understanding of the meaning of the symbols and of the behavior just observed. Since four observers could not view the child from exactly the same position, one would expect to find a few minor differences in the records. Unfamiliarity with the symbols, for none of the observers had studied them for more than a few minutes, caused some erroneous records. Just how much of the variation in records could be attributed to lack of knowledge of instructions and how much to different interpretations cannot be ascertained.

On each of sixteen children thus observed each observer made seven notations (*i.e.*, type of group participation; name of playmates; number of children in group; leadership status; conversation; type of game or toy; comments of child) which amounted to a total of 112 records for each observer. For convenience the items were considered of equal value. The proportion of items identical with those of the writer averaged 89 per cent for the

three observers. One observer agreed in 92 per cent, another in 89 per cent, and the other in 86 per cent of the items. In social participation, using the categories of this study, Goodenough reports a correlation between scores of two independent observers of .76 (Brown-Spearman correction). The combined scores of social participation and leadership reduced the differences between the two observers very greatly—the correlation being .98. It seems reasonable to assume that the bias of the observer or the errors of observation were not a very significant factor in this investigation.

### TEACHER'S ESTIMATES

As an additional check on consistency and to determine whether the rough impressions of teachers might be substituted for the detailed method used in this study teacher's estimates were obtained from three teachers and two research assistants who had spent varying amounts of time with the children during the free play period of the year 1926–27. These estimates were made during the first week of school in the fall of 1927. Possibly the interval of three months which had elapsed between June and September might have caused all recollections of play associates except the most outstanding to recede from the memory. For that reason, if this study were made again, these records should be obtained at the end of each month. The teachers stated that they had great difficulty in remembering instances in the detail called for on the estimate sheet. A separate estimate sheet was filled out by each teacher for each child. The sheets provided space indicating the type of social relationship that obtained between the child whose name headed the sheet and every other child in the nursery school. Complete descriptions of the categories of social participation and leadership were attached to the estimate sheets and the teachers were asked to study these before filling in the sheets.

Individual scores on the teacher's estimates were worked out by multiplying the number of times each symbol, representing a type of group, appeared on a child's sheet by the appropriate weight and summing these weighted scores. For example, teacher A recalled having seen child L3 playing in a parallel situation with one child, in an associative situation with four children, and in a coöperative situation with ten different children. L3's social participation rating would be 39. (Parallel—1, Associative—8, and Coöperative—30.) After the teacher's ratings were computed for each child, they were arranged in rank order and correlated

TABLE II

TEACHER'S RATINGS OF SOCIAL PARTICIPATION

Teacher's ratings correlated with composite Social Participation Scores based on 60 one-minute observations on each of 34 children. Scores and ratings* are weighted as follows:

| | Weight | | Weight |
|---|---|---|---|
| P—Parallel Activity | 1 | O—Onlooker | —1 |
| A—Associative Activity | 2 | S—Solitary | —2 |
| C—Coöperative Activity | 3 | U—Unoccupied | —3 |

| Teacher | Correlation with PAC Scores |
|---|---|
| A | .65 |
| B | .79 |
| C | .71 |
| D | .59 |
| E | .75 |

Combined ratings correlated with PAC

| | |
|---|---|
| A–B | .80 |
| A–B–C | .79 |
| A–B–C–D | .84 |
| A–B–C–D–E | .88 |
| A–B–C–D–E Correlated with PAC Minus USO score | 86 |

Intercorrelations of Ratings

| | B | C | D | E |
|---|---|---|---|---|
| A | .57 | .66 | .56 | .49 |
| B | | .59 | 46 | 64 |
| C | | | 55 | 45 |
| D | | | | 41 |

* Ratings did not include Onlooker, Solitary and Unoccupied Play so PAC scores also omitted them.

with the scores obtained by sixty one-minute observations of each individual. The results are presented in Table II. Several conclusions may be drawn from these correlations:

The agreement between the Social Participation ratings arrived at from the general impressions of teachers and those obtained through systematic observation is very close. The ratings of one teacher correlated 79 with the scores obtained after sixty one-minute observations, while the most dissimilar rating correlated with the observation .59.

The ratings of several teachers correspond with scores derived from direct observation more closely than do those of any individual teacher.[7] The correlation estimates of five teachers and the scores obtained by the sampling method was .88, a higher figure than is usually obtained from teacher's ratings.[8]

[7] These combined scores were obtained by adding the rank order position of each child and then ranking the total.

[8] Since only the PSC, or Parallel, Associative, and Organized Supplementary scores were used in teacher's ratings, the Social Participation scores with which the ratings were compared were the PSC scores also. When the non-social scores, or Unoccupied, Solitary, and Onlooker (UIO) were subtracted from the PSC scores as was done in Chapter IV, the correlation decreased from .88 to .86.

There is marked uniformity in the scoring among the teachers The lowest correlation between their scores was .41 while the highest was .66.

The agreement between the ratings derived from teacher's impressions and the scores obtained by the one-minute sampling method corroborates the findings on consistency of social behavior brought out by the even-odd day check.

For most purposes, teacher's ratings on social participation as measured in this study, should prove to be a satisfactory substitute for the one-minute sampling method.

### RELATIVE AMOUNT OF SOCIAL PARTICIPATION

The group participation of the children was classified into categories which described lack of group behavior as well as the presence of it. Unoccupied, solitary, and onlooker activity might be considered negative indices of social activity; while parallel, associative and coöperative or organized supplementary play might be regarded as positive indices of social participation.

Since the number of minute observations obtained on each child varied from 12 to 100 the actual number of times each child was observed in each play situation could not be used as an index of the group participation of the child. Instead percentages had to be used. Table III expresses these data for the forty-two children who were observed during the year. The facts of this chart may be interpreted as follows:

There are great individual differences in the proportion of times each of the forty-two children were observed in the various types of play situations.

*Unoccupied behavior*—Unoccupied behavior was observed in only five children Three of these children were unoccupied quite frequently (11 and 12 per cent of the time) while the other three were so observed 2 and 3 per cent of the time

Concerning the three who were unoccupied more or less habitually:

All three were under three and one-half years of age They were the least talkative children in the school (their rankings were 1, 3, and 4).

Two were girls and one was a boy.

All had older brothers and sisters, and one had one younger brother.

They had had as much nursery school experience as most of the other children (their rankings were 5, 14.5, and 26).

TABLE III

SOCIAL PARTICIPATION

Showing the per cent of each child's observations that were spent in each type of social participation.

| Child | Total Obs. | Per cent U | Per cent S | Per cent O | Per cent P | Per cent A | Per cent C |
|---|---|---|---|---|---|---|---|
| J4 | 33 | | 6 2 | 15 | 27 | 27 | 25 |
| I4 | 43 | .. | 15 | 5 | 35 | 35 | 11 |
| H4 | 41 | .. | 17 | 20 | 46 | 15 | 2.4 |
| G4 | 42 | . | 7.6 | 24 | 12 | 33 | 24 |
| F4 | 40 | . | 10 | 5 | 30 | 30 | 25 |
| E4 | 98 | .. | 17 | | 33 | 33 | 17 |
| D4 | 97 | | 7 | 4 1 | 20 | 48 | 21 |
| C4 | 96 | .. | 7 | 2.3 | 35 | 35 | 20 |
| B4 | 78 | .. | 5.2 | 9 | 32 | 34 | 20 |
| A4 | 29 | | 3.4 | 3 4 | 31 | 31 | 31 |
| N3 | 79 | | 1.2 | 1.2 | 8 | 33 | 57 |
| M3 | 100 | .. | 18 | 5 | 51 | 18 | 8 |
| L3 | 76 | . | 12 | 11 | 22 | 33 | 22 |
| K3 | 76 | . | 25 | 12 | 25 | 33 | 5.2 |
| J3 | 77 | .. | 15 | 9 | 33 | 21 | 22 |
| I3 | 82 | . | 6.2 | 3.4 | 15 | 37 | 39 |
| H3 | 70 | .. | 11 | 4.1 | 25 | 30 | 30 |
| G3 | 75 | .. | 22 | 5.2 | 33 | 23 | 17 |
| F3 | 71 | . | 4.1 | 4 1 | 26 | 45 | 20 |
| E3 | 89 | .. | 33 | 7 | 43 | 15 | 2 4 |
| D3 | 82 | . | 20 | 7 | 33 | 20 | 20 |
| C3 | 80 | | 3 4 | 6 2 | 34 | 21 | 36 |
| B3 | 89 | . | 8 | 2 | 32 | 28 | 30 |
| A3 | 92 | .. | 10 | 2.4 | 33 | 35 | 20 |
| N2 | 87 | . | 30 | 3.4 | 32 | 20 | 15 |
| M2 | 78 | .. | 17 | 12 | 9 9 | 37 | 25 |
| L2 | 85 | .. | 17 | 11 | 54 | 11 | 8 |
| K2 | 90 | 11 | 23 | 38 | 20 | 7 | 1 |
| J2 | 73 | .. | 20 | 5.5 | 50 | 20 | 5.5 |
| I2 | 78 | 12 | 33 | 10 | 44 | . | 1.4 |
| H2 | 73 | .. | 33 | 12 | 34 | 20 | 1.3 |
| G2 | 88 | 3.4 | 26 | 11 | 39 | 17 | 4.1 |
| F2 | 74 | . | 12 | 15 | 33 | 33 | 6 |
| E2 | 64 | . | 25 | 11 | 40 | 12 | 12 |
| D2 | 64 | .. | 25 | 4.6 | 50 | 20 | 1 |
| C2 | 86 | 3 | 35 | 8 | 20 | 26 | 7 |
| B2 | 77 | .. | 21 | 1.2 | 42 | 40 | 6.2 |
| A2 | 19 | . | 5.2 | 20 | 35 | 35 | 5 2 |
| D1 | 75 | 12 | 9 | 6 | 62 | 8 | 2 |
| C1 | 77 | .. | 25 | 2.5 | 48 | 22 | 3 |
| B1 | 68 | 2.9 | 30 | 10 | 50 | 7 | 1.4 |
| A1 | 12 | .. | 17 | .. | 58 | 17 | 8 |

Their I.Q rankings were 31, 28, and 14, which is above average for two of them, and slightly below for the older child.

*Solitary play*—Solitary play was common to all the children but with much variation. One child was observed to be playing alone only 1.2 per cent while at the other extreme, four children played alone 33 per cent of the time under observation.

The child who seldom played alone was an only child of young parents. He was older than thirty of the children and had been in the nursery school longer than twenty-six of them. His I.Q. was about average (111). He was an outstanding leader of the school, and played in highly organized group situations about 90 per cent of the time.

The four children who played alone one-third of the time ranked 21, 10, 11, and 5 with respect to age. Although they were younger than the average, they were by no means the youngest children in the school They came from families in which there were 3, 4, 2, and 1 older siblings They had all been in the nursery school longer than the average of the children (their nursery school experience rankings were 30, 17.5, 26, and 21.5). So their solitary play could not be explained by lack of acquaintance with the other children Their I.Q 's were near and below average—their rankings being 19.5; 6; 10; and 17.

The mothers of two of the four children were interviewed and a correspondence between school and home behavior was apparent. One mother characterized her son as a shy boy who did not play with other children very much in spite of the fact that there were four older children in the family. He was perfectly content to "go off on his own track." He never mentioned any of the nursery school children or teachers at home The other mother stated that her little girl was very independent; often would refuse to give in to the wishes of her older sister; and, as a result, would have to play alone. She never talked about any of the children at the nursery school.

*Onlooker behavior*—Although all but two children were found in onlooker situations, this type of activity was not as frequently engaged in as were solitary and cooperative play. One child, however, was observed to be an onlooker 35 per cent of the time. He was also unoccupied a large part of the time. He took a longer time than any other child to adjust himself to group situations He entered the school October 5, 1926, and was not observed playing with another child until January, 1927. The cause of his reticence could not be traced to any known factor. One teacher hinted that it might have been due to the fact that the child was large for his age, and had been placed with the group of older children during music and conversation periods. He must have felt their physical and mental superiority, and therefore lacked the courage to assert himself. At home, he had two older brothers and two older sisters who "took care of him."

There must have been several elements in common between unoccupied behavior and onlooking activity as the children who ranked high in one type usually ranked high in the other.

*Parallel activity*—Parallel activity was engaged in frequently by almost all the subjects. Eight children were so occupied over half the time they were observed. In general, the younger children par-

ticipated in parallel groups more than did the older ones. This is partly explained by the type of toys with which the children played, *i.e.*, the sandbox; it facilitates and usually accompanies parallel play and is quite a favorite among the younger children as it does not call for any great physical or mental skill.

The child who ranked consistently low in non-group participation and very high in organized groups played in parallel groups less often than any other child or children Only 8 per cent of his recorded play was in parallel groups Two-thirds of the children, on the other hand, played in such groups over 33 per cent of the time observed.

There seemed to be no consistent sex or I Q. differences between the children who did or did not participate in parallel groupings. The nursery school experience for six of the eight children who were occupied in parallel play over 50 per cent of the time, was less than that of the average child Since length of the period of attendance at the school is largely determined by age, it seems reasonable to attribute parallel play to the age factor rather than to familiarity with the nursery school situation.

*Associative play*—All the children except one were observed playing in associative groups Sixteen individuals were so observed over one-third of the total number of observations, and one child played in these groups one-half the time.

Twelve of the sixteen children were over three years old. It may be concluded, therefore, that overt interest in playmates and their activities is largely confined to the older pre-school children.

*Organized supplementary or cooperative activity*—The proportion of observations that children were engaged in coöperative play varied from 1 to 57 per cent Of the six individuals who played in organized supplementary groups during 30 or more per cent of the time observed, all were over three years old. Two were girls and the other four were boys Their mean I Q was 120. Of the five individuals who were observed in cooperative situations less than 2 per cent of the time, all were under two years and eleven months Their mean I.Q. was 113 as compared to the 120 mean of the most coöperative children.

It is evident from the above data that participation in the most social types of groups occurs most frequently among the older children. Furthermore, those individuals who engage in organized supplementary play the least, have a lower I.Q on the average than have the most coöperative ones.

### *Average Amount of Social Participation*

Another method employed to make the scores comparable for the various individuals was to select sixty observations on the 34 children for whom that number was available. Of those having more than sixty total observations, the first twenty, the middle,

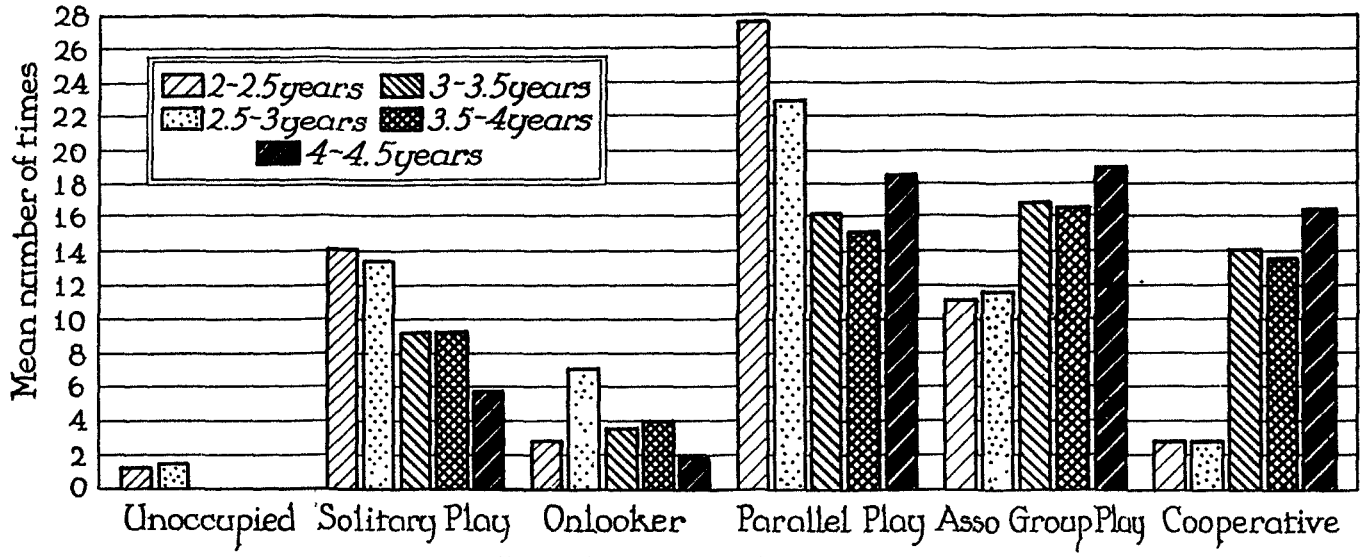


FIG. 1. Social Participation and Age

Showing mean number of times each activity was engaged in at different ages
(Six children at each age level, sixty observations on each child)

and the last twenty observations on each child were the ones selected. Averages for each social participation category were computed for the total number of times each child was found engaged in a particular activity out of a possible sixty times that he might have been so occupied had he done nothing else. For example, the child with a score of 40 for parallel activity, had a score of 3 for onlooker; 6 for unoccupied; 5 for solitary; 5 for associative, and 1 for organized supplementary play, making a total of sixty observations. At the other extreme, there is the record of a child with a score of 4 for parallel; 1 for onlooker; 1 for solitary; 19 for associative, and 35 for coöperative or organized supplementary activity. The following table presents summary of these data for all of the thirty-four children.

Parallel play, it will be seen, is the most frequent type of play and in it the children show a variability equalled only by that in coöperative or organized supplementary play. Onlooker behavior is not very common and in no child does it make up more than one-sixth of the observations. One child never exhibited either associative or organized supplementary play, whereas another was engaged in these more social pursuits 90 per cent of the time. On the average the three unsocial play types, unoccupied, solitary, and onlooker, make up about 25 per cent of the observations, whereas the social types, parallel, associative, and coöperative or organized supplementary make up 75 per cent. Standard deviations are relatively high for onlooker and coöperative or organized supplementary play, and are lowest for parallel and associative play.

TABLE IV

AVERAGES AND VARIABILITY OF 34 CHILDREN IN SOCIAL PARTICIPATION CATEGORIES BASED ON 60 OBSERVATIONS EACH

| | Range | Mean | S.D. |
|---|---|---|---|
| O—Onlooker | 1–10 | 4.5 | 3.6 |
| S—Solitary | 1–24 | 10 5 | 6. |
| P—Parallel | 4–40 | 19. | 7.8 |
| A—Associative | 0–27 | 14. | 6.6 |
| C—Coöperative or Organized Supplementary | 0–35 | 9.5 | 7.8 |
| AC | 0–54 | 25 | 12.9 |
| PAC | 15–58 | 44 | 9.2 |
| USO | 2–45 | 15 5 | 9. |

In order to determine the extent to which the various types of play activities were measuring like phenomena they were correlated with one another. Since the categories into which social participation was classified are mutually exclusive, a high score in one activity would necessarily result in a lessened score in the other activities. Nevertheless, a comparison of the activities, two

at a time, brings out significant relationships. The following data present the results of these correlations:

TABLE V

CORRELATION OF ACTIVITIES WITH ONE ANOTHER
(Spearman rank order)

| | |
|---|---|
| S correlated with C | —.66 |
| S correlated with A | —.55 |
| S correlated with P | .36 |
| S correlated with AC | —.69 |
| C correlated with A | .44 |
| AP correlated with C | —.14 |
| P correlated with A | —.60 |

Organized supplementary play is positively correlated with associative play to such an extent (.44) that is likely that they have many identical elements When associative play is combined with parallel activity and correlated with organized supplementary play the relationship is practically eliminated. From this it may be inferred that those individuals who engage in parallel activity are not usually the same ones who also engage in more socialized activities. The large inverse correlation between parallel and associative play (—.60) indicates that the children who play in associative situations do not, as a rule, tend to engage in parallel play. Solitary play is correlated inversely with associative and coöperative play (—.69), but is positively correlated with parallel play (.36). This means that those children who play alone are occasionally the same ones who engage in the most elementary type of group play, and who seldom play in the more highly organized types.

*Weighted Scores on Social Participation*

The weighted scores on the 60 observations for each of the 34 children were obtained by multiplying the frequency of each category by the assigned weight and getting the algebraic sum. The scores were distributed as follows:

| Scores | No. Children |
|---|---|
| —60–0 | 2 |
| 1–9 | 4 |
| 10–19 | 2 |
| 20–29 | 2 |
| 30–39 | 4 |
| 40–49 | 4 |
| 50–59 | 2 |
| 60–69 | 2 |
| 70–79 | 1 |
| 80–89 | 4 |
| 90–99 | 5 |
| 100–149 | 2 |

They ranged from minus 54 to plus 144. The individual receiving the lowest score was described above as an habitual on-

looker. His I.Q. was 121. Since he came from a home where there were five children, he should have had an opportunity to learn how to play with other children. Possibly playing with members of one's family does not require the social adjustments as does playing with strange children.

The child who received the highest score was an only child. His I.Q. (111) was close to the average and he ranked tenth from oldest child in the nursery school; he was also an outstanding "leader". Being a leader would, of course, necessitate his playing in coöperative situations. Aside from this fact, no known factors account for his excessive group participation.

### AGE AND SOCIAL PARTICIPATION

The rank order scores of the children in each type of play activity were correlated with their ages. The results are shown in the following data:

TABLE VI

SPEARMAN RANK ORDER CORRELATION BETWEEN AGE AND ACTIVITIES

| | |
|---|---|
| Age correlated with S | —.58 |
| Age correlated with P | —.71 |
| Age correlated with USO | —.71 |
| Age correlated with A | .51 |
| Age correlated with C | .67 |
| Age correlated with AC | 69 |
| Age correlated with PAC | .56 |

These correlations clearly indicate the important influence of age on social participation. The older the child, the more he plays in the more highly integrated groups. All the correlations between age and the unsocial play types are high and negative, and all those between age and socially organized play are high and positive.

Another technique employed to determine the influence of age upon social participation was the grouping of children by half year intervals from two to four and one-half years, making a total of five groups. This classification was somewhat crude and only six children represented each age. Nevertheless striking age differences were found as may be noted from Figure 1, which represents the mean number of times (taken from a total of sixty observations for each child) in which the six children at each age participated in social groups.

Only the youngest children, those from two to three years, were found unoccupied during the sixty observations. Solitary play was most common at two and one-half years but there is a decided decline

in the importance of solitary play at three and again at four years. Onlookers were most prevalent among the two-and-one-half to three-year-olds. Evidently, children at this age have overcome the shyness existing when first placed among strange children. They are beginning to take an interest in group activity although they do not overtly participate. The oldest children do not engage in onlooking frequently. If an activity interests them they want to participate in it. They know all the techniques of securing entrance into a group, so do not remain observers for any noticeable length of time. Parallel play groups were observed most often among the two-year-olds, and least often among the children from three to four. As children became older, they invariably conversed with one another about their activities, and became interested in their associates. Associative group play increased in popularity as the children became older, and was most frequent in the oldest group. There is a marked increase in organized supplementary play beginning with the third year. This sudden interest in coöperative play is perhaps accounted for by the popularity of the activity of "play house" among the three-year-olds Since the young children lack the power of expressing themselves with language, they have difficulty in playing in coöperative groups

Another check upon the relationship between age and social participation was made by correlating the age ranks with the ranks of the composite scores, which yielded a coefficient of .61. Thus, a definite relationship between the age of children and the degree to which they participated in social groups was established.

INTELLIGENCE QUOTIENTS AND SOCIAL PARTICIPATION

The intelligence quotient ranks were correlated with the ranks of forty-two children in each of the types of participation mentioned below. The results obtained were:

| | |
|---|---|
| I.Q. correlated with P | .69 |
| I.Q. correlated with S | —.20 |
| I.Q. correlated with C | .38 |
| I.Q. correlated with A+C | .33 |

The composite social participation score of thirty-four children was also correlated with their intelligence quotients with a resulting coefficient of .26.[9]

Some relationship between social participation and intelligence quotients is evident in the above coefficients. Parallel play particularly is associated with intelligence (.69). Since parallel play is most popular among the two-year-olds, it is conceivable that those young children who possess the most intelligence manage

[9] Lehman and Anderson in an article, "Social Participation vs. Solitariness in Play" (Pedagogical Senimary, Vol. 34, 1927, pp. 279–89) found that older children with an I.Q. over 140 engage less frequently than the average children in social plays and games.

to play in groups, even though very elementarily, rather than play alone. On the other hand, those two-year-old children who are least impressed by the new social environment of the nursery school into which they are placed will be content with solitary play. In other words, those characteristics in children which would cause them to be interested in and curious about various elements in their home environment, resulting in high intelligence test scores, would also show themselves in an interest in one of the leading features of the school environment, the social groups. The fact that solitary play, which occurs most frequently among the younger children, is inversely correlated with I.Q. ranks, seems to substantiate this interpretation. Those types of participation in which the older children primarily engage correlate with I.Q. to a lesser extent. Group play among the children over three years of age is not very indicative of intelligence.

### NURSERY SCHOOL EXPERIENCE AND SOCIAL PARTICIPATION

Familiarity with the nursery school environment would seem, a priori, to determine the readiness with which the children entered into group play. However, this was not found to be the case. Children were ranked according to their date of entrance in the school and these ranks were correlated with their social participation rank scores. A coefficient of .12 resulted. In other words, the relationship was insignificant.

### CHANGES IN SOCIAL PARTICIPATION OR "SOCIALIZATION"

Although length of attendance at the nursery school did not determine the degree to which any specific child played in groups as compared to other children, continued attendance seemed to bring about changes in the degree to which children as a whole participated in groups. Table VII summarizes these changes for

TABLE VII

CHANGES IN SOCIAL PARTICIPATION

Mean frequency of each type of social participation during the first, middle, and last twenty observations on thirty-four children

| | First 20 | | Middle 20 | | Last 20 | |
|---|---|---|---|---|---|---|
| Unoccupied | .2 | $\sigma$ | .2 | $\sigma$ | .2 | $\sigma$ |
| Solitary play | 3.6 | | 3.9 | | 2.9 | |
| Onlooker activity | 2.1 | | 1.1 | | 1.2 | |
| Parallel play | 8.3 | | 6.4 | | 5 | |
| Associative play | 3.2 | | 4.9 | | 7.1 | |
| Coöperative play | 2.5 | | 3.3 | | 3.6 | |
| USO | 6.0 | 3.7 | 5.5 | 3.2 | 4.5 | 3.2 |
| PAC | 14.3 | 3.7 | 14.6 | 3.7 | 15.4 | 3.4 |

thirty-four children. Since twenty observations were proved to be fairly reliable, it was possible to note the changes which took place in the participation of the children over a period of sixty observations.

Those types of social participation to which have been assigned negative values namely, unoccupied, solitary and onlooker activity were less prevalent toward the end of the period of observation than they were at the beginning. The shift away from solitary play, however, was preceded by a period of popularity for this type of play. The most social groups, associative and coöperative, tended to occur more frequently with greater Nursery School experience. Associative play more than doubled in popularity while coöperative play increased from a mean frequency of 2.5 to 3.6. Children played beside one another (parallel play) less frequently as time elapsed. This may be attributed to the fact that parallel play is inversely correlated with age. It may also mean that when children become acquainted, they create interacting situations.

Although the differences between the USO and PAC means are not statistically significant the trend of the changes is consistently toward the more social types of participation. Also, due to the inclusion of parallel play, the differences are not as marked as they would have been had only Associative and Coöperative play been grouped together. These figures show the leveling effect upon individual variation of the nursery school environment.

Changes in participation brought out interesting behavior patterns among the children. Some children varied only slightly around their initial group participation; others initially showed extremes of participation or lack of it, but finally adjusted to an intermediate position; still others swing from one extreme to the other.

## SUMMARY

The Social Participation of forty nursery school children was analyzed in this study. The spontaneous play groups occurring during the free-play hour were observed by a one-minute sampling method. Each child was observed during one minute of the hour and his social behavior was recorded on a schedule. Provision was made for rotating daily the order in which each child was observed. Social participation was classified and recorded under categories of Unoccupied; Solitary play; Onlooker; Parallel group activity; Associative group play, and Organized Supplementary,

or Coöperative group play. Leadership, as a phase of intensity of social participation, was recorded as Independent pursuing of own will; Directing; Following; Reciprocally directing, and Intermediate position of following one child and directing another in the same group.

In addition to classifying the social behavior of each child as he was observed, notation was also made of the names and number of children in the group in which the child under consideration was playing, a description of his occupation, and any remarks which he made.

### RELIABILITY OF THE SAMPLING METHOD

The reliability of the one-minute samples was tested by the even-odd day correlation. Ten even day observations correlated with 10 odd day observations of social participation .76. With 20 even and odd day samples the correlation coefficient obtained was .90.

Leadership observations were not as reliable as were those on Social Participation. Ten even and ten odd day scores correlated .39; twenty scores of alternate days correlated .44; while thirty sample of even and odd days yielded a correlation coefficient of .73.

A check was made upon the errors which might result from the bias of the observer. Three assistants made observations simultaneously with the investigator while observing sixteen individual children. The records were identical with those of the investigator in 89 per cent of the items noted.

Five teachers were asked to recall the specific playmate combinations which had occurred during the preceding year. These recollections were transformed into ratings which were correlated with the scores obtained by the one-minute sampling method. The five combined teachers' ratings correlated .88 with the Social Participation scores, and .81 with the Leadership scores derived from one-minute samples.

### SOCIAL PARTICIPATION

Individual differences in the proportion of time children were observed engaged in each type of activity were analyzed. Unoccupied behavior was observed in only five children, while all children engaged in Solitary play. All but two children were observed in Onlooker situations, and all but one in Associative play groups. Parallel activity occurred more often than any other; two-thirds of the children played in this manner over 33

per cent of the time observed. Coöperative play occupied from 1 to 57 per cent of the observations of the various children.

Each of the categories into which social participation was classified were assigned weights based on the degree to which they were thought to approach coöperative group behavior. Sixty one-minute observations on each child were weighted and the algebraic sum of the added scores was designated as the "Social Participation Score". These scores ranged from minus 54 to plus 144.

Correlation of Social Participation was made with several other factors, as follows:

1. Social Participation is dependent, to a large extent, upon the age of the children. As a rule, the youngest children either play alone or in parallel groups, while the oldest individuals play in the more highly organized groups. Marked individual variation, however, was observed. The correlation between age ranks and the Social Participation ranks was .61.
2. There is a slight relationship between Intelligence Quotients and the degree of Social Participation of individuals (.26). Parallel play, however, correlated .69 with intelligence.
3. Nursery school experience correlated with the Social Participation scores .12.

Changes in frequency of occurrence of the various types of social activity were analyzed. Positive social participation increased over three twenty-observation periods while negative participation decreased for the group as a whole.

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