

## DOCUMENT RESUME

ED 078 958

PS 006 600

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TITLE The Sands School Project: Third Year Results.  
INSTITUTION Cincinnati Univ., Ohio. Dept. of Psychology.  
PUB DATE 12 Oct 70  
NOTE 55p.

EDRS PRICE MF-\$0.65 HC-\$3.29  
DESCRIPTORS Comparative Analysis; Early Experience; Elementary Grades; \*Interviews; Longitudinal Studies; \*Parent Participation; \*Student Attitudes; \*Student Evaluation; \*Teacher Attitudes; \*Teaching Techniques; Technical Reports

IDENTIFIERS Montessori Method; \*Sands School Project

## ABSTRACT

The third year of a study comparing the performance of four groups of children attending Sands School is reported. The four groups of children were a Montessori classroom, a nongraded classroom, children with preschool experience and in conventional (graded) classrooms, and children without preschool experience and in conventional classrooms. The groups were reasonably matched in terms of age, socioeconomic status, race, and male-female ratio. The third-year evaluation consisted of three studies: interviews with 40 children, 10 from each group; interviews with a selected number of mothers of the children; and a two-part study consisting of interviews with a number of Montessori and nongraded teachers from the community and a number of Sands teachers and two administrators. The children's interviews focused upon social competence and maturity, self-concept, and attitudes about school; the mothers' interviews were to ascertain how involved they were in the education of their children; and the teachers' interviews concerned their attitudes about the ideal teaching environment, philosophy of teaching, role of the teacher, purpose of education, ideas about pre-school experience and kindergarten, personal aspects of teaching, and attitudes about children in the educational setting. The interview data are discussed. Appendixes to the report are: Children's Interview Schedule; Parents' Interview Schedule; Teacher Interview--Montessori; Teacher Interview--Nongraded; and Teacher Interview--Sands. (DB)

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THE SANDS SCHOOL PROJECT

Third Year Results

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## INTRODUCTION

This report culminates the third year of study of a selected group of children attending Sands School. The Sands School Project, brought about originally by the Cincinnati Montessori Society, the Carnegie Corporation of New York, and the Cincinnati Board of Education, has been a unique attempt to evaluate the effects of differing educational experiences on a variety of variables. Many of these variables have been outside of the realm of the traditional intelligence-achievement dimensions and were represented in the first and second year evaluations by tests included in Dr. Thomas Banta's Cincinnati Autonomy Test Battery along with some other measures added the second year by Dr. Ruth Gross, then Acting Director of the evaluation in Dr. Banta's absence.

The major thrust of the evaluation for three years has been the comparison of the performance of four groups of children: (1) a Montessori classroom, (2) a Nongraded classroom, (3) Children with Preschool experience and in conventional (graded) classrooms, and (4) Children without Preschool experience and in conventional (graded) classrooms. The groups were reasonably matched in terms of age, socio-economic status, race, and male-female ratio.

Based on the test results, Dr. Banta concluded at the end of the first year (1967-68): "In summary, the non-graded primary combined with pre-school experience (Montessori or not) showed the best overall results; subtracting either pre-school or non-graded practices reduced the progress of the children." (p.2)<sup>1</sup>

The second year (1968-69) evaluation, as noted, was directed by Dr. Ruth Gross with the assistance of Mrs. Bonnie Green. Testing was done by trained volunteers<sup>2</sup>, mostly from the Cincinnati Junior League. Instruments included were designed to tap per-

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<sup>1</sup> Banta, T. J. The Sands School Project: First Year Result. Research report. Cincinnati, Ohio: University of Cincinnati, 1968.

<sup>2</sup> We are extremely appreciative of the conscientious and competent assistance given by our volunteers.

formance on such variables as curiosity and assertiveness, creativity, innovative behavior, motor impulse control, attention, reflectivity, and field independence, and some aspects of conventional intelligence. The absence of many statistically significant results made unequivocal interpretation difficult. While the group means for every re-administered measure increased, the patterning of results was suggestive of the first-year results with some qualifications. Absence of pre-school experience appeared still to affect performance adversely, as the Control without Preschool ranked lowest on nearly all measures. In the three instances where statistically significant effects were noted, this group's mean was lower than the two experimental groups (Montessori and Nongraded) on a motor impulse control task and lower than the Montessori group on measures of attention and innovative behavior (a trend). The Montessori group means, in terms of rankings, were highest or next to highest (first on 10 out of 13 measures) on every variable measured. While the absence of many statistical differences may indeed reflect a relative lack of real differences among groups, the data suggested ceiling effects for some of the measures and intragroup variability, both of which would mitigate against finding such differences. The Nongraded and Control with Preschool Groups showed a variable pattern, the means usually falling between the Montessori and Control without Preschool Groups.

Assuming a reasonable relationship among the measures of different capacities, on five measures of curiosity and assertiveness, the Montessori Group was consistently highest, the Nongraded Group fairly consistently lowest, with the two Control Groups falling between. On two measures of creativity and innovative behavior, the Montessori and Nongraded Groups were consistently highest; this was likewise true for motor impulse control with the Control without Preschool consistently lowest. Two measures of reflectivity and field independence found Montessori and the Control with Preschool means consistently highest. The two measures related to aspects of conventional intelligence found the Montessori Group mean consistently highest, the

Control without Preschool consistently lowest, and the Nongraded and Control with Preschool means falling between. Thus in summary, this patterning appears to suggest that at the end of the second year, the Montessori Group was maintaining a slight edge over the other three; the Control without Preschool was still at a relative disadvantage; and the Nongraded group had lost some of whatever edge it had over the Control with Preschool at the end of the first year. Obviously, these remarks must be interpreted in light of Banta's (First Year Report) remarks about the measures used and possible unreliability of the group means. On the other hand, the fact that Montessori means were highest or next to highest on all measures over two years of testing is a very promising finding for the Montessori method.

This third year (1969-70) our research team, in collaboration with the Research Committee of the Cincinnati Montessori Society, decided upon an interview approach, one which would yield "softer" data than the instruments used before but which offered the promise of answering some subjective questions:

- (1) What are the thoughts and feelings of the people who have been involved in one way or another or about whom we talk, in effect, when we speak of Montessori teachers, Nongraded teachers, etc.? Are there discernible differences among groups of teachers?
- (2) What are the children's feelings about their school experience and themselves in relation to it?
- (3) What, if any, has been the impact of the Sands School Project upon the teachers and parents involved?
- (4) Do people with ostensibly differing approaches to education have something to offer one another?
- (5) What can we learn which will be of help in future projects and/or in-service training? Our major focus has been upon the implications of the Montessori approach for elementary education.

In actuality, the evaluation this year consisted of three studies: (1) interviews with 40 children, 10 randomly selected from each of the four original groups; (2) interviews with a selected number of parents (actually mothers) representing each of the four groups of children; (3) a two-part study, which consisted of interviews with a number of Montessori and Nongraded

teachers from the community and a number of Sands teachers and two administrators.

These will be discussed separately in the body of the report. Our findings, by necessity, are the final abstractions and impressions derived from an extensive "boiling down" of the data in terms of group trends.

I

INTERVIEWS WITH CHILDREN

Ten children from each of the four Project groups (Montessori; Nongraded, non-Montessori; Control Group with Preschool; and Control Group without Preschool) were randomly selected from those children who had participated in the Sands School Project the first and second years.

The following is a tabular description of the four groups:

	Montessori	Nongraded	Control with Preschool	Control without Preschool
Mean age in years	8.2	8.3	8.0	8.1
Total no. in subject pool	14	13	11	11
Male-female ratio of children interviewed	M 6 F 4	3 7	4 6	5 5

None of the three variables differed significantly among groups.

Procedure

The children were interviewed by a white, male psychology graduate student from the University of Cincinnati. A parent-aide brought the children to him in random order; thus he was not aware of any child's group affiliation. (See Appendix A for the interview schedule.)

Three main areas were explored in the interview. The first, social competence and maturity, included a rating scale filled out by the interviewer at the end of the session with the child. The scale included such items as "communicates readily and competently" to "communicates with effort," and "comfortable in adult company" to "ill at ease." All ratings were made on a five point scale. Other questions in the area of social competence and maturity were concerned with self-care, independence, and information (address, telling time, etc.).

The second major area explored was self-concept. The child was asked what he liked and did not like about himself. He was also asked to rate himself in relationship to theoretical "classmates." This procedure of self-rating (modified from Long and Henderson<sup>3</sup>) required the child to place himself in a column of

<sup>3</sup>Long, B. H. & Henderson, E. H. Self-social concepts of disadvantaged school beginners, Journal of Genetic Psychology, 1960, 113, 41-51.

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circles representing children. General self-esteem was measured first by the selection of a circle to represent the self higher rather than lower in the column. The second time, the top circle was defined as the "smartest" child and the bottom as a child that is "not so smart." This more structured procedure was repeated for the dimensions of strength, being liked, and happiness. The child also drew and colored a picture of himself which was rated for positive and negative indicators of cognitive functioning and emotional stability using a modified scale from Koppitz<sup>4</sup>. The drawings were rated by two people with good agreement ( $r = .82, p < .001$ ). The child received the most points for a well-proportioned, well-differentiated and realistic figure drawing. The present researchers also gave positive points for assertion of "black identity" (brown or black skin, "Afro" hair-do) since all the children were Negro. Negative indicators included misrepresentation, grotesque figures, white skin and blonde hair.

The third major area was attitudes about school, including likes and dislikes about the class and teacher, and questions about what was being learned.

### Results

#### Social Competence and Maturity

Rating scales. There were no significant differences between the four groups with the exception of "communicates readily." The Montessori children as a group appeared much more extroverted, verbal, and personable than the other three groups of children. They had more to say, could express it better, and had fewer articulation problems than the other children. The Montessori children's advanced ability to communicate ( $\chi^2 = 12.58, df = 3, p < .05$ ), therefore, made them appear more socially confident, assured, and at ease in adult company than the other groups in general, although there was a great deal of variability within classes. While these other ratings did not differ statistically, the Montessori children consistently rated higher than the other groups.

<sup>4</sup>Koppitz, E. M. The Bender-Gestalt Test with the Human Figure Drawing Test for young school children. Columbus, Ohio: State Board of Education, 1962.

The four groups of children seemed approximately the same in terms of self-reported social competence and maturity. All of the children reported helping their mothers with routine household chores, such as setting the table, cleaning and straightening their rooms, and running errands to the local grocery store. According to them, they were entrusted with money for the purpose of purchasing items for their mothers, as well as buying candy, soda, and toys for themselves. Three-quarters of all the children performed jobs for which they were paid. These jobs ranged from remunerative household chores to helping at the zoo. The other quarter of the children that did not receive money were spread out among the four groups.

All of the groups of children amused themselves by playing games. Usually they were engaged in play activity with brothers and sisters, older and younger. The Montessori children and the Nongraded children tended to amuse themselves by making things at home more often than the two Control groups. Also, the Montessori and Nongraded groups read more at home than the two Control groups. Eight out of 10 children in all groups except the Control without Preschool used the telephone to call relatives and/or friends. While only five of 10 children in the latter group said they used the telephone, there were two children in the group who did not have telephones in the home.

In terms of abilities to care for themselves, all of the children except two reported being able to dress and bathe themselves. The ones that were unable to do so could manage parts of the tasks, but required help in completing the buttoning or washing of the hair. More Montessori children (9) were able to brush or comb their hair than the other groups (5 or 6).

When asked for their home addresses (street, city, and state), the Control Class with Preschool did the best: nine of 10 reported all three, while only three in the Control without Preschool and six each in the other two classes could give all three ( $\chi^2 = 7.50$ ,  $df = 3$ ,  $p < .05$ ).

Only three of the 40 children could tell time better than to the quarter hour when they were presented with a cardboard clock,

while almost all could tell it to the hour. More than half could tell it to at least the half hour.

### Self-Concept

All children were asked what they liked and disliked about themselves. Some of them had trouble in answering this question abstractly and answered as if the question were "what do you like to do?" The range of answers was great and no answer occurred very frequently, except for the answer "my clothes," which occurred six times in the Montessori class but only one or two times in the other classes ( $\chi^2 = 9.06$ ,  $df = 3$ ,  $p < .05$ ). Answers ranged from "being a girl" to "I look like my cousin." The most common response to what the children did not like about themselves was "nothing" or "I don't know." Other answers included "being bad," "fighting with friends," and "nigger."

For the self-ratings (circles), most children did not put themselves on top for the first measure (general self-esteem): they picked 3, 4, or 5, out of five children. However, a majority in each class, for the more structured tasks, picked themselves as smartest, strongest, most liked, and happiest. There were no meaningful differences among the four groups. When several circles represented children playing a game or watching (group inclusion or exclusion), most children placed themselves with the children playing. Most children also placed themselves directly adjacent to a circle "teacher" rather than farther away.

Although the span of scores for the figure drawings was wide, and drawings ranged from very simple and primitive ones to relatively sophisticated and complex ones, both extremes were found within each group. The class means for positive indicators were all very similar, while the means for negative indicators had more of a range. Although the Nongraded class had fewer negative indicators than any other class and the Montessori group had more, these differences did not reach statistical significance.

### Attitudes about School

When asked if they liked school, almost all of the children answered "yes" or that it was "okay." There were also a few "no's" (3), two in the Montessori class and one in the Nongraded class.

To the question of why they go to school, the most frequent reply from all groups was "to learn." Other popular answers were "to work," "to write," and "to read." The Control Group with Preschool mentioned "to get a good education" four times while only one other child (Nongraded) gave the same answer ( $\chi^2 = 13.33$ ,  $df = 3$ ,  $p < .01$ ).

When asked about what they have learned in school, the most common answers, in order of frequency, were: "arithmetic" or "times tables, reading, writing, drawing or coloring, and work." The Control Class without Preschool mentioned some type of manners or social behavior (to work quietly, not slide down the bannister) significantly more often than the other three classes ( $\chi^2 = 14.18$ ,  $df = 3$ ,  $p < .01$ ).

To "What would you like to learn in school?" the Montessori children mentioned arithmetic significantly more often than the other three groups ( $\chi^2 = 9.07$ ,  $df = 3$ ,  $p < .05$ ). Other common responses were "to read, play, write, and color or draw."

The two things most often mentioned as being best liked in school were playing and drawing or coloring. Other things frequently mentioned were "the children or friends, reading, working, and arithmetic."

There were not as many responses to the question of what was least liked. Several children said "Nothing." The Nongraded Class mentioned "hard work" three times while none of the other classes mentioned it ( $\chi^2 = 9.73$ ,  $df = 3$ ,  $p < .05$ ). The Control Group with Preschool mentioned "kids walking around" and "fighting" significantly more often than the other three classes ( $\chi^2 = 9.73$  &  $9.33$ ,  $df = 3$ ,  $p < .05$ ).

The total number of responses did not differ among groups for the preceding questions about what was liked best and least in school.

The aspect of teacher behavior which the children liked best was playing with them or letting them play. The children also liked "when she teaches." The Montessori children mentioned the teacher "reading to the kids" as what they liked best three times, while none of the other children mentioned it ( $\chi^2 = 9.73$ ,  $df = 3$ ,  $p < .05$ ).

A question concerning what they liked, least elicited mostly comments about discipline, which were equally distributed among the classes. Several children from each class mentioned that they do not like it when their teacher gets mad or yells at them. The Nongraded, Control Class with Preschool and the Control Class without Preschool mentioned significantly more often getting "swats" from the teacher ( $\chi^2 = 8.80$ ,  $df = 3$ ,  $p < .05$ ) and the Montessori children mentioned other kinds of discipline (rather than "swats") significantly more ( $\chi^2 = 9.83$ ,  $df = 3$ ,  $p < .05$ ).

If they could do anything in class, most of the children would like to play, draw, or color. Other frequent responses were "read, write, and work."

A question about friends of theirs in other classes and what they liked and disliked brought few and varied responses.

#### Discussion and Summary

The major finding in the area of social competence and maturity was that the Montessori class communicated significantly more readily to the interviewer than did the other classes. This ability to communicate and verbalize well has obvious implications for academic achievement and interpersonal relationships, as it affects so many different spheres of functioning. Very few other differences existed in this area and the study indicated (assuming equivalent self-report validity across groups) that most of the children in all groups do chores at home, buy things at the store, and take care of personal grooming. The Montessori and Nongraded classes tended to amuse themselves more by making things and reading at home, which could be considered an extension of activities begun in the classroom. The Control Class with Preschool was better able to give their addresses than any of the other classes queried.

Measures of self-concept yielded virtually no differences among groups. For the most part, the children have a positive self-concept, at least in relationship to the other children in their class. This is demonstrated by the higher than lower placement of themselves in the column of circles (self-rating), their figure drawings having more positive than negative indicat-

ors, and their mentioning more things about themselves that they liked than things they disliked.

The majority of the children appeared to have very "normal" attitudes about school and their teachers. Most said they liked school or that it was "okay." It is difficult to interpret isolated variations among classes in their likes and dislikes. Although these could certainly be related to differences in teaching methods, it would be difficult to say exactly how without further investigation. In general, the children like to play, and would do more of it if given the chance, and they dislike being disciplined by their teachers.

## II

### INTERVIEWS WITH PARENTS

The parents interviewed in this study were randomly selected from the parents of all children interviewed. The target number was five parents from each group, but unfortunately, only four were obtained from the Nongraded and four from the Control without Preschool groups. Only mothers were interviewed.

#### Procedure

Letters were sent out from the school to the parents. They were then contacted by phone and an appointment was set up to meet with them. The interviewer for this part of the study was a white, female college student.

The main purpose of the interview was to find out how involved the parents were in the education of their children. The interview contained questions about preschool and whether or not the parents thought it made a difference in their children; their awareness of what their child actually does in school; their own involvement in school activities and with the class; and their opinions about the special experimental classes, even if their own children were not in them. (See Appendix B for the actual interview schedule.)

#### Results

The average number of children in school per family and the Project child's average placement in the school sib line are presented below by class.

	<u>Montessori</u>	<u>Nongraded</u>	<u>Control with Preschool</u>	<u>Control without Preschool</u>
Average no. children in school	3.6	5.0	4.4	5.0
Average position in school sib line	2.6	4.0	3.6	4.0

All parents whose children went to preschool thought that it did make a difference in their children. Montessori parents thought that their children were more curious, got better grades, learned faster, and read better. Control with Preschool parents

thought preschool helped their children learn faster (3), share, play better with others, and be more independent of parents. Nongraded parents did not answer. Two Control without Preschool parents felt preschool did not make a difference, while one stated that she had no means for comparison. The fourth parent felt that it was good for the children to start younger.

A majority of parents in each group said that their children came to them for help with school work. When asked what their children were learning in school, all parents named academic subjects like arithmetic, reading, and writing. Montessori parents were more verbal, naming nine things; Nongraded parents named five; Control with Preschool parents named five; and Control without Preschool parents named two.

Questioned about what their children do that they felt was started or learned in school, many different answers were given. Most were not academic answers and included drawing, playing games, singing, etc.

Asked if they thought their child was developing as much as is possible for him or her in school, most parents expressed satisfaction with their child's progress. One parent in each group felt that her child could do more.

Questioned about what else they would like their child to learn, the majority of parents said nothing. One Montessori parent would like her child to learn to stop competing with his older brother; one Nongraded parent would like her child to learn a foreign language, and another, writing; and one Control without Preschool parent would like her child to learn a language.

All parents answered that their children liked school. The teacher, reading, arithmetic, play, responsibility, spelling, writing, and trips were mentioned as being most liked, and no dislikes were reported.

Almost all of the parents had met their child's teacher. No parent mentioned disliking her, and most said that they liked her. One Montessori parent thought the teacher was excellent and interested. A Nongraded parent thought that the teacher was creative and imaginative. Things favorably referred to about the class-



room and method were, Montessori: beautiful classroom, lots of equipment, learning by the senses, more advanced, children working on their own; Nongraded: same room since preschool; Control with Preschool: displays which hold the child's interest, student teacher doing a good job; and, Control without Preschool: projects and displays in the room and that the teacher is concerned.

Most parents expressed satisfaction with the way their children were being taught and disciplined. One Nongraded parent thought perhaps her child had her way too much and a Control without Preschool parent thought the children should work harder. Montessori parents were the most verbal in talking about teaching methods: they mentioned the expression of feelings, a well-rounded program, better reading, playing and learning at the same time, and that the method holds the child's interest. A Nongraded parent felt that the teaching was excellent, and a Control with Preschool parent said she gave the teacher permission to spank her child.

In answer to a question about the PTA, the parents of the Nongraded children seemed to be the most active: all have attended and one mother is Vice-President. Most of the Control with Preschool parents, and half of the Control without Preschool parents, have attended. One Montessori mother is a teacher's aide; two have not attended, and two did not answer. Of those parents that expressed opinions about PTA, most felt it was worthwhile, mainly to find out about their child's progress.

Answers were sketchy to the question of how much "say-so" parents do have and should have about what happens in school. They ranged from those who said that parents can suggest whatever they want, to one parent who said parents have no "say-so" and that is the way it should be. Many did not know or did not answer.

The last few questions involved attitudes about the Project classes at Sands (Montessori and Nongraded) and are combined for each of the classes.

Montessori parents appeared to have the most knowledge of

the experimental set-up. All were enthusiastic about their children being in the class, although several did not know what to expect in the beginning. Comments included that the children were enjoying learning, that they were learning to learn, that they learn by themselves, are curious, play with creative toys, and can do anything. All felt that their child was learning more in the Montessori class than he would have in a regular class.

Nongraded parents felt that their children were more aware, further ahead than other children, studious, showed consideration for others, that the class was interesting and not routine, and that the children had their own way more often.

Neither the Montessori nor the Nongraded parents were very clear about how their children got into the Project classes.

Most of the Control with Preschool parents were aware of the Project classes and thought they were good, although one parent thought Montessori was for slow children and not accepted by the regular school. Another thought it was fine for younger children but not later on. One parent wishes her child were in Montessori because she feels the children read better, etc. Another does not feel her children need Montessori as they catch on quickly enough without it. She did feel that preschool helped.

Half of the Control without Preschool parents were aware of the experimental classes. One parent thought it was for "smart kids." Another parent felt that children need more restrictions when they are young and more respect for parents than the experimental classes provide.

#### Discussion and Summary

Overall involvement directly with the school was hard to gauge. Most parents had met their child's teacher and more than half had attended some PTA meetings. However, it is not known how many attended regularly. For those parents who are not active, the reason does not seem to be a lack of interest or a negative attitude about the school. The number of children needing care at home may be one of many factors which compete for the parents' commitment. The fact that Montessori parents attend periodic conferences with the teacher during the year may also

account for the low participation for that particular group.

Parents in general felt that preschool experience was valuable. They see children as learning primarily academic types of things in the classroom, but certain non-academic activities which the children perform at home are credited with being initiated in school.

Overall, the parents were enthusiastic about the experimental project. However, there was some misunderstanding among non-experimental group parents about the purposes of the experimental classes. Montessori parents appeared more verbal in general than those from the other groups and more knowledgeable about teaching objectives. This may be a direct outgrowth of their contact with the Montessori method and the teacher's explanation of it, or they may have been more verbal in the first place, which may have affected their children's ability (See 1).

The findings in the interview with parents of Project children are only suggestive as the small number permits very limited generalization. However, it may be concluded that as a rule, parents were positive about Sands School as a whole and their children's teachers in particular.

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### III

#### TEACHERS' INTERVIEWS

Three groups of teachers were interviewed: (1) Montessori, (2) Nongraded, and (3) Sands teachers involved in conventional classroom teaching. The Montessori group consisted of 16 teachers, most of whom were teaching in private schools, a few in public arrangements. One was presently teaching and another had taught at Sands. Two were presently teaching and one had taught children ages six to nine years. All others were teaching children in the age range two to six. They were chosen on the basis of being associated with Montessori teaching in this community and willingness to be interviewed.

The Nongraded group consisted of seven teachers, all teaching children ages six to nine. Five were involved in team teaching, three of these in public schools and two in a private school. Of the other two, one was currently teaching and one had taught at Sands.

The Sands group of "conventional" teachers consisted of eight people whom we felt had been directly or indirectly associated with the Project by virtue of teaching or having taught some of the children who were tested. They represented grades preschool through third.

The Sands teachers were interviewed by a white, female, educated lay person from the City. The interviewer for Nongraded and Montessori teachers (other than at Sands) was a white female with experience in teaching special education.

#### Procedure

In the first part of the interview, all teachers were asked the same questions, which roughly fall into four general categories: (A) Questions about ideal teaching environment, the role of teacher, and personal philosophy of education; (B) Opinions about education--the purpose of education, ideas about preschool and kindergarten; (C) Questions about personal aspects of teaching--needs, frustrations, the role of parents, and (D) Attitudes about children in the educational setting--needs and problems.

The interviews then focused upon questions more particular to certain groups. Montessori teachers were asked to characterize the Montessori approach and to reflect upon what the Montessori approach has to offer conventional education. Nongraded teachers were asked to reflect upon what the Nongraded approach can offer conventional education. Sands teachers, including the Montessori and Nongraded teachers involved in the Project, were queried about their feelings and opinions of the Project. All teachers were asked questions relative to their awareness of other approaches, i.e., Nongraded, Conventional, and especially Montessori, since one of the questions prompting this study was whether or to what extent Montessori philosophy and practice could contribute to conventional education.

For the most part, questions were fairly "open-ended," i.e., teachers were free to respond (or not respond) spontaneously, and in terms of how they interpreted the questions. Obviously, the inequality of numbers in each of the groups makes comparison difficult. Likewise, although we feel that we have a fairly representative sample of Montessori and Nongraded (at the time of the interviews) teachers in this community, we cannot say that our groups are necessarily representative of the larger populations of Montessori, Nongraded, and Conventional teachers teaching children ages six to nine years.

In the summaries that follow, with the exception of the section entitled "Teachers' Reactions to the Experimental Project," the term "Sands teachers" refers to those Sands teachers involved in teaching conventional graded classes. Sands "conventional" teachers are also the respondents discussed in the section entitled, "Conventional Teachers' Feelings about the Montessori Approach." The teachers' interview schedules are in Appendix C.

### Results

#### A. Ideal Teaching Environment, Philosophy of Teaching, Role of the Teacher

Ideal teaching environment. Teachers were asked to describe the ideal teaching situation within their own contexts. Their responses can be grouped into the categories: (a) classroom

organization, (b) physical space, (c) materials, and (d) psychological contingencies.

(a) Classroom organization. A small teacher/pupil ratio was mentioned by some teachers in each group as desirable but to a much larger extent by Sands teachers (7/8 Sands teachers as compared to 3/16 Montessori and 2/7 Nongraded).

In terms of their own situations, all Montessori and Nongraded teachers favored a nongraded approach. Sands teachers varied with the majority favoring a graded system, two favoring the nongraded (with one feeling that the nongraded approach was appropriate for some children). Purposeful grouping by the teacher within the classroom (according to criteria such as ability, age, or subject matter) was favored by most teachers in each group although seven of the Montessori teachers favored no groups or spontaneous groups rather than teacher-organized ones. Independent work by children was stressed by more Montessori (5/16) and Nongraded teachers (2/7) than Sands (1/8).

(b) Physical space. The physical aspects of the ideal teaching situation were emphasized by all Montessori and Nongraded teachers and two Sands teachers. Montessori teachers were particularly sensitive to the desirability of access to the out-of-doors, having a "pleasant, beautiful" area, providing a structured-prepared environment, and having a flexible environment. Nongraded teachers emphasized comfort and physical objects and arrangements which would contribute to a pleasant atmosphere (e.g., small scaled objects, room dividers for privacy, bulletin board space, rugs, etc.).

(c) Materials. The availability of a quantity and variety of materials or materials for specific purposes (e.g., audio-visual equipment) was mentioned as desirable by proportionately more Sands and Nongraded than Montessori teachers.

(d) Psychological aspects. Ten Montessori teachers mentioned psychological aspects of the ideal teaching situation, e.g., "freedom," "staff compatibility and good communication," "no external worries," "graduated steps from simple to complex so that children are motivated to learn," etc. Three Sands teachers

mentioned what might be considered psychologically desirable and gratifying aspects of teaching, e.g., "good principal," "good parents," "being free to give individual help."

Philosophy of teaching. One's philosophy of teaching and perceived role of the teacher are intimately related. With the noteworthy exceptions of Montessori teachers stressing the importance of the teacher's role in preparing the environment for experiences, indirectly guiding the children, and being an observer, Montessori, Nongraded, and Sands teachers saw the roles of teachers and teachers' aides in similar ways: guiding, stimulating, supporting, helping children develop their own ideas, flexibly responding to and respecting the needs of children, being a resource person, working with children on their own level, etc. Teachers' aides were seen as partners in teaching and ideally had the same general personality attributes as teachers; they were seen as performing non-teaching tasks, reinforcing the teacher's role, and in general, making a real and valuable contribution.

Philosophically, all groups saw teaching as concerned with more than imparting academic knowledge. They talked about the importance of social and personal development, of helping children develop constructive ways of relating to the environment and of realizing their own potentialities. A proportionately larger number of Montessori than other teachers talked specifically about leading or helping children to educate themselves, but all groups agreed basically upon ideal teacher personality and mentioned some of the following characteristics: flexible, creative, positive, nurturant, responsive to individual needs, and intelligent.

All but two Nongraded teachers felt that they could practice their own philosophies of education in their own settings.

#### B. Purpose of Education, Ideas about Pre-School Experience and Kindergarten

Purpose of education. In expressing their ideas about the purpose of education, almost all of the Montessori teachers stressed some aspect of self-development, independence, individual adaptation and fulfillment. On the other hand, half of each of

the other teacher groups stressed some aspect of "preparation for society." Other purposes were verbalized in terms of learning to enjoy learning, learning of "fundamentals," learning to think and communicate, doing something in life for oneself and others, learning to live together. Montessori teachers, expressing ideas other than self-development as such, talked in terms of becoming aware of the world, learning to cope with change, learning to live, learning a role in life, and living effectively in society. Our general impression was that non-Montessorians were more "future-oriented" in their projected goals whereas Montessori teachers, while concerned about future implications, were also very definite about 'here and now' goals.

In response to the question of whether their perceived purposes of education were met in "regular" school, a majority of Montessori and 5/7 Nongraded teachers said "no," "it depends," "somewhat," or "can't tell," whereas 6/8 Sands teachers felt that the purposes were being met. A majority of teachers in each group felt that the purpose of education could be better served by a nongraded or some other organizational approach (dependent, for some, upon teacher attitude and how the approach is used).

Pre-school. Most teachers in each group saw positive value in pre-school experience, with children gaining in independence, confidence, maturity, social skills, and discipline. There was no general agreement on whether the early differences due to pre-school persisted, with Sands teachers having more reservations than the other two groups.

Kindergarten. All groups of teachers basically agreed upon the purposes of kindergarten; a transitional period between home and school, skill and work habit training, personal and social growth. Four Montessori teachers volunteered that kindergarten was "too late," that children need pre-school. Three Sands teachers saw the role and purpose of kindergarten as changing because of pre-school experience making it easier for children to adapt to being away from their mothers. Teachers varied within each group as to whether kindergarten should be half-day or extended, with some in each group saying that it depends on the



child (e.g., maturity level, whether he had pre-school, whether underprivileged, mother working, etc.).

### C. Personal Aspects of Teaching

Teachers were asked what their needs were from the standpoint of their relationship with administration. Some assumed that the question meant unmet needs and said that their needs were met. This was true of 8/8 Sands teachers, who felt enthusiastically that their immediate administration and supervision were excellent. (Six Montessori and 2/7 Nongraded teachers also volunteered that their needs were met.) Some Montessori and Nongraded teachers, whether satisfied or not, stated that teachers need support, respect for teachers' judgments, job security, equipment, etc. Whether met or unmet, the need for good communication with administration was stressed as extremely important to teachers. All teachers with the exception of one Nongraded teacher felt that they had as much autonomy in their work as they needed or wanted.

Frustrations. Some teachers in each group agreed on one major frustration: "lack of enough time." Other frustrations were fairly individualized but the expected ones of not enough money and/or materials, too much clerical work, not enough staff to take care of children's individual needs (in one way or another) came through.

Role of parents. All teachers in every group saw cooperation between parents and teachers as extremely important in bringing about successful and satisfying school experiences. Of 12 Montessori teachers answering this question, 11 felt that parental relationships and involvement with the school were positive; one felt it could be better. Four Nongraded teachers felt the need for more involvement and communication with parents, and five Sands teachers needed involvement, communication, and support from parents as compared to three who were satisfied.

### D. Attitudes about Children in the Educational Setting

The teachers were asked to characterize the children they teach, and within each group answers ranged from rather global descriptions to sociological characterizations. Regardless of

any characteristic mentioned, most teachers expressed positive feelings about their children and a deep concern that children's needs be met.

Children's needs from an educational standpoint. Many teachers mentioned multiple needs. Of those that stood out as particularly salient for teachers, 4/16 Montessori teachers mentioned some kind of cognitive development ("intellect," language and perceptual skills, etc.), 6/16 stressed self-determination in a prepared environment, three stressed development of self (e.g., positive self-image). Other needs mentioned included development of social graces, moral sense of right and wrong, and the presence of loving, encouraging adults. Nongraded teachers gave rather individualized answers with cognitive skills, self-determination, self-awareness, positive self-image, and social adjustment all being mentioned. Here, too, some teachers stressed the need for understanding, encouraging teachers. Sands teachers tended to emphasize the child's need for loving, understanding, interested adults (4/8) and positive self-image (2/3) with only one mentioning cognitive development (reading) and one mentioning "steady discipline." At least one teacher in each group pointed out the need for more opportunity for large muscle exercise. Most Montessori teachers felt that these needs as they saw them were being met in their situations. Five of seven Nongraded teachers thought they could be better met; 4/8 Sands teachers thought they were met, with the remaining four divided between "don't know" and "could be better."

In suggesting ways of better meeting children's needs, teachers in every group emphasized improvement of teacher attitudes, understanding, skills, and availability, especially for individual attention. Getting parents involved and interested <sup>was</sup> as suggested by one Nongraded and one Sands teacher, with the Sands teacher suggesting time off for teachers to make home visits. Those teachers who emphasized cognitive skills (i.e., reading, language) either suggested more emphasis in the classroom (true of one Montessori and one Nongraded teacher) or smaller classes (Sands).

Children neglected by (a) "regular," (b) Nongraded, (c) Montessori approaches. In general, some teachers in each group felt that every approach neglected or could neglect some children, and each group of teachers saw the conventional school as neglecting several. Montessori teachers saw the conventional school as neglecting more types of children than did the other teachers, but some teachers in the other groups supported their feelings about the neglect of the very bright or creative, the slow, and those with limited background. Across groups, there was no general agreement about who is neglected by the Nongraded and Montessori approaches: some teachers thought that no children were neglected; others did not know. Half of the Montessori teachers said that the Montessori approach neglects none; other Montessori teachers named the underprivileged, the emotionally disturbed, the child who cannot handle freedom, and the quiet child. Nongraded teachers, mostly for professed lack of knowledge, named no children as neglected by the Montessori approach. Four Sands teachers saw the Montessori approach neglecting or possibly neglecting the bright ("maybe"), the slow ("maybe"), the undisciplined, and the "overly emotional."

Upon which children should education's main emphasis be? This was a bothersome and ambiguous question (See Q. 15, interview schedule) for the teachers and they were hesitant to make distinctions. Of those who could accept the question with good will (most did), Montessori and Nongraded teachers were divided almost equally between equal emphasis for all children and emphasis on the early grades. Sands teachers, on the other hand, all agreed that the most emphasis should be placed on the early grades; however, they were divided on whether the most emphasis should be on bright or slow children.

Desirability of a well-rounded education. The teachers were asked whether all children need a well-rounded education, along with the question "What about individual determination...?" All Nongraded, seven Sands, and five Montessori teachers gave unqualified approval of all children's need for a well-rounded education. Other teachers qualified their answers in terms of the

desirability of early exposure to a well-rounded education ("the basics") with individual needs and determination playing a role, especially later. Two Montessori teachers gave unequivocal "no's" to the question of a well-rounded education. Most teachers approved of individual determination but felt that some preparation, guidance, and/or limitations (e.g., within own interest area, after basics) were in order.

Children who cause trouble. Three Montessori and two Sands teachers volunteered that teacher attitudes can give rise to disciplinary problems. In describing the children who cause the most trouble, the three groups of teachers were in essential agreement: the emotionally disturbed, immature, bright (unchallenged or not motivated), those whose needs are not being met; slow (hence frustrated), etc. At least one teacher in each group mentioned children who in a sense do not fit into the "order of things," e.g., the "spoiled child who needs structure," "undisciplined (disordered inner processes)," "those who do not know how to handle freedom" (Montessori); belligerent or non-conforming ("maybe home and social problems") (Nongraded); "children with poor attitudes" (Sands).

When asked how disciplinary problems should be dealt with, teachers in each group implied that an understanding of the child and his situation is important. Talking with the child and some kind of deprivation (i.e., isolation from others) were mentioned by a number in each group. Only the Montessori teachers did not mention parental contact. Instead, Montessori teachers suggested among other things, dealing mutually with the child and the group and finding something for the bright child to do at home and at school. A loving attitude was considered helpful by at least one Montessori and one Nongraded teacher. One Sands teacher said that she sometimes "swatted" but that this was communicated to the parents. Only Sands teachers mentioned a hierarchy of alternatives (i.e., "If this doesn't work, then...").

The majority of teachers felt that they had administrative support in dealing with problems of discipline, the only exception being two Nongraded teachers.

### Questions Specific to Montessori Teachers

Montessori teachers were asked how they would characterize the essence of the Montessori approach. By far, the majority answered in terms of individualized learning by the child in a prepared environment. Along with this, some talked in terms of the child learning a way of life or his place in the culture and equalized teacher-child relationships.

Montessori teachers were generally agreed that Montessori's greatest contribution to education and the conventional school situation is a way of viewing and respecting children and children's needs. Such techniques as nongradedness, the prepared environment, programmed learning, etc. all contribute to the process of individual development and learning, growth of independence, self-respect, and joy in learning. Six of 13 Montessori teachers saw Montessori materials as least important for all elementary teachers to know and use. Some Montessori teachers expressed feelings that the Montessori approach of seeing children as individuals does away with authoritarianism and takes the burden off the teacher.

When asked specifically to predict the effects of the Montessori approach on children, most teachers responded in terms of personality characteristics and attitudes: positive feelings about learning, independence, self-reliance, self-discipline, inner motivation and initiative, emotional security, self-fulfillment, greater capacity to interact with people, creativity. No teacher specifically or exclusively emphasized cognitive abilities; those who mentioned them predicted greater understanding of mathematics and language, capacity for academic achievement, ordered thinking, concentration, and knowing how to learn.

Only three Montessori teachers felt that the Montessori approach was more appropriate for all children; 10 gave qualified answers, e.g., Montessori is less appropriate for children who are "pushed into learning at home," "who need large motor exercise and development," "who come from constricting home environments," "who need a lot of structure," "better for some parents," and "depends on the class and the child."

Advantage over Nongraded approach. Most Montessori teachers felt that the Montessori approach has advantages over the Nongraded approach, mainly in the areas already mentioned--self-education, more freedom, more systematic learning, more "self-understanding by teachers." One Montessori teacher said that there was not enough time for drill in the Nongraded situation; another said that there would be no difference if the Nongraded approach was used the way it should be ("Nongraded teachers are not trained"). Three teachers saw no advantage.

Change about Montessori? Most Montessori teachers would not change anything (adding that Montessori is flexible). A few mentioned specific things, i.e., more materials (language, history, geography, geology), better training courses for teachers, more emphasis on motor development, music, and foreign language. Two teachers responded to this question in terms of Montessori organization: one felt that Montessori should change from being a private enterprise to "getting into the mainstream of education"; another felt that Montessorians could learn from other groups--that "Montessori had become a cult."

#### Questions Specific to Nongraded Teachers

Nongraded teachers were asked what of the Nongraded approach they would like to see all public kindergarten and elementary teachers using. Their answers emphasized the need for children to be able to work according to their own progress. Some put it in terms of flexible grouping within the age range taught; others, in terms of children moving at their own pace. Two felt this to be particularly important for bright children. Predicted effects were more success and less frustration. This was their perception of the Nongraded advantage over conventional school.

Most Nongraded teachers were not able to say whether the Nongraded approach had any advantages over Montessori. Two felt that the two approaches were very much alike; one of these teachers remarked that Montessori had better materials, and the other felt that Montessori is "geared more to the brighter children--no low income or poverty children."

Only two Nongraded teachers saw the Nongraded approach as

more appropriate for all children. The others qualified their answers: "better for some than others depending on how structured," "not good for children with adjustment problems," "more successful if started early."

Nongraded teachers were generally enthusiastic about the Montessori approach, with individualization of learning the aspect positively mentioned most often. Two teachers felt they did not know enough about Montessori to state an opinion. One teacher qualified her positive answer in terms of "depends mostly on the teacher. Some things are too stilted--maybe too much self-discipline."

When asked what they would like to learn about the Montessori method, all were interested and most answered in terms of "methods of teaching," "everything," "all Montessori techniques." One was interested in knowing about Montessori beyond pre-school; one in the psychology behind the materials used; and one, how to use the materials.

Most would like to see some aspects of the Montessori approach used in every classroom, including "methods and theories" that can be adapted. Six of seven would like to see Montessori materials used in every elementary classroom.

#### Teachers' Reactions to the Experimental Project

In order to explore subjective feelings about the impact of the Project, 12 teachers and the past and present principals of Sands School were interviewed. Most of those interviewed expressed positive feelings about the Project, saying that interest and curiosity were stimulated; teachers felt that they had to be "on their toes"; and that all teachers could learn something from such projects which would enrich their classes. Several were particularly enthusiastic about what they had learned and could learn from the Montessori and Nongraded approaches. Principals were enthusiastic about the emphasis on individual learning in the Nongraded and Montessori methods, and one principal particularly liked the Montessori practice of parent-teacher conferences.

The Project was not without problems, however, in that several felt that some teachers had been frightened or perplexed at

first and that some (those not involved) had been resentful. There was some feeling that not enough attention had been given to the teachers' feelings in the beginning, especially about the testing. Seven of 12 teachers interviewed saw the Project as having a positive effect upon them personally; five were unaffected. Administrators were stimulated and enthusiastic and were seen as such by the teachers.

Teachers varied in their perception of the Project's effect on the children: "outside" children were seen as resentful, curious, unaware, or wanting to be in a special class; "inside" ones, as aware, not aware, curious, somewhat perplexed, feeling special, "loving it."

Testing. The teachers appeared to be generally ambivalent about the testing of the children. Many felt that the testing did not truly and/or fairly assess the progress of individual children. Some were frustrated by not getting the results. Ideas and suggestions about assessment included such comments as: the teacher knows the child's progress best; should use classroom observation by teachers; use oral tests; tests should be adjusted to cultural differences; some children do not test well; should look at more things; need to know where the classes started; use personal observation with knowledge of the child.

In-service training. All favored in-service training if it has a purpose, is well planned, not repetitive, not too taxing, and relevant to teachers' needs. Teachers suggested that they would like to learn about the inner city child; behavior patterns of children; latest trends; new methods; how to motivate children; learning problems; discipline; and Montessori.

#### Conventional Teachers' Feelings about the Montessori Approach

Of eight conventional Sands teachers, four had positive feelings but with qualifications, whereas two were completely positive and two were uncertain. Qualifications included "good for the right child or certain types," "fine if a limit on discipline can be set," and "should be more structured before children go to regular classes." One teacher wondered if a child needs the approach of choosing what he wants.



All teachers wanted to learn more about Montessori. Their responses varied from "the whole procedure" and "all about it" to more specific aspects such as how to determine which children are appropriate (case studies, results, benefits, downfalls), teachers' methods, and "individual freedom."

These teachers were also asked if there was any aspect of the Montessori approach that they would like to see used in every elementary classroom. Two would like to see children working on their own or freedom of choice; two did not know enough about it to say; four emphasized the furnishings and materials, with one of these also saying "approaches."

Sands conventional teachers were divided on the question of Montessori advantages over the conventional class: four did not know; two said "no" and two said "yes" (the small number of children and children able to work at their own individual rates). Four felt that Montessori had no advantages over the Nongraded approach; three did not know; one said that Montessori materials were better.

In responding to the question of whether the "regular" class arrangement had advantages over Montessori, five did not know and three felt that the regular class had advantages: the child gets a new teacher each year; one can stress skills longer; and "Montessori is not true to life--it is a dream world."

Most teachers were uncertain as to whether the Nongraded classroom had any advantages over Montessori: one said "none," that they were both "wonderful"; one felt that the Nongraded class gave opportunity for more group activity.

#### Summary & Discussion

##### Impact of the Project on Sands' Teachers

Although we are not able to make a statement about specific effects, our impression is that the Project had, in general, a positive effect in stimulating curiosity and enriching learning among those teachers who were involved or aware of it. It was generally seen as a valuable addition to the school program. More attention to teachers' fears, concerns, and questions, especially about the testing, was in order at the beginning, es-

pecially since it appeared that there was some misunderstanding about the tests.

Specifically relevant to the interest of Montessorians is the fact the non-Montessori teachers as a group expressed positive feelings and interest in learning more about the Montessori method, especially as it might be adapted to their particular situations. However, they were not completely convinced of its advantages over the conventional classroom.

#### Characterization of the Teachers

Obviously, for all open-ended interviews, the basic assumption must be made that the answers which are given are those considered most salient by the respondents. However, it does not follow that all salient responses were offered, as some responses which may be considered noteworthy by one teacher may be taken for granted by another. For example, this may be the reason that most Montessori and Nongraded teachers did not mention class size. This aspect of open-ended interviews must be kept in mind in any attempts to draw conclusions from the preceding summaries.

There were many similarities among the groups of teachers interviewed. Among other things, all expressed positive feelings about the children they teach and a concern that the children's needs be met; they shared a view of the educational process as concerned with the personal and social, as well as academic, development of children, and a concern for the individual development of each child. In their feelings about neglected children and their agreement that no method is appropriate for each and every child, many teachers implied that goals and process must fit the needs of the individual child. All appeared to be conscientious, dedicated teachers who appreciated the importance of teacher personality and attitudes.

The qualitative difference among the groups appeared to be on some dimension of viewing individual development. Although the groups shared the development of individuals as a positive value, their key concerns might be characterized as (a) Montessori - self determination, (b) Nongraded - individual progress, (c) Conventional - individual attention (to the extent possible). It

seems likely that other individual teachers can be equally explicit in stating their expectations and methods, but the Montessori group, more than the other groups, impressed us as having some very strong and explicit ideas and views in their emphasis on self - development and determination, the predicted effects of their approach, and the factors and "steps" involved in the (self-) educational process.

It is impossible to extrapolate directly from philosophy <sup>to</sup> of practice in that the practice of any given educational philosophy by a particular teacher is contingent upon at least three general factors: (a) the personal integration and style of the teacher, (b) the teacher's understanding of how best to reach the goals inherent in his philosophy, and (c) all of those specific factors which are inherent in the organizational system within which the teacher works. We must wonder how all of these factors interact to influence philosophy and practice, and whether Montessori teachers as a group are more satisfied that their children's needs are being met because organizational system, teacher style, understanding of method, and philosophy are all mutually supportive. On the other hand, although some Nongraded and Conventional teachers felt that some of their children's needs were met, there seems to be a restlessness within these groups - a searching for a better way, as manifested by the responses of several that children's needs could be better met. This is perhaps one reason for their openness to learning more about Montessori.

Although there seem to be differences in philosophy, with Montessori and, to some extent, Nongraded teachers more often stressing individual freedom and work, and Montessorians more often stressing a nondirective role for the teacher, all groups agreed upon many aspects of teacher role, educational purpose, and children's needs. We are left to some extent with a semantic problem. It remains to be seen, when Montessori and non-Montessori educators are sure that each group understands the true implications of the other's rhetoric, to what extent general philosophy and practice might be similar or divergent. It is of

interest that some teachers in each group saw the Nongraded approach as potentially offering the best advantages of both the Montessori and the Conventional systems.

At this point in time, however, it appears likely that the same general educational goals might be achieved through a variety of combinations of organization, method, and teacher personality for groups of children. The Sands teachers interviewed, regardless of particular approach, appear to share high morale, dedication, concern for the total development of their children, and support from enthusiastic and dedicated leadership. This may be an important reason for the lack of many absolute and overwhelming differences among the groups of children evaluated and for our general impression of the children as alert, cooperative, and positive about themselves and school.

FINAL SUMMARY AND  
IMPLICATIONS OF THE STUDY  
For Education

Three years of objective testing and interview evaluation of the four groups in question suggest considerable promise for the Montessori approach in fostering a wide range of desirable behaviors in elementary school-age children. Even in spite of the absence of overwhelming differences among groups, it is noteworthy that the Montessori children as a group had the highest, or occasionally the next to highest, means on all measures administered over a two-year period. The Nongraded Group did almost as well as the Montessori Group on a number of measures but at the end of the second year had lost some of its apparent superiority over the (conventional) Control with Preschool Group. It is worth mentioning that nongradedness, whether Montessori or not, is no deterrent to the learning of conventional academic skills, and it seems to enhance creativity and motor impulse control. The results of two years of testing were also strongly suggestive of the positive effects of pre-school experience. All groups had made progress from the first to the second year on the capacities measured.

The third year results indicated few differences among groups in socially-oriented, non-academic areas with the exception of the superior communicative ability of the Montessori children. If the assumption can be made that all groups were essentially equivalent at some prior point in the past, our results suggest that the Montessori experience gave rise to a relatively greater capacity for socially meaningful verbal interchange. As noted, we perceived our small sample of Montessori parents as more verbal than the other parents. We cannot say whether this is true of Montessori parents who were not interviewed, or if it is, whether their verbal ability and that of their children was originally stimulated or only further supported by their contact with the Montessori program.

The relative absence of group differences on measures of

social maturity and self-esteem was not an entirely surprising finding. It seems likely that such characteristics would be more readily influenced by the child's total environment (his family, neighborhood, etc.) than would the capacities measured the first two years. As alluded to previously, the concern for the total needs of each child, as expressed by Sands teachers regardless of teaching method, probably also contributed to the positive attitudes and competence of almost all of the children.

Montessori teachers more than others stressed individual development and needs, the prepared environment, and the teacher's role in helping the children educate themselves through a systematic progression of steps. While other teachers expressed a concern for individual development of potentialities, Montessori teachers appeared to have more experience and sophistication in individualization of learning. If conventional education accepts individualized learning as a positive value, this may be where Montessori as an approach can enter the mainstream of education. Non-Montessori teachers are interested in learning more, especially about those aspects of Montessori education which may be adapted to their present teaching methods, without sacrificing any merits of their own approaches. Montessori, Nongraded, and conventional educators should find it challenging to share methods for the implementation of common goals. Through mutual communication of essential educational concepts, each approach stands to gain. The end product is, of course, a better education for the child, the primary goal of all teachers and school systems.

#### For Research

For the researcher who has been involved in a comprehensive study, the data gathered often raise as many questions as they answer. And so it should be, as scientific investigation is a self-perpetuating process in that each discovery leads to even more new possibilities. In this spirit, the present authors would like to offer some new directions for the present project or for future projects as a means of exploring new areas and also providing sounder footing for the present groundwork already laid.

Specific suggestions for the present program include a fol-

low-up of the children studied, especially those in the Montessori and Nongraded classes, as they make the transition into the traditional lock-step system. Any differences between the children at this point have little value if they do not continue to exist or grow as the child continues his education. We feel that the follow-up is a must for a long-term evaluation of teaching methods. We would also suggest that this investigation continue to examine more than just academic capacities and attempt to cover social adjustment and personality development as well.

Equally important as follow-up studies is the replication of an important research project for the purpose of validating the reliability of its findings. The present project should be replicated in other settings with the obvious controls for sex ratio, race, socio-economic status, and age, along with: (a) random selection and pre-testing for assured equivalence of groups and/or baseline data from which to assess progress; (b) control of <sup>class size and</sup> amount of time (number of years and daily duration) spent in school (pre-school for those attending, and kindergarten); (c) use of larger samples; (d) study of, for example, male-female subject differences as one approach to more careful characterization of the children; (e) in studies requiring ratings, the use of more than one rater; (f) a pre-research understanding of explicit teacher and administrative goals as a basis for measurement; and (g) an explanation of the project to involved teachers prior to its initiation as well as maintenance of open communication throughout.

Another very specific direction to be taken is the precise examination and conceptualization of what actually happens in the classroom, especially in terms of the actual practice of a particular method. We have pointed out that expressed philosophy may be variously translated into actual teaching practice; therefore, an examination of subtle differences in attitudes and behavior expressed directly to the child in the course of the day's work is certainly in order.

In a more general sense, we feel that there are four major variables which affect the child and his progress and adjustment within the school system. They are:

1. method or process of teaching under which the child receives his major instruction.

2. the personality, attitudes, and expectations of his teacher.

3. organismic variables like sex, age, and personality characteristics.

4. environmental contingencies such as family, homelife, social factors, and overall school organization.

This year we have attempted to broaden the scope of the Project into areas other than teaching method. Of course it was, and is, not possible to cover all areas extensively, but it is felt that continued control and differentiation of the above mentioned variables is warranted. Another, and even more important, aspect is the study of how these variables interact with one another as they impinge upon the child. Studies are needed which examine the progress, from a given baseline point, of different types of children in well-characterized situations. Many teachers expressed, in effect, the idea that no one method of teaching is appropriate for all children. Any child's response to a teaching method must of necessity be contingent upon his interaction with the teacher, his family background, etc. These interactions must be recognized and investigated.

Educators are excellent potential sources of hypotheses about predicted effects of varying approaches. Since educators teach with particular goals in mind, researchers should examine the effectiveness of specific teacher styles and methods in accomplishing these goals with particular children.

The individual does not live in a vacuum. Even considering him within a given classroom or teaching method is taking into account only a small part of his total environment of school, family, and the community at large. Because the child spends only six hours per day in school, his activities and involvements for the other 18 hours must be considered in order to get a complete picture. The ultimate value of any teaching method, therefore, may be determined by the extent to which it teaches ideas, concepts, and behaviors which can be carried over into other realms of life. The educational goals of self-development and



adjustment to society, which were frequently voiced by the teachers interviewed in this study, refer to this carry-over. The ultimate challenge to educators and researchers is the development of theory and practice which will maximize this carry-over for each child.

#### Concluding Remarks

It is impossible in such a report as this to adequately capture the unique individual personalities of the people who participated or their helpful, enthusiastic cooperation. We are grateful to all who were involved--parents, teachers, and children--who must remain anonymous, and to Mr. Saunders and Miss Kenny, past and present principals of Sands School, without whose willing help the three-year project would have been impossible. We are also grateful to this year's interviewers, Mrs. Irene Beam, Mrs. Barbara Mandell, and Miss Cam Torcassi, and for help in data analysis to Mrs. Elizabeth Keys and Mr. Edward Spencer.

The Cincinnati Montessori Society, the Carnegie Foundation, and the Cincinnati Board of Education should be justly proud of the fact that they have been willing to ask questions and support the quest for answers such as were embodied in this total project. The people who have supported the Project should also delight in the serendipitous values which come out of research endeavors. Scientific knowledge for researchers in the form of new instruments for assessment, new methodologies, more critical thinking, and new questions is always a byproduct, one which bears fruit in many ways for years to come. In addition, we have all been stimulated to carefully re-examine our own thinking about educational objectives and processes. It is worth noting that everyone involved in the evaluation has been stimulated to learn more about the Montessori and Nongraded approaches in particular and education in general. This Project has also served to prompt communication among a great number of people--researchers, educators, and interested lay people across the country--who before had never known that they had common concerns.

Least tangible, perhaps, but equally important, has been

personal growth and increased understanding of the needs of individuals actively involved in the educational process. One interviewer summed up her reaction to her experience thusly: "I learned so much and feel so good about those (Sands) teachers that I feel like going out and really working for the next school levy." And so it has been in one way or another for all of us.

Ruth Gross  
Bonnie Green  
Douglas Clapp

Cincinnati, Ohio  
October 12, 1970

APPENDIX A

Children's Interview Schedule

Name: \_\_\_\_\_

Age: \_\_\_\_\_

Interviewer: \_\_\_\_\_

- 5: Optimal
- 4: Good
- 3: Average
- 2: Fair
- 1: Poor

	5	4	3	2	1	
Socially confident						Shy, Reserved, Reticent
Comfortable in adult company						Ill at ease
Assured						Anxious about success
Needs minimum of commendation						Needs constant praise and encouragement
Communicates readily & competently						Communicates with effort; not easy to talk with or understand

Comments:



14. What do you do at home? \_\_\_\_\_

\_\_\_\_\_

Help your mother? \_\_\_\_\_ How? \_\_\_\_\_

\_\_\_\_\_

Read? \_\_\_\_\_ What? \_\_\_\_\_

\_\_\_\_\_

Ever buy things all by yourself? \_\_\_\_\_ What? \_\_\_\_\_

\_\_\_\_\_

Telephone calls? \_\_\_\_\_ To whom? \_\_\_\_\_

\_\_\_\_\_

Make things? \_\_\_\_\_ What? \_\_\_\_\_

\_\_\_\_\_

Play games? \_\_\_\_\_ With whom? \_\_\_\_\_

\_\_\_\_\_

Work for money? \_\_\_\_\_ How? \_\_\_\_\_

\_\_\_\_\_

Bathe yourself? \_\_\_\_\_ Comb own hair? \_\_\_\_\_ Dress yourself? \_\_\_\_\_

15. Can you tell me what time it is? [A cardboard clock was presented with four different times] \_\_\_\_\_

16. Do you have some friends here at school? \_\_\_\_\_ Names? \_\_\_\_\_

\_\_\_\_\_

17. What do you like about yourself? \_\_\_\_\_

\_\_\_\_\_

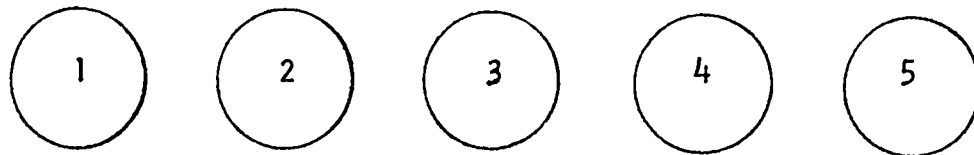
Not like? \_\_\_\_\_

\_\_\_\_\_

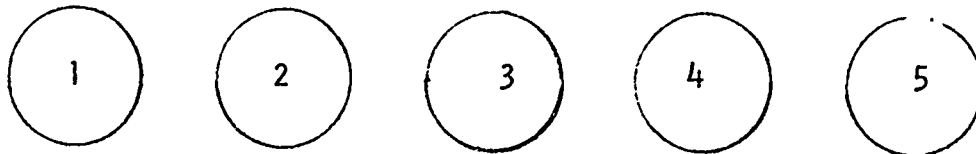
18. These circles stand for children. Which are you? \_\_\_\_\_  
[These circles were presented vertically on a separate chart without numbers, and recorded here.]



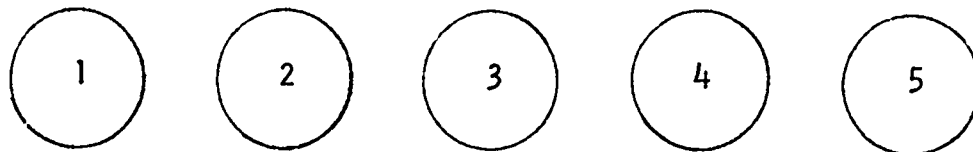
19. These circles stand for children. This one is the smartest and this one is not so smart. Which one are you? \_\_\_\_\_



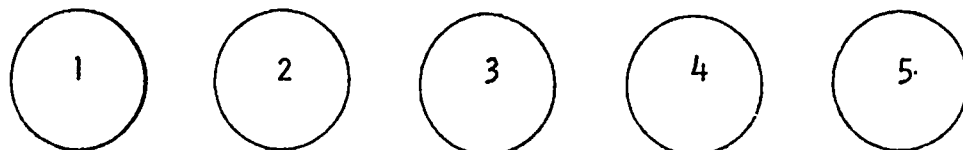
20. These circles stand for children. This one is the strongest and this one is not so strong. Which one are you? \_\_\_\_\_



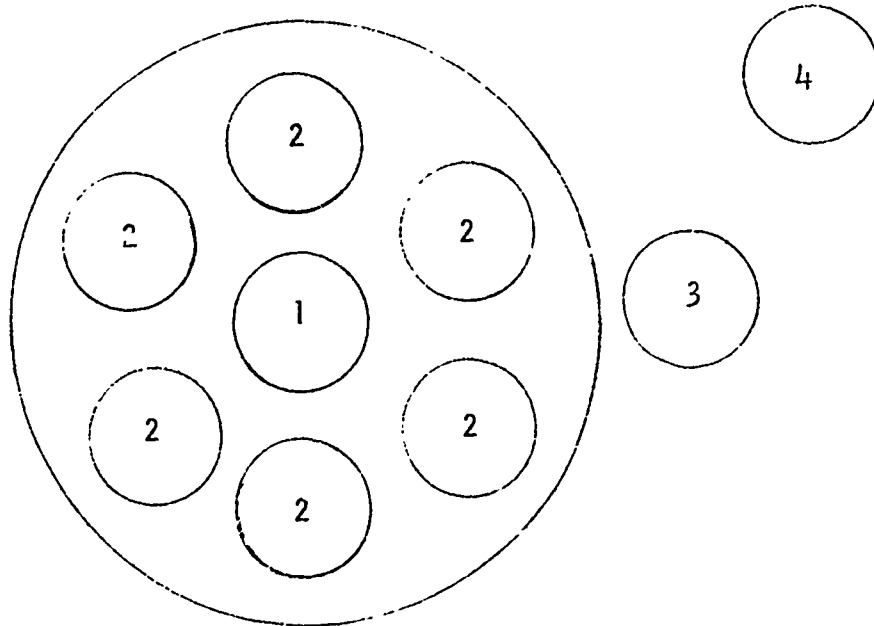
21. These circles stand for children. This one is liked by everybody and this one is not liked as much. Which one are you? \_\_\_\_\_



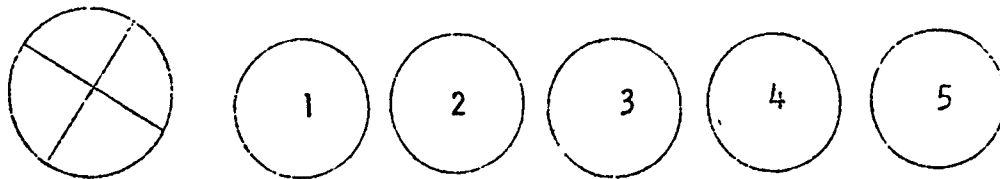
22. These circles stand for children. This one is the happiest and this one is not so happy. Which one are you? \_\_\_\_\_



23. These circles stand for children playing a game and these are children watching. Which one are you?



24. These circles stand for children and this circle stands for your teacher. The teacher likes this child the best and doesn't like this child the best. Which one are you? \_\_\_\_\_



25. Draw a picture of yourself using any of these crayons you want. (When finished), write your name on the picture. (If only first name), Can you write your last name, too?

APPENDIX B

Parents' Interview Schedule

Child's Development

1. Do you have other children in school? Ages?
2. Did \_\_\_\_\_ (child at Sands) go to pre-school? Where? Do you think it made any difference that he did (or did not) in his school progress? In home activities and behavior? In getting along with other children?
3. What is your child learning in school now? Does your child come to you for help with schoolwork?
4. What kinds of things does your child do that you feel were started by or learned in school?
5. Do you feel that your child is learning and developing as much as possible for him or her in school?
6. What else, if anything, would you like to see your child learn in school?
7. Does your child like school? What does he like (and dislike) most?

Attitudes

8. Have you seen your child's classroom and met his teacher? If so, what do you think about them?  
What are your impressions about them from what your child has said about his teacher and class?
9. What do you think of the way your child is being taught? Of the way he is disciplined?
10. Have you been to any PTA meetings? Do you think they are worthwhile? (What do they accomplish?)
11. How much "say-so" do parents have in what happens to their children at school? How much should they have?

For Parents of Non-graded and Montessori Children

12. What do you think about your child being in the Montessori (Non-graded) class?  
Do you think he (she) is learning more there than he (she) would in a regular class?
13. How did your child get placed in the special class?
14. What were your feelings at the time? Expectations?



For Parents of Children in Regular Classrooms

12. Are you aware of the Montessori and Non-graded classes at Sands School?
13. What are your feelings about them?
14. Would you rather that your child was in one of them? Which one? (Why?)
15. (Any comments, other ideas?)

APPENDIX C

Teacher Interview - Montessori

Teaching Environment

1. What do you consider the ideal teaching situation (within your own context)?
2. How should the classroom be organized?
  - (a) Graded vs. Nongraded
  - (b) Grouping within the classroom
3. What is the ideal or appropriate role for
  - (a) Teachers
  - (b) Teachers' aides
4. What is your philosophy of teaching? Do you feel that you are able to practice it in your present situation?

Opinions on Education

5. What is the purpose of kindergarten?  
What kind of kindergarten is desirable?  
(for example, extended vs. half-day)
6. What about pre-school? What is its function and value?  
Are there identifiable differences between children with and without pre-school experience? Do the differences last?
7. What is the main purpose of education? Do you think that purpose is being served in regular school? Do non-graded or other organizational approaches serve it better?

Personal Aspects of Teaching

8. What do you see as your needs as a teacher from the standpoint of your relationship with administration (e.g., school board, or otherwise)?
9. What about parents? How do you see their role in relationship to your own?
10. What are your major frustrations as a teacher?
11. How much autonomy do you feel you need and how much are you allowed?

Attitudes about Children

12. How would you characterize the children you teach?
13. What are the child's needs from an educational standpoint? Are these needs being met sufficiently? How might they be better met?
14. Is there any particular type of child who is being neglected by
  - (a) Regular school
  - (b) Nongraded approach
  - (c) Montessori approach
15. With which children should education's main emphasis be (e.g., bright vs. slow learners, early grades vs. later, etc.)?
16. What about the concept of a "well-rounded" education? Do all children need it? What about individual determination by children themselves of their own study or interest areas?
17. What kinds of children cause the most trouble in the classroom? Why; i.e., what gives rise to discipline problems? How do you think discipline problems should be handled? Do you get administrative support on this issue?

The Montessori Approach in the Elementary Years

18. What do you consider the very basic essence of the Montessori approach?
19. What is the Montessori approach's greatest contribution to education? What does Montessori have to contribute to the ordinary (regular) school situation?
20. What of the Montessori approach would you like to see all public kindergarten and primary grade teachers using?
  - (a) Specific approaches?
  - (b) Predicted effect on children?
21. What of the Montessori approach do you consider least important for all primary teachers to know and use?
22. Does the Montessori approach have any advantages over the nongraded approach as now used in some schools? Vice-versa?
23. Is the Montessori approach more appropriate for some children than others?

24. What general and specific effects does the Montessori approach have (and that you predict) on children in Montessori classes?
25. Is there anything that you would change about the Montessori approach?

Teacher Interview - Nongraded

Teaching Environment

1. What do you consider the ideal teaching situation (within your own context)?
2. How should the classroom be organized?
  - (a) Graded vs. Nongraded
  - (b) Grouping within the classroom
3. What is the ideal or appropriate role for
  - (a) Teachers
  - (b) Teachers' aides
4. What is your philosophy of teaching? Do you feel that you are able to practice it in your present situation?

Opinions on Education

5. What is the purpose of kindergarten? What kind of kindergarten is desirable? (for example, extended vs. half-day)
6. What about pre-school? What is its function and value? Are there identifiable differences between children with and without pre-school experience? Do the differences last?
7. What is the main purpose of education? Do you think that purpose is being served in regular school? Do nongraded or other organizational approaches serve it better?

Personal Aspects of Teaching

8. What do you see as your needs as a teacher from the standpoint of your relationship with the administration (e.g., school board, or otherwise)?
9. What about parents? How do you see their role in relationship to your own?
10. What are your major frustrations as a teacher?
11. How much autonomy do you feel you need and how much are you allowed?

Attitudes about Children

12. How would you characterize the children you teach?
13. What are the child's needs from an educational standpoint? Are these needs being met sufficiently? How might they be better met?

14. Is there any particular type of child who is being neglected by
  - (a) Regular school
  - (b) Nongraded approach
  - (c) Montessori approach
15. With which children should education's main emphasis be (e.g., bright vs. slow learners, early grades vs. later, etc.)?
16. What about the concept of a "well-rounded" education? Do all children need it? What about individual determination by children themselves of their own study or interest areas?
17. What kinds of children cause the most trouble in the classroom? Why; i.e., what gives rise to discipline problems? How do you think discipline problems should be handled?

#### Nongraded Approach in the Elementary Years

18. What of the Nongraded approach would you like to see all public kindergarten and primary grade teachers using?
  - (a) Specific approaches
  - (b) Predicted effects on children?
19. Does the Nongraded approach have any advantages over the Montessori approach as now used in some schools? Vice-versa? Over the regular classroom? (What in each case if not covered already.)
20. Is the Nongraded approach more appropriate for some children than others?
21. What do you think of the Montessori approach?
22. What, if anything, would you like to learn about the Montessori approach?
23. Is there any aspect of the Montessori approach that you would like to see in every elementary classroom?

Teacher Interview - Sands

Teaching Environment

1. What do you consider the ideal teaching situation (within your own context)?
2. How should the classroom be organized?
  - (a) Graded vs. nongraded
  - (b) Grouping within the classroom
3. What is the ideal or appropriate role for
  - (a) Teachers
  - (b) Teachers' aides
4. What is your philosophy of teaching? Do you feel that you are able to practice it in your present situation?

Opinions on Education

5. What is the purpose of kindergarten?  
What kind of kindergarten is desirable?  
(for example, extended vs. half-day)
6. What about pre-school? What is its function and value? Are there identifiable differences between children with and without pre-school experience? Do the differences last?
7. What is the main purpose of education? Do you think that purpose is being served in regular school? Do nongraded or other organizational approaches serve it better?

Personal Aspects of Teaching

8. What do you see as your needs as a teacher from the standpoint of your relationship with the administration (e.g., school board, or otherwise)?
9. What about parents? How do you see their role in relationship to your own?
10. What are your major frustrations as a teacher?
11. How much autonomy do you feel you need and how much are you allowed?

Attitudes about Children

12. How would you characterize the children you teach?
13. What are the child's needs from an educational standpoint? Are these needs being met sufficiently? How might they be better met?

14. Is there any particular type of child who is being neglected by
  - (a) Regular school
  - (b) Nongraded approach
  - (c) Montessori approach
15. With which children should education's main emphasis be (e.g., bright vs. slow learners, early grades vs. later, etc.)?
16. What about the concept of a "well-rounded" education? Do all children need it? What about individual determination by children themselves of their own study or interest areas?
17. What kinds of children cause the most trouble in the classroom? Why; i.e., what gives rise to discipline problems? How do you think discipline problems should be handled? Do you get administrative support on this issue?

#### Research and New Programs

18. How do you think an experimental project in the school affects the teachers? Administrators? Pupils?
19. How has the experimental project here (the Montessori and Nongraded classrooms) affected you as a teacher?
20. Do you feel such projects are worthwhile? How about the testing project last year and the year before--do they really get at what is going on? Can you suggest a better way to assess educational results?
21. What do you think of in-service training? What would you most like to learn in a program of in-service training?
22. What do you think of the Montessori approach?
23. (For non-Montessorians) What, if anything, would you like to learn about the Montessori approach?
24. Is there any aspect of the Montessori approach that you would like to see used in every elementary classroom?
25. Does the Montessori approach have any advantages over the (a) regular classroom, (b) Nongraded classroom?
26. Vice versa--Advantages over the Montessori approach of (a) regular classroom, (b) Nongraded classroom?