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ABSTRACT

This monograph, a Planned Variation study, examines the impact of Project Follow Through (FT) on three sets of analyses, each of which approaches parent data exclusively, and assumes the relationship of parental attitudes and behaviors to pupil cognitive and affective growth. The first set of analyses summarizes the initial demographic characteristics, attitudes, and behaviors of the Cohort III kindergarten parents. The second set of analyses assumes the Project Follow Through should change the behaviors and attitudes of parents and examines indicators of parental behavior and attitude measured during the spring of a child's third year to determine if differences between FT and NFT parents exist both overall and within sponsor. The third set of analyses begins to examine the relationships which exist among the parent variables. First, the criterion variables examined in the first two sets of analyses are further explored by examining them in relatively 'uncontaminated' form by controlling statistically for a number of potentially mediating variables. Second, the influence of specific potential mediating variables on parent attitudes and behaviors is examined; and third, these data are examined to determine if variable interrelationships are different for FT/NFT within different sponsors. An exploration of parent information may provide both a background for understanding what is happening in the classroom and a perspective on the extent to which Follow Through is achieving its goal of increased parent involvement. (Author/CS)

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FINAL REPORT

EDUCATION AS EXPERIMENTATION: EVALUATION OF THE FOLLOW THROUGH PLANNED VARIATION MODEL

VOLUME IB

MONOGRAPHS

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KEY TO THE SPONSORS

Sponsor 2:	Far West Laboratory
Sponsor 3:	University of Arizona
Sponsor 5:	Bank Street College
Sponsor 6:	University of Georgia*
Sponsor 7:	University of Oregon
Sponsor 8:	University of Kansas
Sponsor 9:	High/Scope Educational Research Foundation
Sponsor 10:	University of Florida
Sponsor 11:	Educational Development Center
Sponsor 12:	University of Pittsburgh
Sponsor 14:	Southwest Educational Development Laboratory

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*Data do not exist for Sponsor 6 at the Cohort III Kindergarten level; however, they are available for the Cohort I, Entering First stream which is the basis of the third grade Parent Study.

MONOGRAPH I

PARENT STUDIES

1.0 INTRODUCTION

The ultimate goal of Follow Through is to increase the chance that poor children can experience productive and satisfying lives. In its design, FT has recognized that all elements of the child's environment --family, neighborhood, and community, as well as school--influence the attitudes of the child's parents and the home environment which the child experiences. The ways in which the home environment may exert influence are both complex and diverse. In recognition that a causal chain, however complex, may exist, FT guidelines have encouraged and mandated parent involvement in the educational process.

Volume I-A has examined the impact of Follow Through on children. Differences on pupil outcome measures at the kindergarten level have been observed for FT and NFT. Additionally, differential patterns of pupil performance have been observed across the Sponsor FT groups. An exploration of parent information may provide both a background for understanding what is happening in the classroom and a perspective on the extent to which Follow Through is achieving its goal of increased parent involvement.

This monograph is designed to answer the following sets of questions.

1.1 Research Questions

1.1.1 Questions explored at Cohort III kindergarten and Cohort I third grade level.

A. Do the demographic characteristics of families vary by FT/NFT or by FT/NFT within Sponsor?

B. Do parental attitudes vary by FT/NFT or by FT/NFT within Sponsor?

C. Do the reported behaviors of parents vary by FT/NFT or by FT/NFT within Sponsor?

D. If we control for potential mediating variables, do the attitudes and reported behaviors of parents vary by FT/NFT or by FT/NFT within Sponsor?

1.1.2 Further Questions Examining Relationships of Demographic, Attitudinal, and Behavioral Characteristics Explored at Cohort I Third Grade Level:

A. Is there a relationship between family income and parental attitudes and reported behaviors?

B. Is there a relationship between the parent's perception of the schools's attitudes toward parents and the parent's attitudes and reported behaviors?

C. Is there a relationship between reported parental interactions with their children and parental attitudes and reported behaviors?

D. Is there a relationship between parental attitudes and reported behaviors?

E. Do any of the relationships presented in Questions A through D vary by FT/NFT within Sponsor?

1.2 Rationale

These questions are embodied in three sets of analyses. Each of these approaches examines parent data exclusively; they assume the relationship of parental attitudes and behaviors to pupil cognitive and affective growth.

- The first set of analyses summarizes entry level Cohort III kindergarten parental demographic characteristics, attitudes, and behaviors in order to provide background information for the child performance findings. This examination includes the overall FT/NFT contrast and the within Sponsor FT/NFT contrasts.

- The second set of analyses assumes that FT should change the behaviors and attitudes of parents and examines indicators of parental behavior and attitude measured during the Spring of a child's third grade year to determine if differences between FT and NFT parents exist both overall and within Sponsor. These third grade children are Cohort I children who entered the first grade (EF) and the program in the Fall of 1969 and left the program at the completion of third grade in Spring, 1972. The second set of analyses also explores demographic characteristics to ascertain comparability and generalizability.

- The third set of analyses begins to examine the relationships which may exist among the parent variables. First, the criterion variables examined in the first two sets of analyses are further explored by examining them in relatively "uncontaminated" form by controlling statistically for a number of potentially mediating variables; second, the influence of specific potential mediating variables upon parent attitudes and behaviors is examined; third, these data are examined to determine if variable interrelationships are different for FT/NFT within the different Sponsors.

In order to begin to explore this complex area of interaction of home environment and school outcomes, we postulate a relatively simple model. The initial assumption of the model is that demographic variables and parental attitudes and behaviors influence the child's affective and cognitive development. This relationship between demographics, attitudes, and behaviors of the parent and the child's affective and cognitive growth undoubtedly includes a number of variables and involves a complex series of interactions. However, at this time, a limited number of variables, available in the current data set, have been selected for preliminary examination. The model hypothesizes that a parent's involvement in the educational process influences the child's affective and cognitive development. It further hypothesizes that a relationship exists between the parent's satisfaction with the child's affective and cognitive growth and with the parent's involvement with school. It hypothesizes that these relationships are mediated by a number of other variables, including, but not necessarily limited to, socioeconomic status (SES) factors such as family income and parent's educational background, parent's perception of the school's receptivity to ideas and help from parents and community, and the amount and type of parent-child interaction.

Four single demographic variables have been selected for comparing overall FT/NFT and FT/NFT within Sponsor groups. The first two, income and mother's level of educational attainment, have been explored in numerous studies and have been found to relate to both pupil performance and parental attitudes. The third, mobility (two indices), provides an additional insight as to the type of neighborhoods in which the individual Sponsors are operating. The fourth demographic variable, mother working in the school, has been selected because it is a programmatic variable of Follow Through and other educational programs.

Parent involvement is measured by three types of variables: parent-school interaction; parent-child school oriented behavior; and parent knowledge of Follow Through (exit only, i.e., third grade, Cohort I) Parent satisfaction is measured by two variables: satisfaction with child's academic success and satisfaction with child's affective growth (exit only).

There are many issues that we might wish to pursue about parents[1] and schools interacting with each other. We are concerned with the amount of interaction which occurs, the quality of that interaction, and the effect that interaction has upon the parents and upon the children. With the data now at hand, we have begun to investigate the first of these issues, and to take a preliminary look at the last. Any estimate of the quality of the interaction requires data which are not available. The variables developed to tap parent-school interaction combined information on the number of parent visits to watch the class and to talk with the teacher, parent activity in a parent organization, and whether the mother worked in the school. Table MI-1 lists the specific questions for these and other variables.

Parent involvement in the educational process of the child is also manifested by the quantity and quality of a parent's direct involvement with his child in school-related activities. We have some data on home activities, such as how often the child talks about the class, reads at home or is read to, and asks for help with homework.

Another manifestation of the parent's involvement with FT may be her knowledge of the FT program. A series of questions on the third grade Parent Interview enables us to probe what parents think they know about FT.

Parent attitudes as they are reflected in the parent's satisfaction with the child's academic success are explored at both the kindergarten and third grade levels. Parent satisfaction with the child's affective growth is examined at only the third grade level, it is not available at the kindergarten level.

The goal of the third set of analyses is to ascertain the extent to which the criterion variables reflecting parent involvement and satisfaction are affected by a selected set of mediating variables available to us. First, we examine the question by controlling for potential mediators; then we examine the relationship of each of these mediators

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[1] The instrument is administered to the mother unless it is not possible to do such after a number of attempts. Therefore, because the proportion of respondents who are mothers, while it varies somewhat across administrations, is very high, the feminine pronoun is used to reference the parent.

Table MI-1

VARIABLES DEVELOPED FROM PARENT INTERVIEWS

	Item Number	
	Kindergarten Fall 1971	Third Grade Spring 1972
Knowledge of Follow Through		
Parent told about eligibility for FT		16A
Parent told about FT in general		16B
Parent told about parent role in program		16C
Parent heard about PAC		57
School's Receptivity of Parent		
Parent has say about school policy	51A	61A
School people know what parent wants	51B	61B
School people care about what parents think	51D	61D
Parent-School Interaction (A)		
Number of parent visits to watch class	36A-C	42
Number of parent visits to talk with teacher	38A	44A
Parent works in school	34	
Parent active in PTA	45	
Parent-School Interaction (B)		
Number of parent visits to watch class	36A-C	42
Number of parent visits to talk with teacher	38A	44A
Parent active in PTA	45	
Parent-Child's School Oriented Behavior		
Child talks about class	20	24
Child reads or looks at books at home	29	25A
Child reads aloud at home		26A
Child looks at books at home		27
Someone reads to child	28	28A
Child asks parent for homework help	23	23
Parent Satisfaction with Child's Academic Success		
Child's ability relative to others his age		20
Child's scholastic performance		21
Parent's satisfaction with child's progress		22
Child likes school	19	
Parent satisfied with child's progress	24	
School learning helps family	25	

Table M1-1(continued)

	Item Number	
	Kindergarten Fall 1971	Third Grade Spring 1972
Parent Satisfaction with Child's Affective Growth		
Child's behavior		63
Child's sureness of self		64
Child's ability to get along with others		65
Child's cheerfulness		66
Parent Locus of Control		
Can't control life	51E	61E
Shouldn't plan ahead	51F	61F
Not much parent can do	51C	61C

to each of the criterion variables separately; and finally we explore the extent to which these mediators may be having differential influence on the various FT/NFT groups within Sponsors.

We explore the relationship of income to parent attitudinal and behavioral variables. As has been pointed out in Volume I-A, Sponsors vary in the type of emphasis they place upon the acquisition of skills, problem solving behavior, and affective processes. Sponsors who place emphasis upon affective concerns may produce different parent attitudes from Sponsors who emphasize skill acquisition. However, SES factors may also influence parent attitudes and behaviors, and these factors may produce different patterns of effects for different Sponsors. Boocock (1972) has hypothesized that income, along with other SES indicators, influences parental behaviors which in turn influence pupil growth. Additionally, a number of researchers have investigated the relationship of SES factors to parent attitudes and behaviors (Hess and Shipman, 1968; Weikart et al., 1970), and to pupil performance in school (Coleman, 1966; Mayeske, 1968).[2] In the present studies we examine the relationship of income, as one indicator of socioeconomic status, with parent attitudes and behaviors. In future studies we will explore the effects of both SES and parent attitudes and behaviors on the child. If Follow Through is designed to reduce some of the effects which home background factors have upon the child, we would expect that the relationship between SES and other parent background variables vis-à-vis the child's performance in school would diminish over time.

While income is one important measure of socioeconomic status, this index does not capture the entire meaning of this variable. First, the indicator is based upon self report. Although respondents were insured confidentiality, their responses may be somewhat unreliable. Deviations between reported and true income may be different across groups. For example, an upwardly mobile individual might tend to exaggerate his family income in order to heighten some internalized concept

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[2] Most recently, a series of reports was presented at the International Association for the Evaluation of Educational Achievement (IEA) Conference at Harvard University, November, 1973.

of status. Another person, intent on retaining some benefits conferred by low socioeconomic status, might tend to misstate his family income on the low side, in order to insure continuance of those benefits. A second problem is inherent in the acceptance of income as a surrogate of the broader concept, socioeconomic status. Different types of occupations will produce different wages; some truck drivers and and other skilled workers may earn more than some schoolteachers. We may find different types of educational influences in homes that may not be associated with differences in income levels. For the present we have selected mother's (rather than father's) level of educational attainment as a second indicator of socioeconomic status in the analysis for two reasons. First, the mother is probably involved in more interactions with the child and hence her facility with language and verbal coding processes will have a larger influence on the child than the father's. Second, a mother's report of her level of educational attainment is probably more valid than her report of the father's level (to the extent that invalidity in this measure is caused by the respondent not knowing the correct answer). Future studies will, however, explore the interrelationships among these socioeconomic indicators, as well as their relationships with pupil growth.

Parental attitudes and behaviors may be influenced by the parent's perception of both her ability to control the outside world in general and her ability to make her ideas known to the school. The parent who perceives that what she thinks and does can make a difference in the world external to herself may be more likely to attempt to interact with that world and, more specifically, interact with her child's school in ways which are fostered by the FT program. A variable exploring the parent's Locus of Control has therefore been introduced as a covariate in order to equate the various groups on this trait. A parent's perception of how receptive her child's school is to her ideas may be changed as a result of the FT program. Thus, while this variable has been used as a covariate in the examination of "uncontamianted" variables, its relationship with the criterion variables separately has also been explored.

The parent's involvement with her child's school may interact with her degree of satisfaction with the child's progress. It is possible that the parent who is already satisfied with the way her child is performing may not become involved with her child's school to the same extent as the parent who is concerned that her child is not performing according to her concept of that child's potential. Parent satisfaction with child's academic success and affective growth have, therefore, been introduced as covariates in the exploration of parent involvement.

Whether or not a mother works in the school system, either as a volunteer or for pay, is an important part of her involvement with the school. However, it is possible that a mother may work within the school system but not work in her child's school, the latter being the datum available. Therefore, while it is recognized that working in the school may be programmatic, it becomes necessary to explore parent involvement and working in the school in a number of interrelated ways; the datum on working in the school has been included, excluded and covaried in these analyses.

The above demographic, attitudinal and behavioral variables do not exhaust the ways by which the parent data might be explored. They do, however, enable us to begin to explore our three major concerns: the family background of the Cohort III kindergarten child; the family background of the exiting Cohort I third grade child; and the ways in which the various demographic, attitudinal and behavioral variables interact.

2.0 METHOD

2.1 Analytic Subsets

The samples analyzed in these parent studies are groups of parents selected so as to ensure comparability across specified parent outcome measures and achieve a moderate degree of comparability between child level and parent samples. Each of the two subsets--kindergarten and third grade--has been compared with a larger group from which it was selected. These larger groups were developed from much less restrictive selection procedures which will be described below. Four demographic characteristics have been used in these descriptive comparisons which explore the degree of similarity each restricted sample has with its respective larger group. The two groups of parents which have been selected for analyses will be called samples (kindergarten or third grade); the larger groups from which they were selected will be called populations (kindergarten or third grade). We recognize that this is not strictly standard usage. The adoption of this common terminology does not presume that the population is the entire kindergarten or third grade parent population, for it is not; nor that sampling characteristics prevail, for they do not. The samples or populations cannot be considered to be representative of any groups larger than themselves.

2.1.1 Kindergarten Cohort III

2.1.1.1 Selection Process

A sample of parents of Cohort III kindergarten children has provided data for two different sets of analyses: the examination of entry level differences and similarities, and the exploration of the effect of covariance adjustment upon these differences and similarities.

The restrictions upon the kindergarten sample analyzed for these parent studies are similar to those placed on the kindergarten child level analyses, i.e., the same set of Sponsors are included, and the child had to have taken pretests and posttests and be either Black or White. Data on the sex of the child, his days absent, his mother's education and his family's adjusted income level also had to be present. The parent sampling procedure required a full set of parent analytic data for inclusion, whereas the child study required data on only two parent variables (School Receptivity and Parent-School Interaction [B]). The child level study also required that certain other data be present, i.e., teacher education and experience, child's preschool experience, and class ethnicity characteristics.

Although our mode of analysis may not demand equality of cell size, large variability in cell size does suggest that random fluctuation in a given parent response will influence stability of measurement more for some Sponsors than for others. For example, Sponsor 3 is represented by 4.5 times as many FT parents as is Sponsor 14 in our sample. Although variability among other Sponsors is less, it does remain. If we break the sample across city size as in Table MI-2 we once again observe considerable variability. No Sponsor is represented in all four city size categories. Sponsors 3, 5, and 11 have no parents in towns under ten thousand population. Sponsors 2 and 7 have no parents in the sample from cities with less than fifty thousand; Sponsors 9, 10, 12, and 14 are not represented by middle size cities; and Sponsor 14 has only eleven parents in cities with a population of fifty thousand or larger.

2.1.1.2 Comparison with Population

This parent kindergarten sample will be compared with a population of kindergarten parents from the same Sponsors. This population includes those kindergarten parents who were interviewed in the Fall of 1971 and whose children were tested either in the Fall of 1971 or the Spring of 1972. Table MI-3 presents the sample and population broken down by FT/NFT and Sponsor. The restrictions (see 2.1.1.1) placed on the sample result in differential proportions being chosen across various Sponsors. This is particularly noticeable in Sponsor 14 where the restrictions placed on the sample, especially the one regarding the race of the child, resulted in approximately 15% of his population being chosen as the sample. In Sponsor 12, 80% of the FT population, but only 43% of the NFT population were selected for the sample. In Sponsor 2, 47% of the FT and 44% of the NFT population are in the sample.

Table MI-2

Analytic Sample of Parents of Kindergarten Children by Citysize FT/NFT and Sponsor

SPONSOR	CITY SIZE *								TOTAL		
	1		2		3		4				
	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT	Total
2	-	-	-	-	197	228	104	79	301	307	608
3	-	-	127	92	66	53	146	127	339	272	611
5	-	-	104	85	57	42	70	13	231	140	371
7	-	-	-	-	172	120	-	02	172	122	294
8	68	32	-	-	53	12	187	74	308	118	426
9	-	-	49	76	-	-	125	66	174	142	316
10	52	52	80	-	-	-	113	58	245	110	355
11	-	-	49	65	122	70	107	16	278	151	429
12	113	91	75	44	-	-	71	34	259	169	428
14	53	29	14	29	-	-	8	3	75	61	136
TOTAL	286	204	498	391	667	525	931	472	2382	1592	3974

* City size

1: Rural Area, less than 10,000

2: Small City, 10,000 to 49,999

3: Medium City, 50,000 to 199,999

4: Large City, 200,000 or more

Table MI-3

Number of Parents in Kindergarten Sample and Population by FT/NFT and Sponsor

Sponsor	FT		NFT	
	Sample	Population	Sample	Population
2	301	632	307	690
3	339	614	272	601
5	231	376	140	348
7	172	445	122	414
8	308	772	118	493
9	174	467	142	410
10	245	485	110	340
11	278	609	151	373
12	259	325	169	395
14	75	460	61	463
Total	2,382	5,185	1,592	4,527

In order to estimate the similarity of the sample and population and the comparability of the FT and NFT samples, selected demographic variables have been examined. Table MI-4 presents the sample characteristics; Table MI-5, the population. Tables A MI-1 through A MI-4 in the Appendix present a more detailed breakdown of each variable.

There appear to be slight differences in median reported income between the kindergarten sample and population with the sample groups generally reporting higher incomes. As we move from population to sample, these differences range from a $500 drop for Sponsor 7's FT to a $1,000 rise for Sponsor 10's NFT. The proportion of mothers completing high school also changes as we compare population and sample; more mothers in the sample completed high school. This is especially noticeable in FT for Sponsor 14 (.27 population, .49 sample) and Sponsor 9 (.48 population, .60 sample). It is also especially noticeable in NFT for Sponsor 10 (.43 population, .57 sample) and Sponsor 14 (.29 population, .42 sample). The proportions of long- and short-term residents and proportions of mothers working in the school do not appear to differ very much within groups as we compare population and sample; however, there is a slight overall tendency for the population to be more mobile and to have fewer mothers working in school.

Turning now to a comparison of the FT and NFT samples with their respective populations, we find that the FT and NFT samples within Sponsors 2, 3, 10, and 11 have similar relationships to their respective populations. The samples report higher incomes, larger proportions of mothers completing high school, and somewhat less mobility.

Sponsor 5's analytic FT sample is very similar to its population in reported income and proportion of mothers completing high school. However, the NFT analytic sample reports a larger income and a larger proportion of mothers completing high school than its population. The analytic FT/NFT samples appear to be slightly less mobile than the FT/NFT populations.

While variability is noted both across and within Sponsor when kindergarten sample and population are compared, there are some general trends. The FT and NFT samples appear to have a slightly higher median

Table MI-4

Selected Characteristics of sample of Parents of Kindergarten Children FT/NFT and Sponsor.

SPONSOR	MEDIAN INCOME [a]		MOTHER'S EDUCATION [b]		RESIDENCY				MOTHER WORKS IN SCHOOL	
					Less Than One Year		Six or More Years			
	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT
			%	%	%	%	%	%	%	%
2	5000	6400	59	57	20	21	20	24	23	12
3	5600	8200	61	74	20	23	20	22	22	13
5	5700	7600	51	62	18	12	26	41	17	10
7	3800	6600	42	56	19	26	17	21	16	6
8	4300	5100	46	43	22	16	19	25	23	12
9	4100	5700	60	57	26	26	15	29	18	10
10	5100	7200	47	57	23	22	23	21	24	8
11	6200	7300	54	61	12	15	31	25	21	12
12	5200	7200	71	74	21	13	29	35	19	4
14	4600	5700	49	42	19	18	35	43	35	12
Overall	5000	6900	55	61	20	20	23	27	21	10

[a] Rounded to nearest $100.

[b] % Mothers who have completed high school.

Table MI-5

Selected Characteristics of Population[c] of Parents of Kindergarten Children by FT/NFT and Sponsor

SPONSOR	MEDIAN INCOME[a]		MOTHER'S EDUCATION[b]		RESIDENCY				MOTHER WORKS IN SCHOOL	
					Less Than One Year		6 or More Years			
	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT
			%	%	%	%	%	%	%	%
2	4300	5900	53	55	25	24	18	22	23	9
3	5100	7700	51	66	23	26	18	20	18	11
5	5800	7000	49	56	20	15	23	30	16	9
7	4300	6600	43	55	23	22	20	26	17	8
8	4300	4700	43	33	21	26	21	23	20	7
9	3900	5500	48	47	26	28	16	25	15	8
10	4500	6200	40	43	25	27	21	21	21	7
11	5600	6800	49	56	16	19	26	26	20	8
12	5100	7200	69	71	21	14	29	33	18	5
14	4200	4800	27	29	19	19	30	34	29	10

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[a] Rounded to nearest $100.

[b] % Mothers who have completed high school.

[c] Results in Table are based upon only those parents from a population of 1,668 for whom valid data are available for each question. Therefore, the exact population for each variable is different. See Appendix for Tables which include indication of missing data.

income and larger proportions of their mothers have high school education than the population. The sample also appears to be slightly less mobile and have a slightly larger proportion of mothers working in the school.

2.1.2 Third Grade Cohort I

2.1.2.1 Selection Process

A sample of parents of Cohort I children who completed grade three in the Spring of 1972 has been used in two different sets of analyses: the examination of exit level differences and similarities, and the exploration of the interrelationships of certain criterion and mediator variables.

The restrictions upon this third grade sample are similar to those placed on the kindergarten sample. The child has to have Fall 1969 pretest data and Spring 1972 posttest data, and be either black or white. Data on the sex of the child, his days absent, his mother's education, and family income also had to be present. A full set of parent analytic data also had to be present.

Table MI-6 presents the third grade analytic sample broken down by state. The third grade sample is severely restricted geographically. Only nine states are represented, with the northernmost being Delaware and West Virginia, and the westernmost being Texas.

Within Sponsor, this restriction is obviously more severe: six Sponsors are represented by single sites. Two self-sponsored models, 0104 and 0109, have few parents in both FT and NFT groups and have been included only for the purpose of enlarging the sample size; no discussion will be made of their results.

2.1.2.2 Comparisons with Population

The size of both the sample and population at the third grade level is exceedingly small. Table MI-7 presents the sample and the population broken down by FT/NFT within Sponsor. As may be noted, the population cell sizes for Sponsors 5 through 12 range from a low of 17 for Sponsor 5's NFT to a high of 176 for Sponsor 6's FT. Sample cell sizes range

Table MI-6

Analytic Sample of Parents of Third Grade Children by Location, FT/NFT and Sponsor

Sponsor	Location				Total		Total
			FT	NFT	FT	NFT	
01	04	Florida	8	6	8	6	14
	09	W. Virginia	49	13	49	13	62
05	10	Alabama	55	12	55	12	67
06	02	So. Carolina	32	6			
	03	Mississippi	33	6			
	04	Georgia	51	29	116	41	157
07	11	Mississippi	49	32			
	12	Texas	1	3	50	35	85
09	01	Mississippi	53	42			
	02	Florida	22	34	75	76	151
10	02	Arkansas	57	34	57	34	91
11	02	Delaware	75	41	75	41	116
12	01	W. Virginia	46	24	46	24	70
TOTAL					531	282	813

Table MI-7

Number of Parents in Third Grade Sample and Population by FT/NFT and Sponsor

Sponsor	FT		NFT	
	Sample	Population	Sample	Population
0104	8	38	6	40
0109	49	57	13	23
5	55	94	12	17
6	116	176	41	95
7	50	150	35	76
9	75	130	76	131
10	57	84	34	54
11	75	85	41	63
12	46	57	24	41
Total	531	871	282	540

from Sponsor 5's 12 NFT parents to Sponsor 6's 116 FT parents. The small cell sizes of both the third grade sample and population make comparisons difficult. The approach taken is to present information about the sample and population in general, pointing out relatively large deviations, but refraining from making specific comparisons of each Sponsor's sample with his respective population.

As with the kindergarten data, four parent characteristics have been examined across the sample and larger population. The population includes 1,411 parents of third grade children (excluding 257 in multi-grade classes) for whom there are Parent Interview data available. Tables MI-8 and MI-9 display these characteristics. Tables A MI-5 through A MI-8 in the Appendix present a more detailed breakdown of each variable.

The reported median income for the third grade sample and that reported for the population differ only slightly in the various Sponsor FT/NFT groups. Most shifts result in the sample reporting a slightly larger income. The largest shifts occur in Sponsor 10's NFT group ($9,000 population; $10,300 sample) and Sponsor 5's FT groups ($3,000 population; $4,300 sample). The proportion of mothers reporting that they have completed high school does not change very much as we compare the sample and population; the largest discrepancy occurs with Sponsor 7's FT, where a larger proportion of the sample have completed high school (.40 sample, .21 population). If we compare the proportion of mothers working in the school across the population and sample, there also appear to be some shifts. Finally, mobility patterns are fairly similar.

2.2 Instrument

The Parent Interview is an instrument administered both to parents of FT children and to parents of NFT children. It serves as an entry instrument through administration at either kindergarten or first grade level, and as an exit instrument through administration during the Spring of the child's third grade year. The present analyses examine data

Table MI-8

Selected Characteristics of Sample of Parents of Third Grade Children by FT/NFT and Sponsor

SPONSOR	MEDIAN INCOME [a]		MOTHER'S EDUCATION [b]		RESIDENCY				MOTHER WORKS IN SCHOOL	
					Less Than One Year		7 or More Years			
	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT
			%	%	%	%	%	%	%	%
0109	6100	9900	59	92	8	0	47	54	25	15
5	4300	5700	36	17	9	8	42	33	24	8
6	5100	8800	34	39	10	12	51	37	15	12
7	4400	8800	40	63	14	9	34	34	14	20
9	2500	3500	25	38	15	11	39	47	20	15
10	7500	10,300	42	68	19	6	30	41	19	41
11	8400	10,500	48	68	7	7	40	29	15	12
12	7400	6300	59	62	2	0	48	71	11	8
Overall	5700	8000	41	52	11	8	42	42	17	17

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[a] Rounded to nearest $100.

[b] % Mothers who have completed high school.

Table MI-9

Selected Characteristics of Population[c] of Parents of Third Grade Children by FT/NFT and Sponsor

SPONSOR	MEDIAN INCOME[a]		MOTHER'S EDUCATION[b]		RESIDENCY				MOTHER WORKS IN SCHOOL	
					Less Than One Year		7 or More Years			
	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT
			%	%	%	%	%	%	%	%
0109	6000	9800	58	82	11	9	46	39	25	17
5	3000	5100	35	14	6	6	48	53	19	12
6	4800	8100	34	49	11	12	48	39	14	11
7	4000	8200	21	63	9	9	45	40	18	17
9	2900	3600	28	44	19	18	37	48	15	15
10	7500	9000	42	62	20	7	31	32	21	37
11	9000	9900	51	56	7	6	40	29	13	8
12	7300	6000	59	53	4	10	44	51	12	5

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[a] Rounded to nearest $100.

[b] % Mothers who have completed high school

[c] Results in Table are based upon only those parents from a population of 9,708 whom valid data are available for each question. Therefore, the exact popula for each variable is different. See Appendix for Tables which include indica of missing data.

from the entry instrument administered in the Fall of 1971 to parents of entering Cohort III kindergarten children, as well as data from the exit instrument administered in the Spring of 1972 to parents of exiting Cohort I third grade children.

The instrument has undergone some modification each year of the project; however, its purpose has remained consistent. The Parent Interview was developed by Stanford Research Institute to gather information about the child's home environment and his parents. National Opinion Research Center has fielded the instrument. Several items in the instrument are designed to provide socioeconomic data about the families of both FT and NFT children. Items describing the home environment have also been included since it is commonly hypothesized that the home environment mediates the child's educational progress. Other items measure some of the parental perceptions of the FT program and goals; especially pertinent to this report are data concerning parent involvement in the educational process and parent satisfaction.

Selected Parent Interview data have been included as covariates in the analysis of pupil data to aid in the achievement of comparability of FT/NFT pupil groups. This chapter addresses issues of parent demographic characteristics, attitudes, and behaviors which are of interest in themselves and may enhance our understanding of the pupil data. The analyses have been carried out using parents as the unit of analysis. Aggregating these data to class and school level for analysis and merging them with pupil data will be tasks for the future.

2.3 Variable Development

2.3.1 Clustering Procedure

The analyses presented in this Chapter include examination of parental attitudes and behaviors and relationships of these variables. Parental involvement has been selected as the indicator of parent behavior. This is examined with three composite variables: Parent-Child School Oriented Behavior, Parent-School Interaction, and Parent Knowledge of Follow Through--the latter being examined only for FT parents at the third grade level. Parent satisfaction has been selected as an indicator of parent attitudes. It has been examined through two variables: Parent Satisfaction with the Child's Academic Success and Parent Satisfaction with the Child's Affective Growth. The latter is used only at the third grade since corresponding items were not present in the kindergarten instrument. Two other indicators of parent attitude--Parent Perception of School Receptivity and Parent Locus of Control --have been developed for use in the examination of variable interrelationships. The procedures by which each of these variables were developed are described below.

As may be noted in Table MI-10 the number of items on each form is too large to permit a meaningful analysis at the item level. To reduce the number of items for these analyses, several steps were taken. First, all items were grouped according to logic and stated goals or areas of concern. Cluster analysis was then applied to validate the conceptual/judgmental clustering process. This methodology groups variables so that the association among members of the same group is high and association among members of different groups is low. The specific procedure employed was average linkage between merged groups.[3]

The samples used in the clustering procedures were larger than, but did include, the analytic samples presented in this report. The cluster analytic samples reported in Table MI-10 included all parents at each grade level for whom Parent Interview responses were available for the specific items. These enlarged samples permit various analytic samples to be drawn depending upon the issues to be examined. The larger samples also contribute to the stability of the results of the cluster analysis.

In order to cross validate the cluster analysis, the FT and NFT groups within each Sponsor were split in half (odd, even) prior to development of correlation matrices. The following procedures were then carried out on each of two separate samples. To remove between group differences, a separate correlation matrix was computed for each FT and NFT group within each Sponsor.

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[3] $S_{ij}/N_i\ N_j$ where S_{ij} = sum of pairwise similarities between clusters i and j; N_i = number of entities in cluster i; N_j = number of entities in cluster j.

Table MI-10

Parameters of Data Input of Cluster Analysis for Parent Interview

	Kindergarten Fall 1971	Third Grade Spring 1972
Total Number of Questions in Parent Interview	63	80
Total Number of Items in Parent Interview[a]	138	202
Number of Items Selected for Cluster Analysis from the Parent Interview	41	59
Correlation Matrices Developed for Input to Cluster Analysis[bc]	36	17
Sample Employed in Cluster Analysis	13,597	1,549

[a] The number of items for each form exceeds the number of questions because of multiple response format.

[b] No correlation matrix was used which contained a correlation based on N less than 3. This criterion resulted in the removal of Sponsor 05's Follow Through group from the cluster analysis in Third Grade.

[c] Eighteen sponsors were included at the kindergarten level; nine, at third grade.

The number of correlation matrices developed for each sample is indicated in Table MI-10. These correlation coefficients were averaged across groups within grade using Fisher's z transformation. The average correlation matrix for each grade served as input to the cluster analytic procedure. The results of the two separate cluster analyses at each grade level were then compared judgmentally with the results of the rational clustering procedure; no rigorous statistical decision rules exist. In general, the results were similar across the three development procedures--judgmental clustering and two cluster analyses. The resultant variable indices or scales contain items which are relatively associated with each other.

Resulting clusters, derived for kindergarten and third grade, are presented in Table MI-1. Eight theoretically interesting parent scales were developed at the third grade level, and six were developed at the kindergarten level: Knowledge of Follow Through (3); Parent Perception of Schools' Receptivity (k,3); Parent-School Interaction (A) (k,3); Parent-School Interaction (B) (k,3); Parent-School Oriented Behavior (k,3); Parent Satisfaction with Child's Academic Success (k,3); Parent Satisfaction with Child's Affective Growth (3); Parent Locus of Control (k,3).

2.3.2 Scoring Procedure

The various items within each of the variables developed through cluster analysis contained different numbers of responses. In order to equate empirically the differing item response categories, the Method of Reciprocal Averages was employed. This method provides item response weights which maximize the internal consistency of the variables. If there is one underlying variable, the homogeneity coefficient may increase; however, if more than one underlying variable is present, the coefficient will not show such a sizeable increase.

Prior to input, each item was modified to place its most desirable response at the high end of its scale. The sample employed at each grade level was the parent analytic sample with the exception that parents were excluded who lacked an entry for any of these variables. The original and new item response weights are displayed in Tables MI-11 and MI-12. After response weights were obtained, data from all parents in the analytic sample

Table MI-11

ITEM AND ITEM WEIGHTS USED IN DEVELOPMENT OF VARIABLES
FOR THE KINDERGARTEN PARENT STUDY

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
School's Receptivity of Parent	51A	The parents around here have a say about how the schools are run.	Yes, agree	1	5
			No, disagree	2	2
	51B	People in our schools really know what the parents want.	Yes, agree	1	6
			No, disagree	2	3
	51D	People in our schools really care about what the parents think.	Yes, agree	1	4
			No, disagree	2	1
Parent-School Interaction (A)	36A-C	Since the beginning of this school year... (number of visits to watch class made by mother alone, father alone, mother and father together)	Open ended	0	1
				1	2
				2	3
				3	4
				4	4
				5	6
				≥ 6	6
	38A	Since the beginning of this school year... (number of visits made to talk with teacher by mother)	Open ended	0	1
				1	2
				2	3
				3	4
				4	4
				5	5
				≥ 6	6
	34	Do you work regularly in (SAMPLE CHILD'S) school--either as a volunteer or for pay?	Yes	1	5
			No	2	2
	45	Are you (or SAMPLE CHILD'S father) active in any parents' groups, such as PTA or PA, that is, do you attend meetings regularly?	Yes	1	3
			No	2	1

Table MI-11 (continued)

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Parent-School Interaction (B)	36A-C	Since the beginning of this school year... (number of visits to watch class made by mother alone, father alone, mother and father together)	Open ended	0	1
				1	3
				2	4
				3	5
				4	6
				5	7
				≥ 6	7
	38A	Since the beginning of this school year... (number of visits made to talk with teacher by mother)	Open ended	0	1
				1	2
				2	3
				3	5
				4	6
				5	7
				≥ 6	7
	45	Are you (or SAMPLE CHILD'S father) active in any parents' groups, such as PTA or PA, that is, do you attend meetings regularly?	Yes	1	4
			No	2	2
Parent-Child School Oriented Behavior	20	How often does (SAMPLE CHILD) talk about what's happening at school--would you say...	Almost every day	1	6
			Once or twice a week	2	3
			Once or twice a month	3	3
			Less often than that	4	2
			Never	5	1
	29	Not counting school books, how often does (SAMPLE CHILD) read or look at a book or magazine at home--would you say...	Almost every day	1	6
			Once or twice a week	2	5
			Once or twice a month	3	3
			Less often than that	4	2
			Never	5	1
	28	How often does someone at home read to (SAMPLE CHILD)--would you say...	Almost every day	1	7
			Once or twice a week	2	5
			Once or twice a month	3	4
			Less often than that	4	2
			Never	5	1
	23	How often does (SAMPLE CHILD) come to you for help on school work--would you say...	Almost every day	1	7
			Once or twice a week	2	6
			Once or twice a month	3	5
			Less often than that	4	4
			Never	5	4

Table MI-11 (continued)

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Parent Satisfaction with Child's Academic Success	19	Some mothers tell us that their children really love school, while others tell us that their children don't like school. How does (SAMPLE CHILD) feel about school, would you say (he/she)...	Really loves school	1	7
			Likes school	2	6
			Doesn't like school	3	1
			Doesn't care one way or the other	4	3
	24	In general, how satisfied are you with (SAMPLE CHILD'S) progress in school--would you say...	Very satisfied	1	7
			Fairly satisfied	2	5
			Not satisfied	3	2
	25	Does what (SAMPLE CHILD) learns at school help *(him/her) get along in the family?*	Yes	1	7
			No	2	4
Parent Locus of Control	51C	If parents do not agree with the people in our schools, there's not much parents can do.	Yes, agree	1	2
			No, disagree	2	5
	51E	No matter how hard a person tries, he can't do much about what happens to him.	Yes, agree	1	1
			No, disagree	2	4
	51F	A person shouldn't plan ahead because things don't usually work out.	Yes, agree	1	1
			No, disagree	2	4

Table MI-12

ITEM AND ITEM WEIGHTS USED IN DEVELOPMENT OF VARIABLES
FOR THE THIRD GRADE PARENT STUDY

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Knowledge of Follow Through	16A	How much have you been told about which children are eligible for Follow Through?	A great deal	1	7
			Some	2	5
			Very little	3	3
			(Nothing at all)	4	1
	16B	How much have you been told about Follow Through in general?	A great deal	1	6
			Some	2	4
			Very little	3	2
			(Nothing at all)	4	1
	16C	How much have you been told about what parents have to do with the program?	A great deal	1	7
			Some	2	5
			Very little	3	3
			(Nothing at all)	4	2
	57	Have you ever heard of a group called the Policy Advisory Committee, sometimes called Parent Advisory Committee, or P.A.C. or PAC?	Yes	1	6
			No	2	4
School's Receptivity of Parent	61A	The parents in your school have a say about how the schools are run.	Yes, agree	1	5
			No, disagree	2	2
	61B	People in your school really know what the parents want.	Yes, agree	1	6
			No, disagree	2	3
	61D	People in your school really care about what the parents think.	Yes, agree	1	4
			No, disagree	2	1
Parent-School Interaction (A)	42B-D	Since the beginning of this school year... (number of visits to watch class made by mother alone, father alone, mother and father together)	Open ended	0	1
				1	2
				2	3
				3	4
				4	5
				5	6
				≥ 6	6

Table MI-12(continued)

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Parent-School Interaction (A) (continued)	44A	Since the beginning of this school year... (number of visits made to talk with teacher by mother)	Open ended	0	1
				1	2
				2	3
				3	3
				4	4
				5	5
				≥ 6	6
	40	Do you work regularly in (SAMPLE CHILD'S) school--either as a volunteer or for pay?	Yes	1	5
			No	2	2
	56	Are you (or SAMPLE CHILD'S father) active in any parents' groups such as PTA or PA, that is, do you attend meetings regularly?	Yes	1	4
			No	2	1
Parent School Interaction (B)	42B-D	Since the beginning of this school year... (number of visits to watch class made by mother alone, father alone, mother and father together)	Open ended	0	1
				1	3
				2	4
				3	5
				4	6
				5	7
				≥ 6	7
	44A	Since the beginning of this school year... (number of visits made to talk with teacher by mother)	Open ended	0	1
				1	2
				2	3
				3	5
				4	6
				5	7
				≥ 6	7
	56	Are you (or SAMPLE CHILD'S father) active in any parents' groups such as PTA or PA, that is, do you attend meetings regularly?	Yes	1	4
			No	2	2

Table MI-12 (continued)

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Parent-Child School Oriented Behavior	24	How often does (SAMPLE CHILD) talk about what's happening in class--would you say...	Every day	1	6
			Several times a week	2	4
			Once a week	3	3
			About once a month	4	1
			Never	5	1
	25A	How often does he read a book at home, other than school books? Would you say...	Every day	1	7
			Several times a week	2	6
			Once a week	3	4
			About once a month	4	1
		(Do you have any books at home that (SAMPLE CHILD) reads on his own, other than school books? -- Q25)	Q25 = No		3
	26A	How often does he (read out loud to someone at home)?	Every day	1	7
			Several times a week	2	6
			Once a week	3	5
			About once a month	4	2
		(Does he ever read out loud to someone at home?--Q26)	Q26 = No		2
	27	When (SAMPLE CHILD) has a chance to choose what to do around the house, how often does (he/she) choose to look at a book or magazine--would you say...	Almost every day	1	7
			Often	2	5
			Once in a while	3	4
			Seldom	4	2
			Never	5	1
	28A	How often does someone at home read to (SAMPLE CHILD)?	Every day	1	7
			Several times a week	2	7
			Once a week	3	5
			About once a month	4	3
		(Does someone at home ever read to (SAMPLE CHILD)?--Q28)	Q28 = No		3
	23	How often does (SAMPLE CHILD) come to you for help on school work--would you say...	Every day	1	7
			Several times a week	2	6
			Once a week	3	5
			About once a month	4	4
			Never	5	2

Table MI-12 (continued)

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Parent Satisfaction with Child's Academic Success	20	In general, is (SAMPLE CHILD) able to do...	Much more than most children his age	1	7
			More than most children his age	2	6
			The same as most children his age	3	4
			Less than most children his age	4	2
			Much less than most children his age	5	1
	21	How well is (SAMPLE CHILD) doing in his school work--is he doing...	Excellent work	1	6
			Very good work	2	5
			Good work	3	4
			Fair work	4	3
			Poor work	5	1
	22	In general, how satisfied are you with (SAMPLE CHILD'S) progress in school--would you say...	Very satisfied	1	5
			Fairly satisfied	2	3
			Not satisfied	3	2
Parent Satisfaction with Child's Affective Growth	63	How does (SAMPLE CHILD) behave with the family these days? Would you say...	Much better	1	7
			Better	2	5
			The same	3	5
			Worse	4	3
			Much worse	5	1
	64	How about feeling sure of himself--would you say (SAMPLE CHILD) is more sure of himself now, less sure of himself, or about the same as a couple of years ago?	More	1	6
			Less	2	1
			About the same	3	3
	65	How about getting along with children his age--is (SAMPLE CHILD) more able to get along now, less able, or does he get along with other children about the same as a couple of years ago?	More	1	7
			Less	2	2
			About the same	3	4
	66	How about (SAMPLE CHILD'S) cheerfulness--is he more cheerful and happy now, less cheerful and happy, or about as cheerful and happy as he was a couple of years ago?	More	1	6
			Less	2	2
			About the same	3	4

Table MI-12 (continued)

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Parent Locus of Control	61E	No matter how hard a person tries, he can't do much about what happens to him.	Yes, agree	1	6
			No, disagree	2	3
	61F	A person shouldn't plan ahead because things don't usually work out.	Yes, agree	1	5
			No, disagree	2	1
	61C	If parents do not agree with the people in your school, there's not much parents can do.	Yes, agree	1	4
			No, disagree	2	2

were scored. For final acceptance into the analytic sample, a parent could have missing information on no more than one-third of the items on each variable. The conservative procedure of substituting the analytic sample item mean for missing data was employed.

2.3.3 Reliability

Reliability was assessed by means of Cronbach's α. Table MI-13 presents the coefficient alphas for both the kindergarten and third grade variables. These coefficients are not high; as discussed in the section above, more than one underlying variable may be present in each of the scales which has a low coefficient. However, although a higher level of homogeneity might be desirable, two other types of reliability are perhaps more critical.

Consistency of response across a four to six week period of time, such as could be determined in a test-retest situation, is needed to establish whether the items are measuring day to day change of mood or more stable thoughts. Data are not availble to explore this facet of reliability.

Studies have been begun which explore the consistency of the scales across groups. These studies are intended to examine stability of the pattern of variable interrelationships. Initial indicators suggest that similar patterns of such relationships are present for the kindergarten Cohort III and third grade Cohort I data.

2.4 Analytic Techniques

Family demographic characteristics have been described employing descriptive statistics: median income, proportion of mothers completing high school; proportion of families living at the same address for less than a year, or more than six years; proportion of mothers working in the schools. Additional tables (Tables A MI-1 through A MI-8) have been included in the Appendix to present more complete categorical breakdowns of these variables.

Multiple regression techniques were employed in the analyses of the parent attitudinal and behavioral data present in this chapter. (See Monograph IV on Methodology for a more complete discussion.) Within each analysis, the main effect variables were effects coded; the interactions were

Table MI-13

Reliability Coefficients for Variables Utilized in Parent Studies

Variable	Reliability	
	Third Grade	Kindergarten
Parental Knowledge of Follow Through	.80	
School's Receptivity of Parent	.48	.48
Parent School Interaction (A)	.58	.60
Parent School Interaction (B)	.48	.48
Parent-Child School Oriented Behavior	.65	.42
Parent's Satisfaction with Child's Academic Success	.74	.42
Parent's Satisfaction with Child's Affective Growth	.66	
Parent Locus of Control	.55	.53

coded through multiplication of the coding coefficients of the main effects variables. Covariates and "predictors" were coded as quantitative variables with each person's score serving as the code for that variable. Table MI-14 presents the number of coding variables employed in each analysis.

In the first and second sets of analyses of these data a series of questions has been asked about each of the dependent variables. First, do parents in the FT and NFT groups report different attitudes/behaviors? Then, do FT and NFT parents within their respective Sponsors appear to report in ways which are not attributable to a overall FT/NFT difference? These questions are asked of the kindergarten data in order to help explicate pupil data; the findings may reflect initial differences or early treatment effects. At the third grade level, these questions are asked in order to explore treatment effects.

Whether or not differences are found in the first two sets of analyses, a third set of analyses is introduced to determine whether the observed patterns could result from influences other than the obvious contrasts which the analyses embody. For example, a mother's education may relate to her interaction with the school. Whatever differences are found, when we explore parent-school interaction, may be related to differences in the mother's education rather than to variation among school programs. We therefore explore parent-school interaction again, this time statistically controlling for the mother's level of education through covariance adjustment. Some of the covariables introduced may be influenced by the school's particular program. This is especially likely with the variable which indicates if the mother works in the school. Our purpose in the covariate analyses, however, is to attempt to control for contaminating influences, to adjust for potential mediator variables, and to increase the internal validity of the dependent variable. We have, therefore, introduced a set of covariates into each of these analyses. These covariates are listed in Table MI-15 along with the predictors and dependent variables used in each analysis.

Table MI-14

TYPES OF VARIABLES USED IN PARENT STUDIES

Variables Represented	Number of Kindergarten	Variables Third Grade
Parent Attitudinal/Behavioral Studies		
Covariate	*	*
Sponsor	9	8
Treatment (FT/NFT)	1	1
Sponsor/Treatment (FT/NFT)	9	8
"Predictor" Studies		
Predictor		1
Sponsor		8
Treatment (FT/NFT)		1
Sponsor/Predictor		8
Precitor/Treatment (FT/NFT)		1
Sponsor/Treatment (FT/NFT)		8
Sponsor/Predictor/Treatment (FT/NFT)		8

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[*] The number of covariates varies across studies; one coding variable was employed for each covariate. See Table 8 for the covariates in each study.

Table MI-15

Predictors, Covariates and Dependent Variables for Each Parent Study

	Third Grade	Kindergarten
STUDY I - Parent Involvement		
Predictors		
FT/NFT	x	x
Sponsor	x	x
Covariates		
(analyses have been made with and without covariates)		
School's receptivity of parent	x	x
Parent locus of control	x	x
Mother's education	x	x
Parent respondent works in school	x	x
Household income	x	
Poverty index		x
Parent satisfaction with child's academic success		x
City size		x
Dependent Variables		
Parent-child school oriented behavior	x	x
Parent-school interaction (A) (without "Parent works in school" as a covariate)	x	x
Parent-school interaction (B)	x	x
Parental knowledge of Follow Through	x	
STUDY II - Parent Satisfaction		
Predictors		
FT/NFT	x	x
Sponsor	x	x
Covariates		
(analyses have been made with and without covariates)		
School's receptivity of parent	x	x
Mother's education	x	
Parent respondent works in school	x	x
Household income	x	
Poverty index		x

Table MI-15 (continued)

	Third Grade	Kindergarter
Dependent Variables		
Parent satisfaction with child's academic success	x	x
Parent satisfaction with child's affective growth	x	
STUDY III - Predictor Studies		
Relationship of Income with Dependent Variables		
Predictors		
FT/NFT	x	
Sponsor	x	
Income	x	
Dependent Variables		
Parent-school interaction (A)	x	
Parent-school interaction (B)	x	
Parent satisfaction with child's academic success	x	
Parent satisfaction with child's affective growth	x	
Relationship of Parent Perception of School Receptivity with Dependent Variables		
Predictors		
FT/NFT	x	
Sponsor	x	
Parent perception of school receptivity	x	
Dependent Variables		
Parent-school interaction (A)	x	
Parent-school interaction (B)	x	
Parent satisfaction with child's academic success	x	
Parent satisfaction with child's affective growth	x	
Relationship of Parent-School Interaction (A) with Dependent Variables		
Predictors		
FT/NFT	x	
Sponsor	x	
Parent-school interaction (A)	x	

Table MI-15 (continued)

	Third Grade	Kindergarten
Dependent Variables		
Parent satisfaction with child's academic success	x	
Parent satisfaction with child's affective growth	x	
Relationship of Parent-School Interaction (B) with Dependent Variables		
Predictors		
FT/NFT	x	
Sponsor	x	
Parent-school interaction (B)	x	
Dependent Variables		
Parent satisfaction with child's academic success	x	
Parent satisfaction with child's affective growth	x	
Relationship of Parent-Child School Oriented Behavior with Dependent Variables		
Predictors		
FT/NFT	x	
Sponsor	x	
Parent-child school oriented behavior	x	
Dependent Variables		
Parent-school interaction (A)	x	
Parent-school interaction (B)	x	
Parent satisfaction with child's academic success	x	
Parent satisfaction with child's affective growth	x	

The introduction of a covariate set into an analysis allows examination of a less "contaminated" dependent variable, but it does not permit examination of the relationship of a particular covariate and the dependent variable. Therefore, a different series of studies is carried out. This time one specific variable, a "predictor" is introduced into the model. For example, we examine the effect of income on parent's perception of child's academic success. Here we ask whether or not different scores on the "predictor" variable, i.e., income, contribute differentially to parent satisfaction scores in the different FT and NFT groups.

In the exploration of differences, Tables MI-16 through MI-19, two criteria are used. First, F tests are employed at the main effect and interaction levels. If interactions are significant at the .05 level, then a criterion of .25 standard deviations is used to test whether there is a difference between each Sponsor's FT and NFT groups. The criterion of .25 standard deviation units is not synonymous with statistical significances as may be observed by examining various tables. Tests for heterogeneity across FT/NFT by Sponsor were made for the covariates used in the analyses.

In the "predictor" studies which explore the relationship of single mediators and criterion variables, a different series of criteria are employed. First the zero-order correlations of the potential mediator and the criterion are explored. These may be contaminated by program and treatment effects. Then the relationship of the mediator and criterion is explored with all main, double and triple interactions partialled, employing the F test for the single term, using the .05 level of significance. Finally, the triple interaction set of mediator by FT/NFT by Sponsor is examined. If the F test for this set achieves the .05 level, the single interaction terms are examined to determine if the F test for each term achieves a .05 level. Tables MI-16 through MI-19 present the F ratios and factors in the hierarchial design of each analysis.

Table MI-16

F Ratios and Factors in the Hierarchial Model of ANOVA and ANCOVA
Third Grade, Parent Study

F RATIOS: To test Knowledge of FT

$$F = \frac{R^2_{Y\cdot Sponsor} \div 8}{1 - R^2_{Y\cdot Sponsor} \div 522}$$

ANOVA FACTORS:

B Sponsor = 0104,0109,5,6,7,9,10,11,12

$R^2_{Y\cdot SPONSOR} = R^2_{Y\cdot B}$

F RATIOS: To test Knowledge of FT

$$F = \frac{sr^2_B \div 8}{(1 - R^2_{Y\cdot Sponsor} \div 517}$$

ANCOVA FACTORS:

Covariates = School Receptivity of Parent
Parent Locus of Control
Mother's Education
Household Income
Parent Respondent Works in School

$sr^2_B = R^2_{Y\cdot cov\ B} - R^2_{Y\cdot cov}$

$R^2_{Y\cdot Sponsor} = R^2_{Y\cdot cov\ B}$

B Sponsor = 0104,0109,5,6,7,9,10,11,12

Table MI-17

F Ratios and Factors in the Hierarchial Model of ANOVA and ANCOVA Third Grade, Predictor Relationships, Parent Study

F RATIOS: To test FT/NFT Effect

$$F = \frac{sr^2_C \div 1}{(1 - R^2_{Y \cdot MAINS}) \div 802}$$

To test Sponsor by FT/NFT Interaction

$$F = \frac{sr^2_F \div 1}{(1 - R^2_{Y \cdot 2\ WAYS}) \div 785}$$

To test Predictor by Sponsor by FT/NFT Interaction

$$F = \frac{sr^2_G \div 8}{(1 - R^2_{Y \cdot TOTAL}) \div 777}$$

ANOVA FACTORS:

B Sponsor = 0104,0109,5,6,7,9,10,11,12
C FT/NFT
F Sponsor by FT/NFT
G Sponsor by FT/NFT by Predictor

$sr^2_C = R^2_{Y \cdot BC} - R^2_{Y \cdot B}$

$R^2_{Y \cdot MAIN} = R^2_{Y \cdot BC}$

$sr^2_F = R^2_{Y \cdot BCF} - R^2_{Y \cdot BC}$

$R^2_{Y \cdot 2\ WAYS} = R^2_{Y \cdot BCF}$

$sr^2_G = R^2_{Y \cdot BCFG} - R^2_{Y \cdot BCF}$

$R^2_{Y \cdot TOTAL} = R^2_{Y \cdot BCFG}$

sr^2 represents the squared semi-partial correlation or the percent of the variance uniquely accounted for the factor indicated.

Table MI-18

F Ratios and Factors in the Hierarchial Model of ANOVA and ANCOVA
Third Grade, Parent Study

F RATIOS: To test FT/NFT Effect

$$F = \frac{sr^2_C \div 1}{(1 - R^2_{Y \cdot MAIN}) \div 803}$$

To test Sponsor by FT/NFT Interaction

$$F = \frac{sr^2_F \div 8}{(1 - R^2_{Y \cdot 2\ WAYS}) \div 795}$$

ANOVA FACTORS:

B Sponsor = 0104,0109,5,6,7,9,10,11,12
C FT/NFT
F Sponsor by FT/NFT

$$sr^2_C = R^2_{Y \cdot BC} - R^2_{Y \cdot B}$$

$$R^2_{Y \cdot MAIN} = R^2_{Y \cdot BC}$$

$$sr^2_F = R^2_{Y \cdot BCF} - R^2_{Y \cdot BC}$$

$$R^2_{Y \cdot 2\ WAYS} = R^2_{Y \cdot BCF}$$

F RATIOS: To test FT/NFT Effect

$$F = \frac{sr^2_C \div 1}{(1 - R^2_{Y \cdot MAIN}) \div X}$$

(for Parent-School Interaction (A), X = 799
Parent-School Interaction (B), X = 798
Parent-Child School Oriented Behavior, X = 798
Parent Satisfaction with Child's Academic Success, X = 799
Parent Satisfaction with Child's Affective Growth, X = 799)

To test Sponsor by FT/NFT Interaction

$$F = \frac{sr^2_F \div 1}{(1 - R^2_{Y \cdot 2\ WAYS}) \div X}$$

(for Parent-School Interaction (A), X = 791
Parent-School Interaction (B), X = 790
Parent-Child School Oriented Behavior, X = 790
Parent Satisfaction with Child's Academic Success, X = 791
Parent Satisfaction with Child's Affective Growth, X = 791)

ANCOVA FACTORS:

Covariates = School Receptivity of Parent
Parent Locus of Control*
Mother's Education
Household Income
Parent Respondent Works in School**

B Sponsor = 0104,0109,5,6,7,9,10,11,12
C FT/NFT
F Sponsor by FT/NFT

$$sr^2_C = R^2_{Y \cdot cov\ BC} - R^2_{Y \cdot cov\ B}$$

$$R^2_{Y \cdot MAIN} = R^2_{Y \cdot cov\ BC}$$

$$sr^2_F = R^2_{Y \cdot cov\ BCF} - R^2_{Y \cdot cov\ BC}$$

$$R^2_{Y \cdot 2\ WAYS} = R^2_{Y \cdot cov\ BCF}$$

sr^2 represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

* Not used in Parent Satisfaction with Child's Academic Success and Parent Satisfaction with Child's Affective Growth.

** Not used in Parent-School Interaction (A).

Table MI-19

F Ratios and Factors in the Hierarchial Model of ANOVA and ANCOVA
Kindergarten, Parent Study

F RATIOS:

To test FT/NFT Effect

$$F = \frac{sr^2_C \div 1}{(1 - R^2_{Y \cdot MAIN}) \div 3963}$$

To test Sponsor by FT/NFT Interaction

$$F = \frac{sr^2_F \div 9}{(1 - R^2_{Y \cdot 2\ WAYS}) \div 3954}$$

ANOVA FACTORS:

B Sponsor = 2,3,5,7,8,9,10,11,12,14
C FT/NFT
F Sponsor by FT/NFT

$$sr^2_C = R^2_{Y \cdot BC} - R^2_{Y \cdot B}$$

$$R^2_{Y \cdot MAIN} = R^2_{Y \cdot BC}$$

$$sr^2_F = R^2_{Y \cdot BCF} - R^2_{Y \cdot BC}$$

$$R^2_{Y \cdot 2\ WAYS} = R^2_{Y \cdot BCF}$$

F RATIOS:

To test FT/NFT Effect

$$F = \frac{sr^2_C \div 1}{(1 - R^2_{Y \cdot MAIN}) \div X}$$

(for Parent-School Interaction (A), X = 3957
Parent-School Interaction (B), X = 3956
Parent-Child School Oriented Behavior, X = 3956
Parent Satisfaction with Child's Academic Success, X = 3960)

To test Sponsor by FT/NFT Interaction

$$F = \frac{sr^2_F \div 9}{(1 - R^2_{Y \cdot 2\ WAYS}) \div X}$$

(for Parent-School Interaction (A), X = 3948
Parent-School Interaction (B), X = 3947
Parent-Child School Oriented Behavior, X = 3947
Parent Satisfaction with Child's Academic Success, X = 3951)

ANCOVA FACTORS:

Covariates = School Receptivity of Parent
Parent Satisfaction with Child's Academic Success*
Parent Locus of Control*
Adjusted Income Index
Mother's Education*
City Size*
Parent Respondent Works in School**

B Sponsor = 2,3,5,7,8,9,10,11,12,14
C FT/NFT
F Sponsor by FT/NFT

$$sr^2_C = R^2_{Y \cdot cov\ BC} - R^2_{Y \cdot cov\ B}$$

$$R^2_{Y \cdot MAIN} = R^2_{Y \cdot cov\ BC}$$

$$sr^2_F = R^2_{Y \cdot cov\ BCF} - R^2_{Y \cdot cov\ BC}$$

$$R^2_{Y \cdot 2\ WAYS} = R^2_{Y \cdot cov\ BCF}$$

sr^2 represents the squared semi-partial correlation or the percent of the variance uniquely accounted for the factor indicated.

* Not used in Parent Satisfaction with Child's Academic Success
** Not used in Parent-School Interaction (A)

2.5 Limitations

2.5.1 Time Restrictions

This chapter examines parent data from two different cohorts, each set of data being obtained at a different point in time. The kindergarten data was obtained during the Fall of 1971, Cohort III's entering year. The third grade data was obtained during the Spring of 1972 when that group, Cohort I, was completing their third and final year in the program. Examination of each of these single data points carries different types of problems.

Data collected over a number of weeks during the initial stages of a program may include differential amounts of early program effects and initial status differences. In a program which stresses a strong early approach and which makes that approach apparent to the parents, the difference of a very few weeks in data collection can make the difference between obtaining initial status differences and early program effects. The crucial problem here is that if two sites or Sponsors both achieve such early effects, and if one of those sites or Sponsors is surveyed just before and the other just after such effects begin to accrue, differences will appear in the data which are the result of data collection times rather than effect differences. This concern with the influence of time of instrument administration is reflected in the initial explorations which have been made into the influence of time of testing in the pupil data. As discussed in Volume I-A, Sections VII: 1.4.0 and 3.2, this examination suggests that time of testing is related differentially across Sponsors to pupil pre - and posttests. A further constraint upon attributing the results to initial status or early program effects is the potentiality of sibling influence. Parent responses, especially in the attitudinal area, may be influenced in unknown directions by previous association with a school or program through a sample child's older sibling's attendance in the program or school.

A different problem exists with the third grade data. These data have been obtained from parents of Cohort I children who entered FT during the first grade in the Fall of 1969. These Cohort I parents tend to have a geographic representation more heavily southern than recent parent groups. Further complications lie in the areas of Sponsor implementation and maturity, which have been examined in some detail in other sections of this report.

2.5.2 Sample Restrictions

There are many factors which affect the ability to generalize from a sample to a larger group which that sample may represent. The kindergarten and third grade parent analytic samples were not selected randomly. Constraints of data availability were used in the selection process. (Other sections of this report examine the problem of the FT population not being representative of the total population). There appear to be some differences between our samples and the available parent populations. Of greater concern than these differences, however, is that these sample-population differences appear to vary across Sponsor FT/NFT groups. This suggests that while we may be closely approximating our available parent population for some Sponsors on some characteristics, we are not doing so for other Sponsors and other characteristics. In our descriptions of the parents which follow, we shall therefore refer to the specific groups analyzed; we shall not attempt to extrapolate to any larger population.

2.5.3 Restrictions in Scope

At this time, the parent data have not been explored in conjunction with either the teacher or pupil data with the exception that some parent data have been used as covariates in the pupil studies. Many of the questions explored in this chapter have been examined with the assumption that family demographic characteristics, and parent attitudes and behaviors do in fact influence pupil attitudes and behaviors in the school setting. Analyses to examine these assumptions are now being planned. Furthermore, it may be expected that teachers and parents interact and that analyses which explored these interactions would provide a better understanding of what is happening in the various programs. These studies, too, are now in the planning stages.

Each of the three sets of analyses of parent data--the Kindergarten Entry Study, the Third Grade Exit Study, and the study of the Influence of Potential Mediator Variables--and especially the third, proceeds from the logical model described in the Introduction and Rationale section. This model assumes the influence of parent and family background upon child performance and hypothesizes the interrelationship of a number of such family related variables both among themselves and with the child variables. It does not, however, include a presumption that it is possible to determine causality with these data either in the present analyses or future analyses. Complex interactions such as those involved in parent, child and school relationships do not exist in a vacuum of experimental manipulation. Neither the child nor the parent is an empty vessel at the beginning testing point. Nor will the time intervening between kindergarten entry and third grade exit be observed with sufficient scrutiny to ascertain the innumerable influences which will occur. The interaction of the numerous variables is assumed to be a reiterative process. Therefore, while general patterns of variable relationships may be explored with multiple time points and general statements may be made about prior and succeeding patterns of relationships, it would be presumptive to assume that such path explorations would completely define cause and effect.

3.0 RESULTS

3.1 Introduction

The first two sets of analyses, the entry and the exit level studies, follow a similar format. First will be an examination of each of the four selected demographic characteristics separately, presenting overall FT and NFT data and indicating the amount of variability which exists within the sample. A demographic description of each Sponsor's FT and NFT samples will follow. This presentation includes both a comparison of the Sponsor's FT sample with his NFT sample and a comparison of the Sponsor's FT with the overall FT and of the Sponsor's NFT with the overall NFT. The analysis of the attitudinal and behavioral variables includes a general discussion of each variable, overall FT/NFT differences and similarities, and a presentation of within Sponsor variability.

The third set of analyses looks at the influence of potential mediating variables. First, the effects of covariance adjustment procedures are examined at the kindergarten and third grade levels. This is followed by an examination at the third grade level of the overall influence of specified demographic, attitudinal and behavioral variables on other attitudinal and behavioral variables. The analysis of the influence of potential mediator variables concludes with an examination of the interaction of these potential mediators by FT/NFT by Sponsor.

3.2 Kindergarten

The purpose of this first set of analyses is to explore overall FT/NFT differences and FT/NFT differences within Sponsor as they exist in the Fall of the child's kindergarten year. In the absence of pretest data, early program effects are confounded with those of initial status in our behavioral and attitudinal findings, but these results at least provide background for interpretation of pupil results.

3.2.1 Demographic Characteristics

3.2.1.1 Overall FT/NFT Comparisons

The median reported income for NFT is higher than for FT families in every Sponsor in our sample, shown in Table MI-4. The overall NFT median income is $6,900 and $5,000 for FT. Sponsor 11's families report the highest FT median income ($6,200); Sponsor 7's ($3,800) the lowest FT. Sponsor 3's NFT families report the highest NFT median income ($8,200); Sponsor 8's, the lowest ($5,100). The largest disparity in median income within a Sponsor is noted between Sponsor 7's FT ($3,800) and NFT ($6,600) families. (Each median or proportion is computed within the cell being described.)

There are varying differences between the proportion of mothers completing high school (overall FT: .55; NFT: .61). However, in a few Sponsors a larger proportion of FT mothers report having completed high school (most noticeably in Sponsor 14, FT: .49; NFT: .42). Variability across Sponsors ranges from a high for Sponsor 12 (FT: .71; NFT: .74) to a low for Sponsor 8 (FT: .46; NFT: .43). The highest FT is Sponsor 12; the lowest, Sponsor 7. The highest NFT is Sponsor 12; the lowest, Sponsor 8.

Years of residency at the current address do not appear to vary greatly across FT and NFT. About the same proportion of parents in FT and NFT (20%) report recent moves, while there is only a slight variability in the proportion reporting long-term residency (six years or more at the same address). Within Sponsors, the differences between FT and NFT increase somewhat. The largest difference is found within Sponsor 5, with .26 of the FT and .41 of the NFT parents having lived at their current address for six or more years.

A smaller proportion of NFT (.10) mothers report working in their children's schools than do FT (.21) mothers. This ranges from a low of .04 in Sponsor 12's NFT group, to a high of .35 in Sponsor 14's FT group. The highest NFT is Sponsor 3 (.13); the lowest FT is Sponsor 9 (.18). The range within a Sponsor is greatest in Sponsor 14, with .12 for NFT mothers and .35 for FT mothers reporting working in their children's schools.

In sum, the NFT group reports higher income and a larger proportion of mothers completing high school. There is little overall difference in mobility between FT and NFT. Across FT/NFT groups and Sponsors there is considerable variability in amount of mobility as there also is for income, education, and mother working in the school. Finally, more FT than NFT mothers work in the school.

3.2.1.2 Within Sponsor FT/NFT Comparisons

Having examined the selected demographic variables for the greatest deviations, we now turn to comparison of the FT/NFT groups within Sponsors.

While Sponsor 2's (Far West's) FT families report a lower income ($5,000) than the NFT families ($6,400), a very slightly larger proportion of the FT mothers have completed high school (FT: .59; NFT: .57). Additionally, while the FT is the same as the overall FT in reported median income and higher in the proportion of mothers completing high school (overall .55), the NFT is lower than the overall NFT on both of these variables ($6,900; .61). The mobility patterns of FT and NFT appear to be similar to their respective overall groups although there are smaller proportions of long-term residents in Sponsor 2's FT and NFT.

Sponsor 3's (Arizona's) FT families report lower income and a smaller proportion of mothers completing high school than the NFT families. However, both FT and NFT families report larger incomes (FT: $5,600; NFT: $8,200) than their respective overall groups (FT: $5,000; NFT: $6,900); also, larger proportions of Sponsor 3's FT and NFT mothers report completing high school (FT: .61; NFT: .74, compared to overall FT: .55; overall NFT: .61). The mobility patterns of the FT and NFT appear to be quite similar to each other and to the overall groups although Sponsor 3's groups may be slightly more mobile.

Sponsor 5's (Bank Street's) FT families report lower income and a smaller proportion of mothers completing high school than the NFT families. The FT families appear to be more mobile than the NFT families. Both the FT and NFT groups report higher incomes (FT: $5,700; NFT: $7,600) than their respective overall groups (FT: $5,000; NFT: $6,900); however, while the proportion of NFT mothers completing high school (.62) in Sponsor 5 is almost the same as the overall NFT, a slightly smaller proportion of FT mothers (.51) in Sponsor 5 have completed high school than the overall average. Both the FT and NFT groups are somewhat less mobile than their respective overall groups, and the NFT group is among the least mobile of any kindergarten group.

Sponsor 7's (Oregon's) FT families report lower incomes and a smaller proportion of mothers completing high school than the NFT group. The FT family median income ($3,800) is $1,200 less than the overall FT family median income and $2,800 less than the Sponsor 7 NFT median ($6,600). The NFT median is, however, only $300 less than the overall NFT median. Just as they report lower income, so do both Sponsor 7's FT and NFT report lower proportions of mothers completing high school (FT: .42; NFT: .56) than their respective overall groups. Both the FT and NFT groups within Sponsor 7 are somewhat more mobile than their respective overall groups.

In Sponsor 8 (Kansas), the FT median income ($4,300) is lower than the NFT ($5,100); however, a slightly larger proportion of FT (.46) than NFT (.43) mothers completed high school. Although the FT family median income is $700 lower than the overall FT median, the NFT median is $1,800 lower than the overall NFT median. In a similar fashion, there is a greater drop in the proportion of NFT mothers completing high school. The FT families appear to be somewhat more mobile than the NFT families within Sponsor 8. They also appear to be slightly more mobile than the overall FT families. The NFT group reports fewer recent moves than the overall NFT group but approximately the same proportion of long-term residents.

FT families in Sponsor 9 (High/Scope) report lower income ($4,100) and a larger proportion of mothers completing high school (.60) than the NFT families ($5,700; .57). There is a smaller proportion of FT families who are long-term residents. In comparison with their respective overall groups both FT and NFT report lower income. The FT group reports a larger proportion of mothers completing high school; the NFT group, a lower proportion. There appears to be greater mobility in both FT and NFT groups in Sponsor 9 than in their respective overall groups.

FT families in Sponsor 10 (Florida) report lower median income ($5,100) and a lower percentage of mothers completing high school (.47) than the NFT ($7,200; .57). There appears to be little difference in the two groups' rate of mobility. Sponsor 10's FT group reports a similar median income but a lower proportion of mothers completing high school than the overall FT. Sponsor 10's NFT group reports a slightly larger median income and a slightly lower proportion of mothers completing high school than the overall NFT. The FT and NFT within Sponsor 10 may be slightly more mobile than the overall groups.

Sponsor 11's (EDC's) FT reports a lower median income ($6,200) and proportion of mothers completing high school (.54) than the NFT group ($7,300; 61). The FT group is somewhat less mobile than the NFT group. In comparison with their respective overall groups, both the FT and NFT groups report larger median incomes but similar proportions of mothers completing high school. Sponsor 11's groups are also less mobile than the overall groups.

In Sponsor 12 (Pittsburgh), the FT median income ($5,200) is $2,000 less than the NFT ($7,200), while the proportion of mothers completing high school is only slightly different (FT: .71; NFT: .74). The FT group appears to be more mobile than the NFT group. Both the FT and NFT report higher incomes and a larger proportion of mothers completing high school than their respective overall groups. There appears to be slightly less mobility in Sponsor 12 than in the overall group.

In Sponsor 14 (SEDL), the FT median income ($4,600) is $1,300 less than the NFT ($5,700); however, a larger proportion of mothers have completed high school (FT: .49; NFT: .42). There appears to be more mobility in the FT group. Both the FT and the NFT groups report lower median incomes and lower proportions of mothers completing high school than their respective overall groups. Both the FT and NFT families report less mobility than their respective overall groups.

3.2.2 Behavior and Attitudinal Characteristics

Three variables have been explored at the kindergarten level as indicators of parent behavior. The first explores the extent of parent-child interaction in school related activities. The second and third explore the extent of parent interaction with the schools. The difference between the two parent-school interaction variables is that the first, Parent-School Interaction (A), includes datum indicating whether the mother works in the school; the second, Parent-School Interaction (B) excludes this datum. One attitudinal variable has been examined, Parent Satisfaction with the Child's Academic Success.

Summary statistics for each of the above four variables are presented in Table AMI-9 in the Appendix. This table presents both the overall FT/NFT contrast and the FT/NFT contrast within Sponsor. Table MI-20 presents the overall means and standard deviations for each variable, as well as its possible range. The following tables in the Appendix present the FT/NFT Interaction (A)--Table AMI-10; Parent-School Interaction (B)--Table AMI-11; Parent-Child School Oriented Behavior--Table AMI-12; Parent Satisfaction with the Child's Academic Success--Table AMI-13. Two of the variables showed FT/NFT by Sponsor interactions; these are displayed in Tables MI-21 and MI-22.

Both FT and NFT parents indicate only moderate levels of parent-school interaction. FT parents in general report more interaction than do NFT parents, although there is an FT/NFT by Sponsor interaction. When th variable containing the datum on whether the mother works in the school is included, Parent-School Interaction (A), the FT parent groups in only two Sponsors--7 and 10--fail to attain a score at least .25 standard deviations above their respective NFT parent groups. When the datum on mothers working in the school is excluded, Parent-School Interaction (B), FT parents in Sponsors 5 and 8 now join those in

Table MI-20

MEAN, STANDARD DEVIATION AND POSSIBLE RANGE OF DEPENDENT VARIABLES USED IN PARENT STUDIES

Variable	Kindergarten			Third Grade		
	Possible Range	$\overline{X}$	S.D.	Possible Range	$\overline{X}$	S.D.
Parent Knowledge of Follow Through		-		8-26	18.90	4.39
Parent-School Interaction Interaction (A)	5-20	8.39	3.42	5-21	8.78	3.76
Parent School Interaction (B)	4-18	6.82	3.33	4-18	7.66	3.65
Parent-Child School Oriented Behavior	7-26	22.85	2.55	10-41	30.09	5.86
Parent Satisfaction with Child's Academic Sus Success	7-21	19.33	2.15	4-18	13.34	2.77
Parent Satisfaction with Child's Affective Growth				6-26	20.69	3.67

Table MI-21

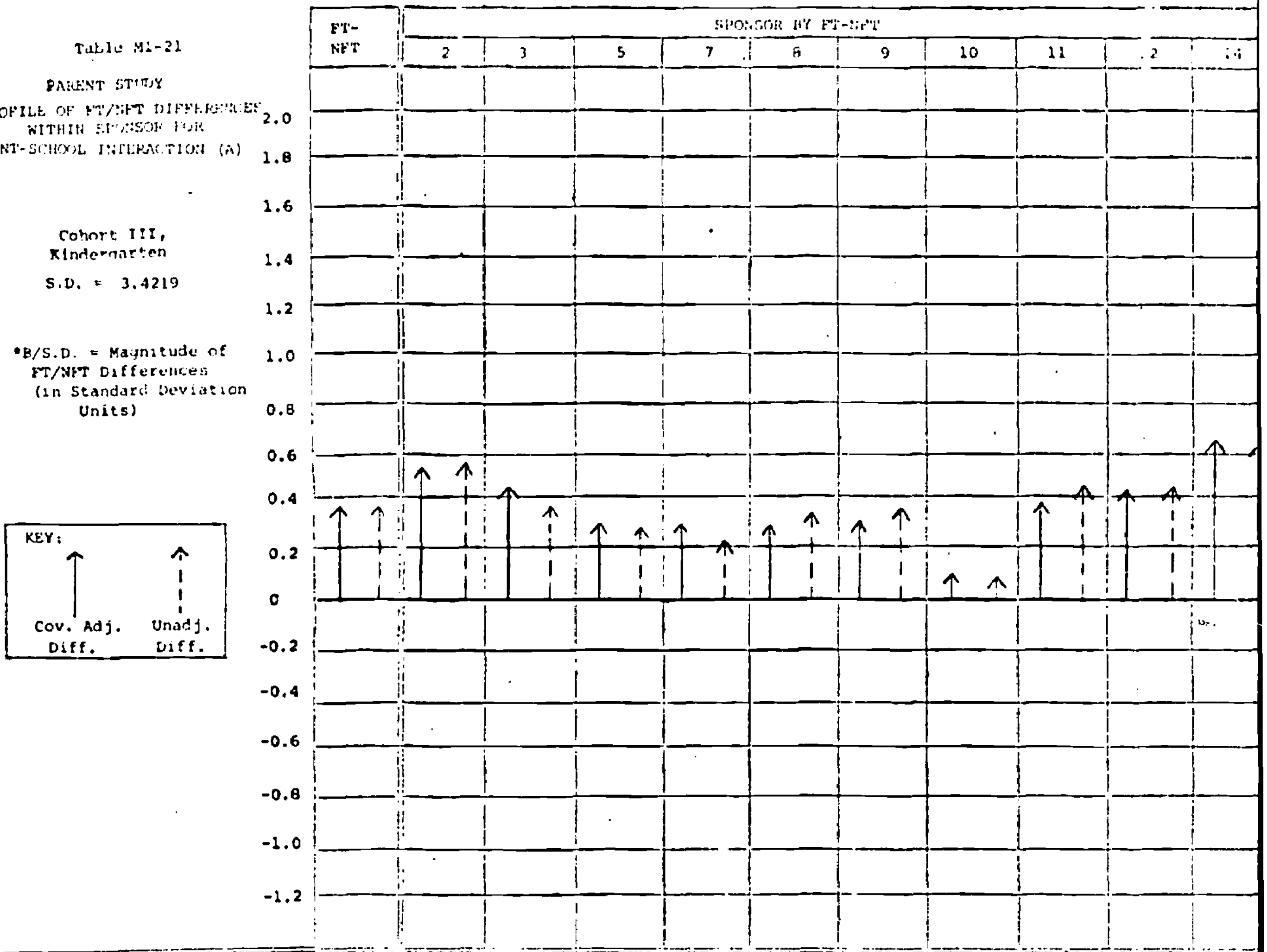
PARENT STUDY

PROFILE OF FT/NFT DIFFERENCES
WITHIN SPONSOR FOR
PARENT-SCHOOL INTERACTION (A)

Cohort III,
Kindergarten

S.D. = 3.4219

*B/S.D. = Magnitude of FT/NFT Differences (in Standard Deviation Units)



		FT-NFT	2	3	5	7	8	9	10	11	12	14
B = Magnitude of the difference	Adjusted	1.276	1.902	1.501	1.000	0.983	0.973	1.059	0.374	1.297	1.452	2.22
	Unadj.	1.274	1.960	1.233	0.949	0.736	1.147	1.216	0.328	1.485	1.502	2.19
SE_B = Standard Error of B	Adjusted	0.119	0.263	0.264	0.333	0.364	0.336	0.350	0.330	0.317	0.311	0.51
	Unadj.	0.119	0.270	0.271	0.342	0.373	0.345	0.359	0.338	0.325	0.319	0.52
*B/S.D.	Adjusted	0.373	0.556	0.439	0.292	0.287	0.284	0.309	0.109	0.379	0.425	0.64
	Unadj.	0.372	0.573	0.360	0.277	0.215	0.335	0.355	0.096	0.434	0.439	0.63
N = Number of Parents	FT	2182	321	339	231	172	308	174	245	273	259	75
	NFT	1592	307	272	140	122	118	142	110	151	169	61

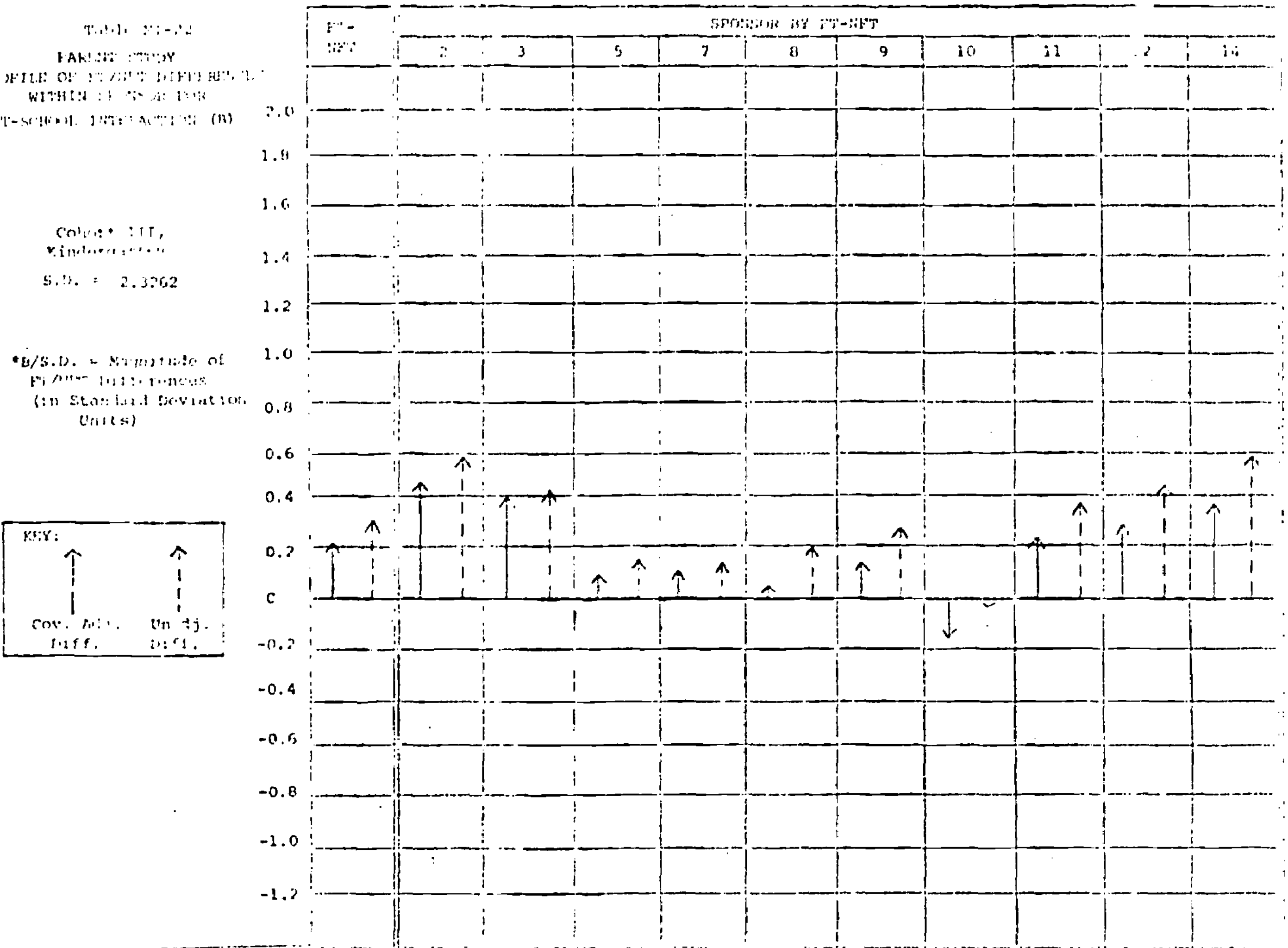
Table [illegible]

EARLY STUDY
PROFILE OF FT/SFT DIFFERENCES
WITHIN [illegible]
PARENT-SCHOOL INTERACTION (B)

Cohort III,
Kindergarten

S.D. = 2.3262

*B/S.D. = Magnitude of FT/SFT Differences (in Standard Deviation Units)



		FT-SFT	2	3	5	7	8	9	10	11	12	14
B = Magnitude of the Difference	Adjusted	0.470	[illegible]	[illegible]	[illegible]	0.269	0.128	0.355	-0.383	0.547	[illegible]	[illegible]
	Unadj.	0.735	[illegible]	[illegible]	[illegible]	[illegible]	0.357	0.607	[illegible]	[illegible]	[illegible]	[illegible]
SE_B = Standard Error of B	Adjusted	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Unadj.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.235	0.244	0.230	[illegible]	[illegible]	[illegible]
*B/S.D.	Adjusted	[illegible]	[illegible]	0.400	[illegible]	0.116	0.055	0.153	[illegible]	[illegible]	[illegible]	[illegible]
	Unadj.	[illegible]	[illegible]	[illegible]	[illegible]	0.149	[illegible]	0.261	[illegible]	0.373	[illegible]	[illegible]
N = Number of Students	FT	[illegible]	[illegible]	[illegible]	[illegible]	172	[illegible]	174	[illegible]	278	[illegible]	75
	NFT	[illegible]	[illegible]	272	[illegible]	122	11	142	110	151	[illegible]	[illegible]

Sponsors 7 and 10 in not attaining a score at least .25 standard deviations above their respective NFT groups.

FT parents also report more parent-child school oriented behavior than NFT parents, although both groups report a fairly high level of this type of involvement. The possible range of scores on this variable is 7 to 26, and the overall mean for FT and NFT is 22.85 with a standard deviation of 2.55. There is no FT/NFT by Sponsor interaction on this variable.

Reports on Parent Satisfaction with Child's Academic Success are similar to those on Parent-Child School Oriented Behavior. FT parents indicate a higher level of satisfaction than NFT parents, although both groups report being quite satisfied. The potential range of scores for this variable is 7 to 21, and the overall mean is 19.33 with a standard deviation of 2.15. There is no FT/NFT by Sponsor interaction.

3.3 Third Grade

The purpose of this second set of analyses is to explore overall FT/NFT differences and FT/NFT differences within Sponsors as they exist in the Spring of the children's third grade year. It should be recalled that the analyses presented here are based upon data from parents of children who were in their respective programs for three full years. They therefore cannot be considered to be representative of the third grade groups in general.

3.3.1 Demographic Characteristics

3.3.1.1 Overall FT/NFT Comparisons

Table MI-8 presents the demographic characteristics broken down by FT/NFT and Sponsor.[4] The median income reported for the NFT group is $8,000; for the FT group it is $5,700. Wide variability exists within Sponsors. Within Sponsor 9, the median income for NFT families is $3,500; for FT families, $2,500. At the other extreme, the median income for NFT families in Sponsor 11 is $10,500; for FT families, $8,4C0. Within Sponsor 7, there is a difference of $4,000 between the median reported incomes for NFT and FT (FT: $4,400; NFT: $8,800).

A slightly larger proportion of NFT mothers (.52) report completing high school than do FT mothers (.41). However, there is considerable variability within Sponsors. Within Sponsor 6, for example, both FT and NFT mothers tend to have less education (FT: .33; NFT: .39). Within Sponsor 12 we find that both the FT and NFT mothers are more highly educated (FT: .59; NFT: .62) than their respective overall averages. In Sponsor 10 there is wide variability between FT and NFT groups; more NFT mothers (.68) have completed high school than FT mothers (.42).

A criterion for sample selection was that the child must have taken Fall 1969 pretests. This means that these families have had to remain in the same region for more than three years. It is not surprising, therefore,

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[4] Sponsor 01 represents a variety of self-sponsored districts. Sponsors 0104 and 0109 were included in the regression analyses of the attitudinal and behavioral characteristics in order to increase the size of this small group of third grade parents. They have not been presented in the discussions, however, because their individual cell sizes are quite small, and they are not replicated in other analyses at this time. Sponsor 0109 has been included in the demographic tables and in the computation of overall FT/NFT demographic descriptive statistics in order to enhance the comparability of the overall FT/NFT demographic and attitudinal/behavioral comparisons. Sponsor 0104 was dropped from the demographic statistics both for the overall FT/NFT and specific Sponsor presentations for reason of confidentiality. His numbers are so small that either in a direct Sponsor presentation of his demographics or through subtraction of the other specific Sponsors for the overall, it might have been possible to identify individuals.

that .42 of the FT and .42 of the NFT families have lived at the same address for seven or more years. There is little variability within Sponsors, with only a few exceptions. One noticeable exception is Sponsor 10. Eleven of his 57 FT mothers reported moving within a year while only two of his 34 NFT mothers did.

Overall, the same proportion of FT and NFT mothers report working in the school (.17). There is some variability, however, both within and across Sponsors. For example, within Sponsor 10, .41 of his NFT mothers and .19 of his FT mothers work in their children's schools. In Sponsor 5, a larger proportion of FT mothers report working in the school. (FT: .24; NFT: .08.)

3.3.1.2 Within Sponsor FT/NFT Comparisons

Having examined selected demographic variables for gross deivations, we now turn to comparisons of the FT/NFT groups within Sponsors.

Sponsor 5 (Bank Street)

Sponsor 5 is represented by 12 NFT parents and 55 FT parents. The median income for NFT parents is approximately $5,500 while for FT parents, it is $4,300. A smaller proportion of NFT mothers completed high school (FT: .36 [20]; NFT: .17 [2]). Fewer NFT parents have lived seven or more years at their present address than FT parents (FT: .42 [23]; NFT: .33 [4]). Only one of the twelve NFT mothers worked in her child's school while 13 of the FT mothers did.

Sponsor 6 (Georgia)

Sponsor 6 is represented by 41 NFT parents and 116 FT parents. The median income for NFT is $8,800 while for the FT parents it is $5,100. Approximately the same proportion of NFT and FT mothers completed high school (FT: .34 [39]; NFT: .39 [16]). Fewer NFT parents have lived seven or more years at their current address (FT: .51 [59]; NFT: .37 [15]). Approximately the same proportion of NFT and FT mothers report working in their children's schools (FT: .15 [17]; NFT: .12 [5]).

Sponsor 7 (Oregon)

Sponsor 7 is represented by 35 NFT parents and 50 FT parents. The median income for NFT parents is $8,800 and for FT parents $4,400. A larger proportion of NFT mothers have completed high school than FT mothers (FT: .40 [20]; NFT: .63 [22]). The same proportion of FT and NFT families have lived seven or more years at the same address (.34). A slightly larger proportion of NFT parents worked in their children's schools than FT mothers (FT: .14 [7]; NFT: .20 [7]).

Sponsor 9 (High/Scope)

Sponsor 9 is represented by 76 NFT parents and 75 FT parents. The median income for the NFT parents is $3,500 while for the FT parents it is $2,500. Twenty-nine of the 76 (.38) NFT mothers have completed high school while only 19 (.25) of the FT mothers had. More NFT families have lived seven or more years at their current address than FT parents (FT: .39 [19]; NFT: .47 [36]). A slightly smaller proportion of NFT mothers worked in their children's schools (FT: .20 [15]; NFT: .15 [11]).

Sponsor 10 (Florida)

Sponsor 10 is represented by 34 NFT parents and 57 FT parents. The median NFT income is $10,300 while for FT it is $7,500. A larger proportion of NFT mothers have completed high school (FT: .42 [24]; NFT: .68 [23]). A larger proportion of NFT parents have also lived seven or more years at their current address (FT: .20 [17]; NFT: .41 [14]). A much larger proportion of NFT parents work in their children's schools (FT: .19 [11]; NFT: .41 [14]).

Sponsor 11 (EDC)

Sponsor 11 is represented by 41 NFT parents and 75 FT parents. The median NFT income is $10,500; for FT it is $8,400. A larger proportion of NFT mothers completed high school (FT: .48 [36]; NFT: .68 [28]). Twenty-nine percent (12) of the NFT parents have lived seven or more years at their current address while .40 (30) of the FT parents have. Approximately the same proportion of FT and NFT parents work in their children's schools (FT:. 15 [11]; NFT: .12 [5]).

Sponsor 12 (Pittsburgh)

Sponsor 12 is represented by 24 NFT parents and 46 FT parents. The median income for the NFT parents is $6,300 while for FT parents it is $7,400. Approximately the same proportion of FT and NFT parents have completed high school (FT: .59 [27]; NFT: .62 [15]). However, there is a larger proportion of NFT parents who have lived seven or more years at their current address (FT: .48 [22]; NFT: .71 [17]). Approximately the same proportion of mothers work in school (FT: .11 [5]; NFT: .08 [2]).

3.3.2 Behavioral and Attitudinal Characteristics

Four variables have been explored at the third grade level as indicators of parent behavior. The first is similar to the first explored at the kindergarten level, Parent-Child School Oriented Behavior, although it is composed of a slightly different set of questions. The second and third variables, Parent-School Interaction (A), and Parent-School Interaction (B) are also similar to those explored at the kindergarten level, the first such variable including the datum on whether the mother works in the school, the second excluding that datum. The fourth variable, explored for FT parents only, examines parents' perceptions of their knowledge of the Follow Through program.

Two indicators of parent attitudes have been examined; Parent Satisfaction with Child's Academic Success and Parent Satisfaction with Child's Affective Growth.

Summary statistics for each of the above variables are presented in Tables A MI-14 and A MI-15 in the Appendix. Table A MI-15 presents the FT Sponsor contrasts for Parent Knowledge of Follow Through. Table A MI-14 presents both the overall FT/NFT contrast and the FT/NFT by Sponsor interaction for each of the other variables. Table MI-20 presents the overall mean and standard deviation for each variable as well as its potential range. The following tables in the Appendix present the FT/NFT by

Sponsor means for each variable: Parent-School Interaction (A)--Table A MI-16; Parent-School Interaction (B)--Table A MI-17; Parent-Child School Oriented Behavior-- Table A MI-18; Parent Satisfaction with Child's Academic Success--Table A MI-19; Parent Satisfaction with Child's Affective Growth--Table A MI-20. Table A MI-21 in the Appendix presents the FT within Sponsor means for Parent Knowledge of Follow Through. Sponsor interactions occur for two variables and are displayed in Tables MI-23 and MI-24.

Both FT and NFT parents report only a moderate amount of parent-school interaction whether the datum on mothers working in the schools is included or excluded. FT parents do report more of this interaction than do NFT parents. There is no FT/NFT by Sponsor interaction.

There is no difference between FT and NFT parents in the amount of Parent-Child School Oriented Behavior. Both groups report a fairly high level of this type of behavior. The potential range for this variable is 10 to 41 while the overall mean is 30.09 and the standard deviation is 5.86.

Follow Through parents perceive that they are fairly knowledgeable about the Follow Through Program although there are Sponsor differences. Parents in Sponsors 7 and 9 indicate a higher level of knowledge about Follow Through than the Follow Through parents in general. Sponsor 12's parents indicate a lower level of knowledge about Follow Through than the Follow Through average.

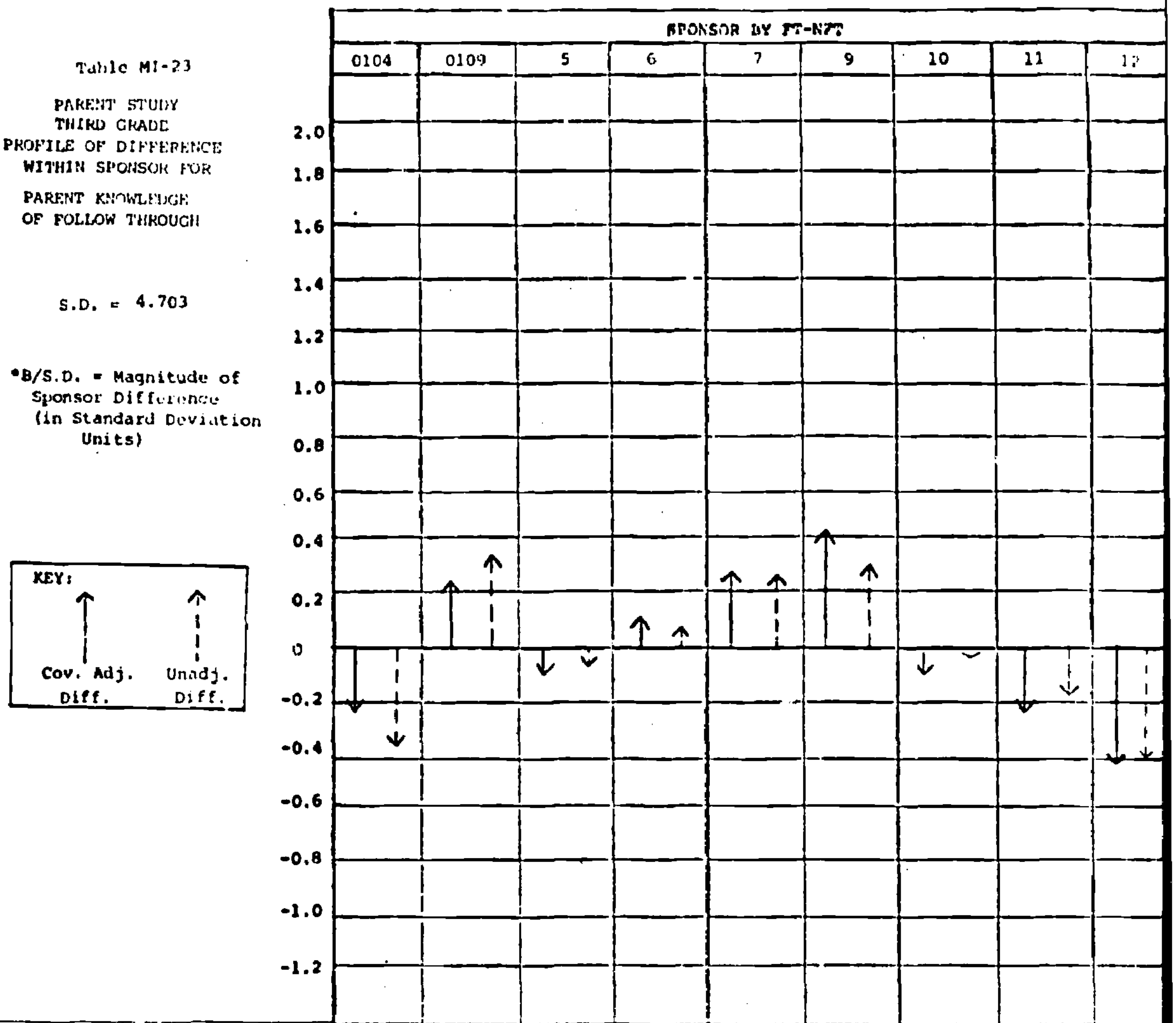
Turning to parent satisfaction, we note that both FT and NFT parents are generally satisfied with their children's academic success although there are within Sponsor differences. With a possible range on this variable of 4 to 18, the overall mean is 13.34, and the standard deviation is 2.77. The FT and NFT parents are also relatively satisfied with their children's affective growth. On a scale of 6 to 26, the overall mean is 20.69, and the standard deviation is 3.67. FT parents report greater satisfaction with their children's affective growth than NFT parents in general. There is also an FT/NFT by Sponsor interaction. FT parents in Sponsors 6, 9, and 12 report more satisfaction than their respective NFT parents, while FT parents in Sponsor 11 are less satisfied than NFT parents in Sponsor 11.

Table MI-23

PARENT STUDY
THIRD GRADE
PROFILE OF DIFFERENCE
WITHIN SPONSOR FOR
PARENT KNOWLEDGE
OF FOLLOW THROUGH

S.D. = 4.703

*B/S.D. = Magnitude of
Sponsor Difference
(in Standard Deviation
Units)



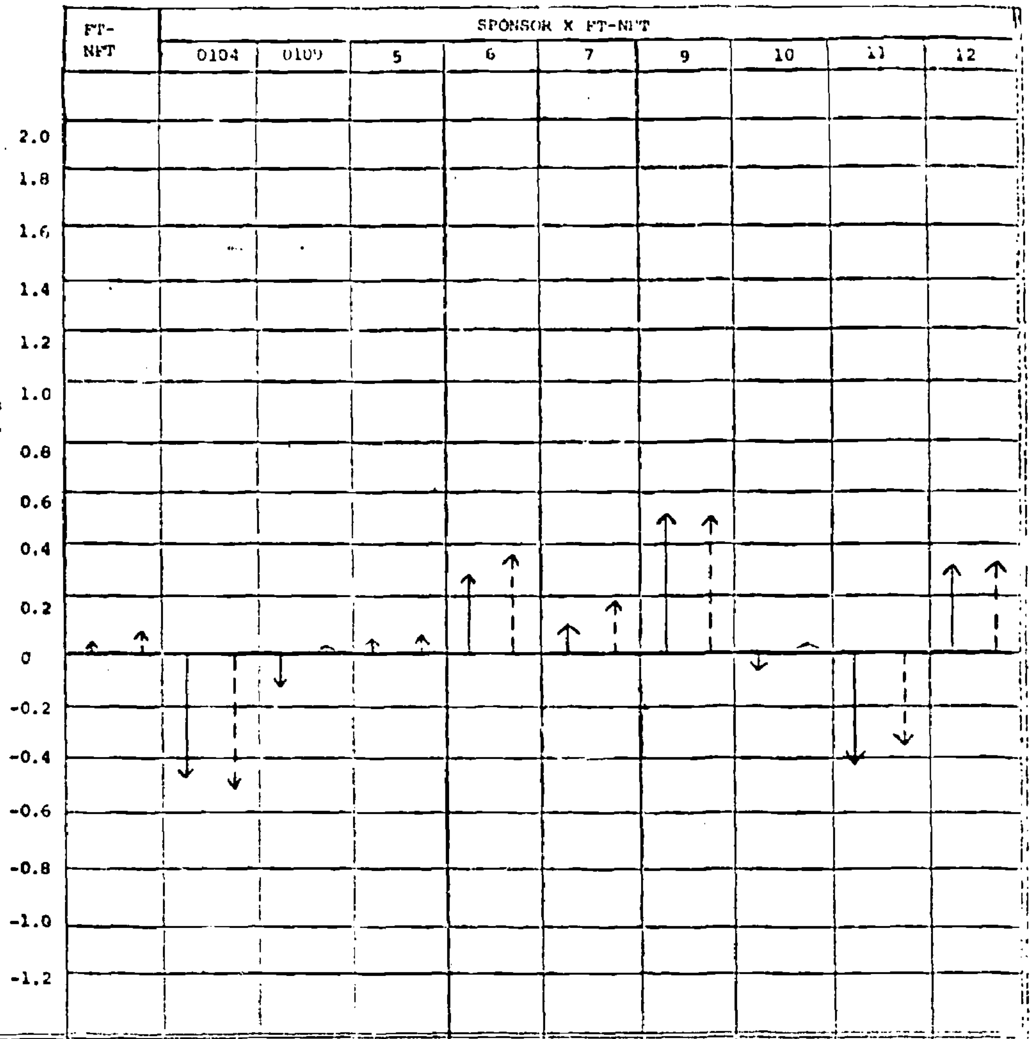
		0104	0109	5	6	7	9	10	11	12
B = Magnitude of the difference	Adjusted	-1.02979	1.10692	- .42531	.59498	1.24243	1.95808	- .45655	-1.05622	- 1.93
	Unadj.	-1.66390	1.62181	- .30026	.45679	1.17610	1.38943	- .01478	- .78390	- 1.88
SE_B = Standard Error of B	Adjusted	1.38915	.60152	.57725	.43617	.60139	.53249	.58446	.52966	.66
	Unadj.	1.46429	.63796	.60829	.45959	.63262	.53805	.59952	.53805	.82
*B/S.D.	Adjusted	- .21897	.23534	- .09043	.12651	.26418	.41634	-.09708	- .22459	- .411
	Unadj.	- .35380	.34485	- .06284	.09713	.25007	.29543	-.00314	- .16668	- .400
N = Number of Parents	FT	8	49	55	116	50	75	57	75	46

Table MI-24

PARENT STUDY
THIRD GRADE
PARENT SATISFACTION
WITH CHILD'S
AFFECTIVE GROWTH

S.D. = 3.6714

*B/S.D. = Magnitude of the FT/NFT differences (in Standard Deviation Units)



		FT-NFT	0104	0109	5	6	7	9	10	11	12
B = Magnitude of the difference	Adjusted	0.131	-1.658	-0.417	0.223	1.049	0.432	1.952	-0.143	-1.495	1.232
	Unadj.	0.306	-1.833	0.132	0.306	1.345	0.686	2.065	0.079	-1.271	1.245
SE_B = Standard Error of B	Adjusted	0.340	1.687	1.012	1.033	0.647	0.754	0.598	0.747	0.684	0.880
	Unadj.	0.335	1.696	1.017	1.036	0.652	0.757	0.603	0.746	0.685	0.882
*B/S.D.	Adjusted	0.036	-0.452	-0.114	0.061	0.286	0.118	0.532	-0.039	-0.407	0.336
	Unadj.	0.083	-0.499	0.036	0.083	0.366	0.187	0.563	0.022	-0.346	0.339
N = Number of Parents	FT	531	8	69	55	116	50	75	57	75	46
	NFT	282	6	13	12	41	35	76	34	41	24

3.4 Influence of Potential Mediator Variables

The third set of analyses explored the relationships which exist among the parent variables. These initial explorations include covariance adjustment procedures which permitted the examination of relatively "uncontaminated" outcome variables and the "predictor" studies which explored the interrelationships which potential mediator variables have with outcome variables. In these latter studies one "predictor" was studied at a time. The covariate studies were carried out at the kindergarten and third grade levels ; the predictor studies at the third grade only.

3.4.1 Effects of Covariance Adjustment

3.4.1.1 Kindergarten

Summary statistics for each of the variables are presented in Table AMI-22 in the Appendix. It presents both the overall FT/NFT contrast and the FT/NFT by Sponsor interaction. Table MI-25 displays FT/NFT differences for these variables and Sponsor interactions are displayed in Tables MI-21 and MI-22 for the two variables in which interactions occur.

The first question asked whether there were FT/NFT differences for parent-school interaction, when we included working in the school as part of that interaction, but controlled for potential mediators. The particular variables which we have chosen as potential mediators do not appear to be acting as such. The FT/NFT difference and the Sponsor by FT/NFT interaction remain. With covariance adjustment, the scores for parents of FT children remain higher than the scores for parents of NFT children and although the effect is differential across Sponsors, each Sponsor's FT group reports more parent-school interaction than his respective NFT group. The only shift which occurs is that Sponsor 7's differential effect has increased so that the FT parent group is now .25 standard deviation larger than the NFT parent group.

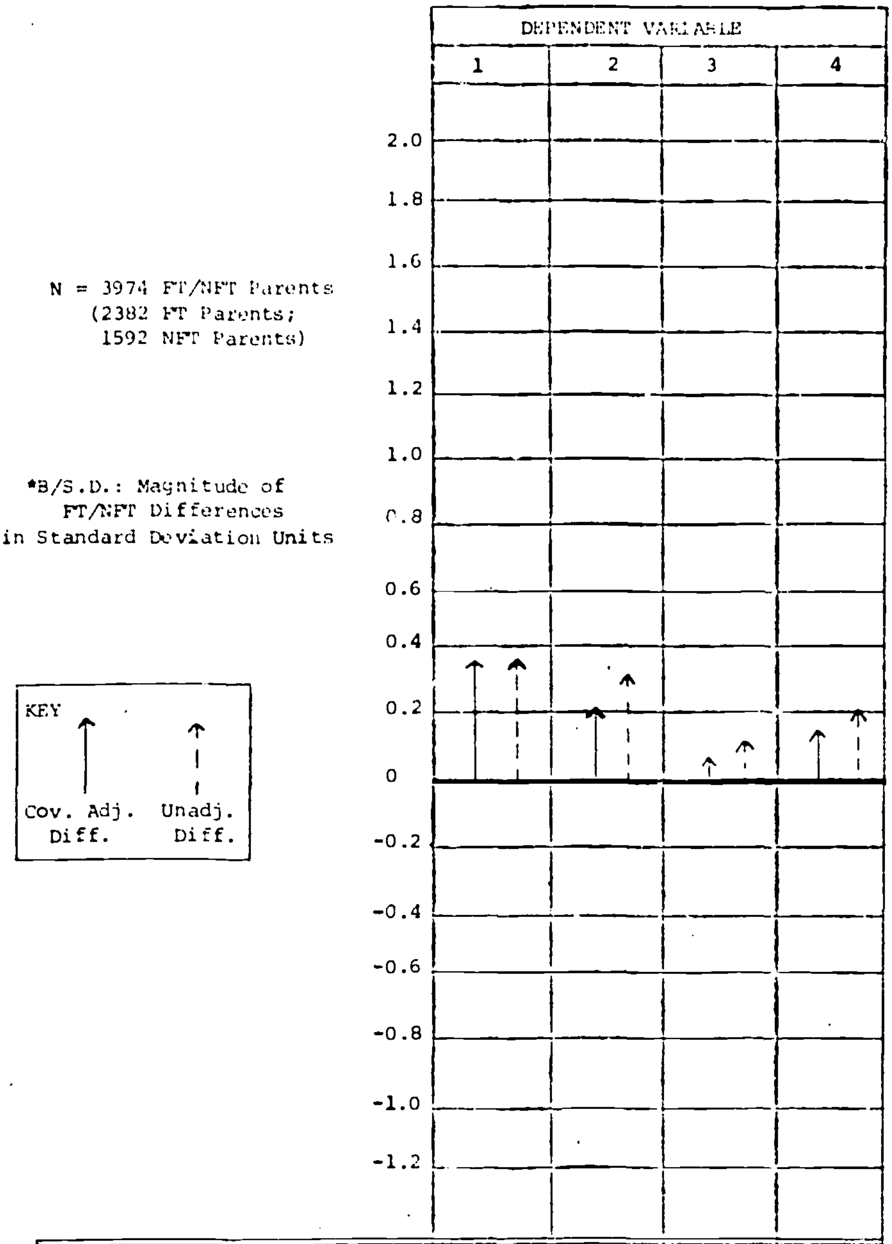
When we explored parent-school interaction but covaried the parent working in the school along with the other covariates, the FT/NFT

Table MI-25

Profile of FT/NFT Differences for Selected Parent Attitudes and Behaviors: Cohort III, Kindergarten

N = 3974 FT/NFT Parents
(2382 FT Parents;
1592 NFT Parents)

*B/S.D.: Magnitude of FT/NFT Differences in Standard Deviation Units



DEPENDENT VARIABLES

1 = Parent-School Interaction (A)

2 = Parent-School Interaction (B)

3 = Parent-Child School Oriented Behavior

4 = Parent Satisfaction with Child's Academic Success

		1	2	3	4
B = Magnitude of the Difference	Adjusted	1.276	0.470	0.170	0.325
	Unadj.	1.274	0.738	0.318	0.431
SE_B = Standard Error of B	Adjusted	0.119	0.076	0.090	0.077
	Unadj.	0.119	0.081	0.090	0.076
F = Significance Statistic	Adjusted	11[illegible].465	38.5[illegible]	3.571	17.716
	Unadj.	115.156	83.294	12.401	32.497
Standard Deviation		3.422	2.326	2.548	2.147
*B/S.D.	Adjusted	0.373	0.202	0.067	0.151
	Unadj.	0.372	0.317	0.125	0.201

difference and a Sponsor by FT/NFT interaction remained. Parents of kindergarten children in Follow Through report more parent-school interaction than do parents of kindergarten children in NFT. Four Sponsors (2, 3, 12, and 14) who achieved a score .25 standard deviations higher than their respective NFT when we used the datum mother working in the school as part of our criterion variable, maintain this level of effect when we covary the item.

Comparing the results of this analysis with the results obtained when we covaried potential mediators in the previous parent-school interaction variables, we note that five Sponsors, 5, 7, 8, 9, and 11, who achieved a .25 standard deviation difference in the earlier analysis, do not show this difference now. For these latter five Sponsors, working in the school appears to be having either a direct or an indirect effect upon parent-school interaction for kindergarten parents.

When covariates are introduced into the examination of parent-child school oriented behavior, a difference is noted. While FT parents in the non-covaried analysis reported more of such behavior, they do not do so when covariance adjustment is introduced.

Covariance adjustment did not change the results of the analysis of the variable Parent Satisfaction with Academic Success. FT parents still report greater satisfaction than NFT parents, but there is no FT/NFT by Sponsor interaction.

3.4.1.2 Third Grade

Summary statistics for each of the variables are presented in Tables AMI-15 and AMI-23 in the Appendix. Table AMI-15 presents the FT-Sponsor interaction for Parent Knowledge of Follow Through. Table AMI-23 presents the FT/NFT contrast and the FT/NFT by Sponsor interaction for the other variables. Table MI-26 displays FT/NFT differences for the variables and Tables MI-23 and MI-24 display Sponsor interactions for the two variables in which such occur.

The first question explored Parent-School Interaction when "mother works in the school" is considered part of that interaction. Effects did not change for third grade parents when we introduced covariance adjustment. The FT/NFT difference remains but there is no Sponsor by FT/NFT interaction.

When Parent-School Interaction was explored but datum on parents working in the school was used as part of the covariate set, rather than as part of the criterion variable, the results remained unchanged from the earlier analysis. FT parents still report more interaction than NFT parents, but there is still no FT/NFT by Sponsor interaction. When Parent-Child School Oriented Behavior was explored, covarying potential mediating variables, the results did not change. There are still no overall FT/NFT differences and no FT/NFT by Sponsor interactions.

No changes take place when we introduce covariance adjustment into the analysis of parent knowledge about the Follow Through program. Parents in Sponsors 7 and 9 (Oregon and High/Scope) still have more knowledge of Follow Through, and Sponsor 12's (Pittsburgh's) parents less knowledge of Follow Through, than the average FT parent.

When the covariance adjustment is introduced into the analysis of Parent's Satisfaction with Child's Academic Success, no changes occur. There remains no overall FT/NFT difference and no FT/NFT by Sponsor interaction.

Covariance adjustment does produce a change in the analysis of Parent Satisfaction with the Child's Affective Growth; whereas in the non-covaried

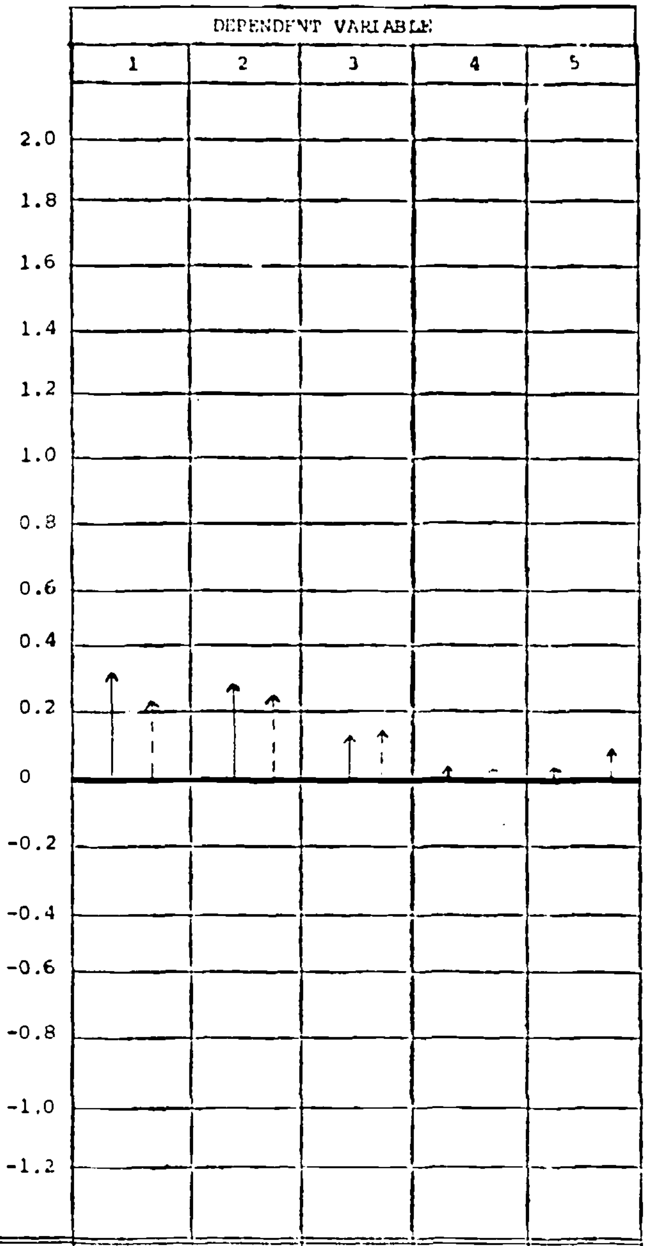
Table MI-26

Profile of FT/NFT Differences for Selected Parent Attitudes and Behaviors: Cohort I, Third Grade

N = 813 FT/NFT Parents
(531 FT Parents;
282 NFT Parents)

*B/S.D.: Magnitude of FT/NFT differences in Standard Deviation Units

KEY
Cov. Adj. Diff.
Unadj. Diff.



DEPENDENT VARIABLES

1 = Parent-School Interaction (A)

2 = Parent-School Interaction (B)

3 = Parent-Child School Oriented Behavior

4 = Parent Satisfaction with Child's Academic Success

5 = Parent Satisfaction with Child's Affective Growth

		1	2	3	4	5
B = Magnitude of the Difference	Adjusted	1.238	2.010	0.792	0.079	0.131
	Unadj.	0.831	1.710	0.890	0.051	0.306
SE_B = Standard Error of B	Adjusted	0.347	0.649	0.564	0.267	0.340
	Unadj.	0.357	0.668	0.551	0.265	0.335
F = Significance Statistic	Adjusted	12.709	9.591	1.614	0.088	0.147
	Unadj.	5.412	6.544	2.609	0.038	0.833
Standard Deviation		3.760	7.008	5.862	2.771	3.671
*B/S.D.	Adjusted	0.329	0.287	0.135	0.029	0.036
	Unadj.	0.221	0.244	0.152	0.019	0.083

analysis FT parents reported greater satisfaction, there is now no difference between the two groups. The FT/NFT by Sponsor interaction does remain with FT parents in Sponsors 6, 9, and 12 (Georgia, High/Scope, and Pittsburgh) reporting greater satisfaction than their respective NFT groups, and Sponsor 11's (EDC's) FT parents reporting less satisfaction than the NFT group.

3.4.2 Relationships of Mediators and Outcome Variables

The influence of five different variables on parent satisfaction and parent involvement was explored. First, the role of Parent-Child School Oriented Behavior as a mediator was explored; do parents who report more academic type interaction with their children report more or less interaction with the schools and more or less satisfaction than parents who report less academic-type interaction with their children?

Second, the relationships of the attitudinal variable, Parent Perception of School Receptivity, with satisfaction and the parent-school interaction variables were explored. Do parents who perceive their schools as more receptive to their ideas interact more or less with their schools than parents who perceive their schools as less receptive? Are parents who perceive their schools as more receptive more or less satisfied with their children's progress than parents who perceive their schools as less receptive?

The third series of questions involved income. Does a larger family income mean more or less interaction with the school than a smaller family income? Does the larger family income mean the mother is more or less likely to be satisfied with her child's academic success or affective growth?

Fourth, the relationship of each of the two parent-school interaction variables with the two satisfaction variables, Parent Satisfaction with the Child's Academic Success and Parent Satisfaction with the Child's Affective growth, was examined.

Tables AMI-24 through AMI-27 in the Appendix present the summary statistics; Table AMI-28 presents the zero-order correlations and regression weights. Figure MI-1 displays the observed triple interaction.

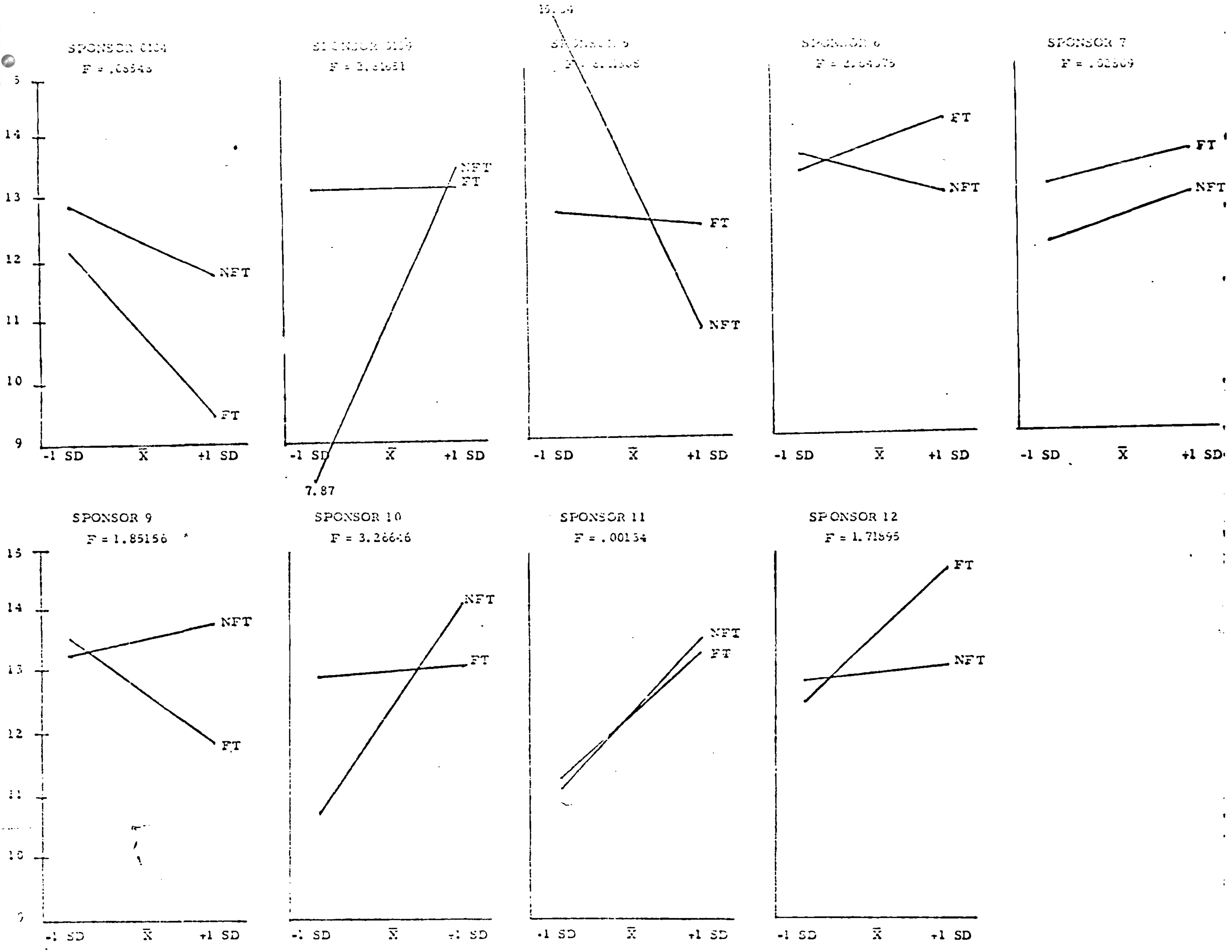


Figure MI-1. Sponsor by Treatment by Income

The predictor, Parent-Child School Oriented Behavior, has positive zero-order correlations in the low to mid-twenties with the criterion variables Parent Satisfaction and Parent-School Interaction. Positive relationships remain between the predictor and each of the criterion variables when FT/NFT, Sponsor, and interactions were partialled.

No relationships were found between Parent Perception of School Receptivity and either of the parent-school interaction variables. Zero-order correlations were negligible; and no relationship was found when FT/NFT, Sponsor, or interactions were partialled.

The zero-order correlation between Parent Perception of School Receptivity and Parent Satisfaction with Child's Academic Success was weak but positive. No relationship remained when the FT/NFT, Sponsor, and interactions were partialled. The zero-order correlation between Parent Perception of School Receptivity and Parent Satisfaction with Child's Affective Growth was similarly weak but positive; the positive relationship did, however, remain when FT/NFT, Sponsor, and interaction items were partialled. This pattern of relationship between Parent Perception of School Receptivity and the two satisfaction variables suggests the need for further exploration to ascertain what factors are related to the differential patterns.

Income has zero-order correlations of .16 with each of the parent-school interaction variables. The positive relationship remained when the FT/NFT, Sponsor, and interaction terms were partialled. Neither a zero-order correlation nor a partialled relationship was found between income and Parent Satisfaction with Academic Success. A negative zero-order correlation in the low twenties was observed between income and Parent Satisfaction with the Child's Affective Growth. No relationship remained when FT/NFT, Sponsor, and interaction terms were partialled.

There is a positive zero-order correlation between Parent-School Interaction (A) and Parent Satisfaction with Child's Academic Success; however, this relationship no longer is evident when the two variables are examined with the FT/NFT, Sponsor, and interaction terms partialled. Parent-School Interaction (B) manifested a zero-order correlation which approached significance but did not show a partialled relationship with Parent Satisfaction with Child's Academic Success.

Each of the parent-school interaction variables do show positive zero-order and partialled relationships with Parent Satisfaction with Child's Affective Growth.

3.4.3 Interaction of Mediators by FT/NFT by Sponsor

Our analyses of the attitudinal and behavioral data thus far have included descriptions of how the various FT/NFT Sponsor groups differ in the areas of parent involvement and satisfaction. We have also explored the influence of potential mediating variables on these analyses by the introduction of covariance adjustment. The influence of individual predictors on these variables has also been examined. This final analysis explores the influence of the mediator variables on parent involvement and satisfaction to determine if it is differential across FT/NFT by Sponsor groups.

Our first concern is to ascertain if parent-school interaction influences parent satisfaction differentially in the various Sponsor FT/NFT groups. Second, we explore the relationship of Parent-Child School Oriented Behavior to determine if there is an FT/NFT Sponsor interaction. Third, we examine the relationship of Parent Perception of School Receptivity with Parent-School Interaction and Parent Satisfaction to observe if it varies differentially across Sponsor FT/NFT groups. Last, we explore the relationship of income with Parent-School Interaction and Parent Satisfaction to determine if it varies across Sponsor FT/NFT groups.

There is no differential relationship between Parent-School Interaction and Parent Satisfaction with Child's Academic Success or Parent Satisfaction with Child's Affective Growth. The second indicator of parent involvement is Parent-Child School Oriented Behavior. Differential relationships across Sponsors by FT/NFT were not observed for this variable when we examined either Parent Satisfaction with Child's Affective Growth, Parent Satisfaction with Child's Academic Success, or Parent-School Interaction.

School receptivity has not been found to influence parents differently across Sponsor and FT/NFT groups in either the area of parent-school interaction or the area of parent satisfaction.

The influence of income does not vary across the different FT/NFT Sponsor groups when Parent-School Interaction or Parent Satisfaction with the Child's Affective Growth is explored. However, Parent Satisfaction with Child's Academic Success does vary across income level within the Sponsor FT/NFT groups. Within Sponsor 5 (Bank Street), FT parent satisfaction does not appear to fluctuate with income level; however, for NFT parents, satisfaction appears to relate inversely to income level. At lower income levels, NFT parents are more satisfied with their children's academic success than FT parents. At the higher levels of income (within our restricted range), FT parents seem to be more satisfied.

4.0 SUMMARY AND DISCUSSION

The median reported income for NFT parents is higher than that for FT parents at both the third grade and kindergarten levels. With only one exception (Sponsor 12, third grade), the median NFT income is higher than the median FT income within each Sponsor. Approximately half of the mothers of FT children have not completed high school, and overall they are less well educated than the NFT mothers. These findings suggest that Follow Through is indeed reaching the lower socioeconomic population for which the program was intended. However, they also illustrate the problem of finding an appropriate group of NFT children for comparison.

Despite these overall FT/NFT differences, there is considerable variability among Sponsors on both of these variables. For example, the median income for both FT and NFT parents in Sponsor 8's kindergarten group is lower than it is for either the FT or NFT groups in Sponsors 3, 5, 11, and 12. At the third grade level, both the FT and NFT groups within Sponsors 5, 9, and 12 report a median income which is lower than either the FT or NFT median income reported for Sponsor 11. Furthermore, while the proportion of mothers reporting completing high school is larger for NFT than for FT at both the kindergarten and third grade levels, the pattern is differential within Sponsors. Moreover, as with income, the proportion of FT and NFT mothers completing high school in some Sponsors is lower than either the FT or NFT proportions in other Sponsors. For example, Sponsor 8's FT and NFT groups are lower than either the FT or NFT groups in seven other Sponsors at the kindergarten level. At the third grade level, Sponsor 5's FT and NFT groups are both lower than four of the six other Sponsors.

Because socioeconomic status may reflect very deep and meaningful differences in the nature of the communities with which the several Sponsors are involved, these differences suggest important contextual differences in the relationships Sponsors have with their clients. It is clear that simply adjusting the pupil outcomes by a socioeconomic covariate set may not do full justice to the real differences among the Sponsors' participating groups.

In addition to these demographic variables, data on parental attitudes and behaviors were explored at both the kindergarten and third grade levels.

While it is not possible to attribute causality to any of the differences observed in parent involvement at either level, the following patterns were observed. In the third grade, four involvement variables were examined, and the differences which appeared generally favored FT. Differences in the three involvement variables examined for kindergarten also favored FT, although more Sponsor variation was apparent.

Sponsor variability in the kindergarten analysis occurred in two instances. First in Sponsors 5 and 8, FT parents reported more parent-school interaction only when that interaction includes the mother's working in the school. It appears for these two Sponsors, whose approaches to early childhood education are relatively different, that the mother's active involvement in the school is one important aspect which differentiates their respective FT and NFT groups. At the kindergarten level, the FT parents in Sponsors 7 and 10 report the same amount of parent-school interaction from their respective NFT groups. In Sponsor 7, the FT group does show a positive difference, when we control for socioeconomic status. The lack of difference in Sponsor 10 probably is caused by a relatively active NFT group. The mean for Sponsor 10's NFT group is greater than the NFT average. Also, Sponsor 10's parent involvement component places heavy emphasis on parent involvement in the home where interaction may not be tapped by the parent-school interaction variables. This discrepancy points to a need to explain other aspects of parent involvement.

At the third grade level,FT parents generally report more parent-school interaction than NFT parents. Although there appears to be no difference in the amount of parent-child school oriented behavior at this grade level, both FT and NFT parents report that they are quite active in this type of involvement. Parents' perceptions of their knowledge of the Follow Through program were explored at the third grade level for FT parents. Although Sponsor variability exists, overall, FT parents perceive they are knowledgeable about Follow Through. The general trend of these findings-- that FT parents are involved in the educational process of their chilren -- is especially encouraging in view of the fact that the FT parents generally are from a lower socioeconomic group from whom a lower degree of involvement might be expected.

The greater satisfaction with their children's academic progress displayed by FT kindergarten parents may reflect initial status differences, an attitudinal effect associated with participation in a special program, or the perception of changes in children's academic success. The absence of a difference on this attitudinal measure at the third grade level is more difficult to interpret, due to problems of sampling and program immaturity. However, the fact that there is no NFT advantage on this variable, despite the higher socioecomic status of this group, is encouraging. Furthermore, the fact that these parents are satisfied with their children's affective growth suggests that Sponsors may be having an impact on parental attitudes at this grade level as well. Future analyses will need to explore these issues further.

Recognizing that a number of different variables might be mediating the results of the kindergarten and third grade analyses, we employed covariance procedures in order to examine parent involvement and parent satisfaction in relatively uncontaminated form. In a few instances the results did change; in many they did not.

At the kindergarten level, the introduction of a covariate set eliminated the difference favoring Follow Through on the parent-child school oriented behavior variable and produced some minor Sponsor fluctuation in parent-school interaction. For example, in Sponsors 9 and 11, covariance adjustment on the parent-school interaction variable which excludes information about the mother working in the school removes the differences between the FT and NFT groups which favored Follow Through. At the third grade level, the overall FT/NFT difference in parent satisfaction with child's affective growth was lost although the Sponsor variability was maintained.

Although it is not possible at this time to ascertain definite reasons for the few shifts which did occur in the covariance analysis, the examination of selected mediators does begin to provide some insight. Parents who interact more with their children in academically related areas are also more likely to interact with their children's schools and be satisfied with their children's progress. However, while interaction with schools and satisfaction with affective growth are positively related;

we observed only a very weak relationship (which disappeared in some analyses) between interaction with schools and satisfaction with the child's academic success. It appears that other mediating variables may be playing a stronger role in the relationship of interaction with the school and satisfaction with academic areas than in the relationship of interaction with school and satisfaction with affective growth. These variables could include, but are not necessarily limited to, FT/NFT or Sponsor background or program differences which have not been explored at this time.

Parents with higher incomes are also more likely to interact with their schools; however, income showed no simple relationship with the parent's satisfaction with her child's academic success. Within one Sponsor, however, there was a differential relationship of income and parent satisfaction with academic success for the FT and NFT.

The relationship of income to parent satisfaction with affective growth is ambiguous. Overall, there is a fairly strong negative relationship with higher income parents being less satisfied. However, this relationship disappears when FT/NFT, Sponsor, and interaction effects are partialled.

The parent's perception of how receptive her school is to parent ideas and concerns shows variability across the parent-school interaction and satisfaction variables. No relationship was found between school receptivity and the parent's interaction with the school. However, the parent who finds the school receptive is more likely to express greater satisfaction with her child's affective growth. This may suggest a simple relationship between two attitudinal variables. Further exploration of the relationships of these variables with other variables may suggest other hypotheses. Overall, there is a positive relationship between how receptive the parent finds the school and how satisfied she is with her child's academic success. However, this relationship disappeared when FT/NFT, Sponsor, and interaction effects are partialled.

This initial exploration into variable interrelationships begins to demonstrate the complexity of the Follow Through parent data. Although differential FT/NFT by Sponsor relationships were not observed for many of the variables, the variability of the relationships which has been observed suggests that Sponsors are probably having different effects on different types of parents. In order to more clearly observe this variability and to possibly pinpoint its nature more accurately, a number of steps will need to be taken. The variables explored have been developed to serve as indicators of real world demographic characteristics, attitudes and behaviors. If there are relationships among the real world variables, if these relationships are working differentially across the various FT/NFT Sponsor groups, further variable refinement may provide additional insight into the nature of the interactions. Further analyses will serve both to crossvalidate the findings which we reported here and to test hypotheses generated as a result of these findings.

MONOGRAPH II: TEACHER STUDIES

1.0 INTRODUCTION

1.1 Research Questions

Earlier in this report, the impact of the Follow Through program upon participating children and their parents was examined in a variety of different contexts. It was found that the FT/NFT groups have differing patterns of pupil performance and parent involvement. The direction and magnitude of these differences, however, varied markedly by Sponsor and site. In order to describe these differences, it is essential to obtain meaningful descriptors of the teaching staff, since for most Sponsors the classroom teacher is a key element in the process by which the educational program is delivered to children.

Two domains or types of information may be used to describe teachers. First, there are the personal and professional characteristics of teachers, such as age, teaching experience, education, ethnicity, and place of residence. These characteristics, which teachers bring with them into the classroom, may be considered relatively independent of the intervention program itself. The second set of variables, on the other hand, may be a function of experimental manipulation. These include teacher training in basic Sponsor philosophy, teacher attitudes toward specific philosophical and psychological principles, and estimates of the extent to which these are reflected in teacher behaviors.

This Monograph, which focuses on both sets of teacher variables as well as on the relationship between the two, is designed to address the following sets of questions:

- Do the personal and professional characteristics of teachers vary by FT/NFT, by FT/NFT within Sponsor, by grade level, by community location, or by a combination of these?
- Do the amount and type of training reported by FT teachers vary by Sponsor, by grade level, by community location, or by a combination of these?
- Do teachers' values, attitudes, and reported behaviors vary by FT/NFT, by FT/NFT within Sponsor, by grade level, by community location, or by a combination of these?

- Does either teacher satisfaction with or perceived faithfulness to the Sponsor's approach vary by Sponsor, by grade level, by community location, or by a combination of these?

- Are teachers' personal and professional characteristics related to their reports of training, values, attitudes, and reported behaviors? Do these relationships vary by FT/NFT, by FT/NFT within Sponsor, or by grade level?

Although various forms of teacher questionnaires were administered each year of the National Follow Through Evaluation (1969-1972), the present analyses utilize data obtained from the Spring of 1972 only. This selection was made to provide maximum correspondence with pupil and parent analyses of the data representing Cohort III kindergarten and Cohort I third grade.

1.2 Rationale

In each of the questions listed above, the relationship of teahcer characteristics to participation in the FT program in general and/or to participation in a given Sponsor's approach is examined. The reason for exploring FT/NFT and FT/NFT within Sponsor contrasts needs no explanation. Our purposes in examining the relationship of grade level and community location to various teacher characteristics, however, are less obvious and will be discussed here.

Several theoretical and interpretive reasons generate our interest in grade level: first, kindergarten may be qualitatively different from other grade levels in both program goals and the activities designed to meet those goals. Traditionally, the kindergarten year has been viewed as a period of transition from home to shcool. The development of social skills and "readiness" concepts has played an important part in this transition process. Reading and the teaching of other basic skills, on the other hand, have been reserved for higher grades. By examining kindergarten and the other grade levels separately, these differences may be explored.

Second, the kindergarten cohort represents the largest sample yet drawn and the one most carefully designed to reflect the overall distribution of sites in the FT program. This is the sample used in the analyses of pupil outcomes. By exploring grade level differences, a more direct link can be made between teacher and pupil studies.

And finally, the kindergarten sample represents the third cohort or wave of children to pass through the kindergarten program. Thus, it may be that the kindergarten teachers have been with the program longer than teachers in other grades. Furthermore, FT Sponsors have had three years of experience at this grade level. Differences in teacher training, values, attitudes, and reported behaviors may be most clearly seen in this teacher group, following three years of Sponsor maturation.

In order to reflect fully these concerns, we have classified grade level into two categories: kindergarten versus other grades. In addition to allowing us to examine the kindergarten teachers separately from the others, this dichotomy saves degrees of freedom in our analytic model.

City size and region are also of interest for at least two reasons. First, Coleman and others have found that teacher characteristics, as well as other features of the school system, vary with the region of the country in which teachers are located (Coleman, 1966). Second, we have found in the FT data that pupil outcomes vary with the size of the city in which the program is located. It may be that the differences in pupil outcomes are associated with differences in teacher characteristics related to community location.

The rationale for each of the teacher characteristics chosen for study is presented here, organized according to the research questions listed earlier. The analytic model designed to address each question is described fully in the method section of this Monograph, as are the procedures used in variable construction.

1.2.1 Do the Personal and Professional Characteristics of Teachers Vary by FT/NFT, by FT/NFT within Sponsor, by Grade Level, by Community Location, or by a Combination of These?

The personal and professional characteristics of teachers which have been selected for study include: teacher education and experience, salary, age, ethnicity, and location. These characteristics were chosen for a variety of reasons (in addition to data availability). First, teacher education and experience have traditionally been used as criteria for screening teachers and advancing them in the teaching profession. They have also been used,along with teacher salary, by educational researchers as school and teacher indicators in the examination of the relationship of SES and school characteristics (Coleman, 1966; Herriot and St. John, 1966). Prescott et al. (1967) found that teacher education is related to teacher techniques in the following way: teachers with little or no professional education are more apt to use restriction than indirect guidance. Moreover, salary has been found to be related to pupil achievement (Dyer, 1968). Finally, age, which is highly related to length of teaching experience, has also been used both formally and informally as an indicator of teacher quality. Some have hypothesized that the younger the teacher, the more receptive to curriculum innovations (Lukas and Wohleb, 1972).

FT is seen by many as a vehicle, not only for promoting equal educational opportunity for children, but also for enhancing career opportunities for minority groups, who have long been underrepresented in teaching and other professions. Many educators also feel that teachers who are similar in cultural-ethnic-social status to their pupils may be more sensitive to their pupils' needs, better role models, and generally more effective. Soar (1972) found teacher ethnicity to be related to the observed behaviors of FT teachers, and Dyer (1968) found it also correlated with the achievement of certain minority pupils in grades 6 and 9. For these reasons, teacher ethnicity has been chosen for study here. In addition, teacher localism -- the proximity of the neighborhood in which teachers reside to that of their pupils -- has been included as an indirect measure of teachers' social distance from their pupils.

In this Monograph, we will describe the teacher sample in relation to each of these background variables. Because of both the hypothetical and empirical relationships to pupil outcomes, three of these variables -- teacher education, length of total teaching experience, and teacher ethnicity -- have been used as covariables in the class and pupil studies. In addition, since Prescott et al. and Soar found that both teacher education and ethnicity are related to certain teaching techniques and since experience is hypothesized as a mediator of teacher receptivity to a Sponsor's approach, these have been partialled out in the examination of those teacher characteristics which are subject to experimental manipulation. In this way, FT/NFT and Sponsor contrasts can be more fully explored. Finally, the relationship of each of these variables to Sponsor training, values, attitudes, and reported behaviors has been examined, as will be discussed in section 1.2.5 below.

1.2.2 Do the Amount and Type of Training Reported by FT Teachers Vary by Sponsor, by Grade Level, by Community Location, or by a Combination of These?

Most Sponsor approaches are delivered to children by way of the classroom teacher, as noted above. Thus, it is important to gather information concerning the extent to which a Sponsor's theoretical model is transmitted to the person who must apply it in the classroom. Although we have no direct measure of the quantity or quality of Sponsor training, we do have data on the amount and focus of that training as reported by teachers responding to the teacher questionnaire.

Three Sponsor training variables have been constructed from that instrument. Two reflect Sponsors' curriculum models: the amount of training reported in child-centeredness and the amount in structure. The third reflects the Sponsor's focus on developing interpersonal-community relationships: amount of training reported in working with parents and aides. The techniques utilized in constructing these variables, the specific items composing each, and their reliability coefficients are reported in the method section below.

1.2.3 Do the Values, Attitudes, and Reported Behaviors of Teachers Vary by FT/NFT, by FT/NFT within Sponsor, by Grade Level, by Community Location, or by a Combination of These?

Beller (1973) distinguishes between three types of teacher characteristics: (1) teacher role perceptions, (2) teacher techniques, and (3) teacher styles. Teacher role may be defined as behavior which concerns the duties, responsibilities, and functions expected of her (Katz,1969). Techniques refer to teacher strategies and methods employed to accomplish her objectives. These might include reinforcement strategies, the use of grouping patterns, techniques of questioning, and degree of structure. Style refers to belief systems, attitudes, and other personality characteristics which are not planned components of teacher role functioning.

Each of the FT Sponsors attempts to modify one or more of these teacher characteristics. Some focus primarily on providing teachers with a new repertoire of techniques. which, when utilized as prescribed, are designed to accomplish program objectives. Others aim at more fundamental teacher change; they may desire, for example, that the teacher's style be spontaneously receptive,and sensitive to the needs of individual pupils. Each Sponsor has a given role model towards which its training program is directed. For these studies unavailability of the data precludes examination of the program effect on teacher style. However, we can begin to explore the relationship of participation in FT/NFT and in a given Sponsor's program to teacher role and techniques.

Three variables labelled teacher values have been developed to measure teacher role perceptions and teaching techniques. They are: (1) parent-community orientation, (2) social skills development, and (3) structured/academic versus child-centered orientation. Teachers scoring high on the first of these variables perceive the involvement of parents in their children's education and the development of ethnic pride as primary program goals. Teachers scoring high on the second variable view the development of socially acceptable conduct in their pupils as paramount. The third variable measures two contrasting teacher roles: the instructor role, on the one hand, and the resource role on the other. In the instructor role, the development of basic skills, strategies, and interests are primary goals. The techniques used to achieve these goals may include teaching structured lessons to small groups, using programmed instructional materials, and using rewards to shape behavior. In contrast, the resource role may be defined as one in which the primary goal is the development of problem solving abilities and self-confidence. Individualized teaching techniques, heavy emphasis on exploration and manipulation, and encouragement of child-initiated learning may be used to achieve these goals. Flanders (1970) has identified a similar contrast through classroom observation: the indirect versus direct teaching ratio.

There is reason to believe that teacher role perceptions and techniques have some influence on pupil achievement and motivation (Rosenshire and Furst, 1973). While we have not yet explored the relationship of teacher characteristics and pupil outcomes, these data shed some light on variations in important teacher characteristics which are the object of experimental manipulation.

In addition to these three teacher variables, representing a combination of teacher role and technique, two variables have been selected to assess teacher attitudes and reported behaviors toward parents. As has been noted in the preceding Monograph, parent involvement is a primary goal of the FT program since the home-school partnership is seen as a key to pupil growth. The teacher represents an important element in that partnership; she is the school staff member whom the parent is most likely to meet. Her attitudes toward the importance of meeting with parents and the frequency with which she makes home contacts may well influence the degree of parent involvement in the FT program. Variations in these teacher characteristics by FT/NFT, by FT/NFT within Sponsor, by grade level, and community location are a major focus of the teacher studies reported in this Monograph. In future studies, we will explore the relationship of teacher attitudes and reported behaviors to parent perceptions of school receptivity, to parent-school interaction, and to parent satisfaction with children's academic and affective growth.

Finally, we have measured teacher expectations of how far their pupils will go in school. Whether or not such expectations influence either pupil attitudes toward teachers or pupil performance is a matter of current controversy (Rosenthal and Jacobson, 1968; and Barber and Silver, 1968). The studies which this Monograph describes explore the relationship between FT and teacher expectations, a step that must precede the investigation of the potential impact of teacher expectations on pupils, which will be a focus of future studies.

1.2.4 Does Either Teacher Satisfaction with or Perceived Faithfulness to the Sponsor's Approach Vary by Sponsor, by Grade Level, by Community Location, or by a Combination of These?

Teacher satisfaction with a Sponsor's approach is of interest for at least two reasons. First, the professional judgment of teachers concerning the quality of a Sponsor's program is to be valued in and of itself. Our measures of pupil performance are extremely limited. Nor do we have any measure at all of the important social-psychological-medical benefits of the FT program. Since teachers are apt to judge a program, at least in part by its benefits to children, teacher satisfaction may be viewed as an important outcome variable. Second, and of equal importance, teacher satisfaction may mediate the implementation of a Sponsor's approach. Lukas and Wohleb (1972) found that staff morale and rapport were the variables most highly related to Sponsor judgments of program implementation. So too, Rosenshine and Furst (1973) found that teacher enthusiasm is one of the few variables that has consistently been found to relate to teacher effectiveness with pupils. If we can assume that a teacher's enthusiasm is related to her satisfaction with the approach she uses, then we may also be able to assume that her satisfaction influences pupil performance. Thus, we are interested in teacher satisfaction both for its own sake and for its potential relationship to implementation and pupil performance.

To date, we have limited data on the extent to which teachers are implementing their Sponsor's approach. In Monograph III, we examine the implementation question for a limited number of Sponsors in a small number of sites. Analysis of teacher values, attitudes, and reported behaviors is designed to shed further light on the extent to which teachers are cognizant of and/or have internalized basic Sponsor principles. The faithfulness variable -- which measures the extent to which a teacher feels her classroom reflects her Sponsor's ideal classroom -- provides additional information on implementation.

1.2.5 Are Teachers' Personal and Professional Characteristics Related to Teachers' Reports of Training, Values, Attitudes, and Reported Behaviors? Do these Relationships Vary by FT/NFT, by FT/NFT within Sponsor, and by Grade Level?

Three teacher background characteristics -- education, experience, and ethnicity -- as well as city size and region have been used as co-variables in both the analysis of pupil outcomes and the analysis of teacher data. In addition, this Monograph explores the relationship of each of these variables to teacher reports of training, values, attitudes, and reported behaviors, as well as to teacher satisfaction and faithfulness.

Previous research has shown that at least two of these teacher variables as stated above -- education and ethnicity -- are in fact related to teacher behaviors. Prescott et al. (1967) found a relationship between teacher training and techniques, and Soar (1972) found that white teachers were more apt to give pupils a freedom of choice in activities and less drill work than black teachers. It has also been postulated that the less experienced the teacher, the more easily she will adopt new ideas and the more receptive she will be to a Sponsor's approach.

We are interested in exploring these overall relationships. We are also interested in examining whether or not these relationships vary by FT/NFT and Sponsor. It may be that certain Sponsors are "teacher proof". They may work equally well with teachers of more or less experience and education, and with teachers of varying ethnicity. Other Sponsor approaches may appeal more to teachers of a given education level, number of years of teaching experience, or ethnic group. Such information sheds more light on the ease and consistency with which a Sponsor's approach may be implemented in a variety of contexts.

1.3 Limitations

1.3.1 Restrictions in Time

The teacher studies utilize data drawn from the Spring 1972 teacher questionnaire only, and so they present a picture of teachers at only one point in time. This selection was designed to provide maximum correspondence with pupil and parent studies. Given the single point in time, however, we are limited to making cross-sectional comparisons of teachers. If variations appear in teacher characteristics, we cannot determine whether the differences (1) existed prior to program intervention, (2) resulted from differential assignment of teachers to treatment groups, or (3) represent the effects of experimental manipulation.

1.3.2. Sampling Restrictions

As will be described below, the teacher "sample" is not a random sample, but a group of teachers. Teachers are not evenly distributed by FT/NFT, by FT/NFT within Sponsor, by grade level, or by community type. It is not possible, therefore, to generalize from this group either to the population of FT teachers or to teachers in general.

1.3.3. Restrictions in Scope

Within the limitation imposed by the data available for analysis, additional questions could have been addressed by the teacher studies. For this report, however, we carefully restricted our questions to those which bear most directly on the issues of Sponsor delivery and implementation. We have also included an examination of those teacher background characteristics and attitudes which are seen as potential mediators of pupil progress.

These data represent teacher reports only. We have not yet cross-validated teacher perceptions of training with Sponsor reports, reported teacher techniques with observed classroom behaviors, or reported teacher behaviors toward parents with related data from parent interviews. These comparisons will be made, and will enrich our knowledge of both delivery and implementation. In addition, while we have not yet done so, the teacher data will be merged with pupil outcomes so that the relationsip of teacher characteristics and pupil growth can be directly explored.

2.0 METHOD

2.1 The Analytic Subset

Before describing the teacher "sample", we must stress that we are analyzing a group, not a random sample, of teachers, and that this group may not be representative either of the population of FT teachers or of teachers in general. Nevertheless, the relationships among the "sampled" teachers' personal characteristics, Sponsor-related training, attitudes and reported behaviors are extremely interesting.

Over 1,600 teachers from fourteen Sponsors responded to the Teacher Questionnaire mailed by Stanford Research Institute in the Spring of 1972. This group represented approximately 95% of the FT and NFT teachers whose classrooms (kindergarten, first, second, third and non-graded) were tested during the 1972 school year. Table AMII-1 in the Appendix describes this group by FT/NFT, by Sponsor, and by grade level.

Of those surveyed, 1122 teachers (631 FT and 491 NFT) met the following criteria: (1) they taught in graded classrooms: (2) they were associated with one of the ten Sponsors examined in the school studies at the kindergarten level; and (3) they had complete data on all items pertinent to the FT/NFT analyses. Data for these teachers were used to answer all questions pertaining to FT/NFT differences except where age was the dependent variable. In this instance, data from the 1084 teachers who reported their age were analyzed.

For the reasons described in Section 1.2, these 1122 teachers were dichotomized by grade level according to the scheme, kindergarten versus other grades. Tables MII-1, MII-1A and MII-1B present the distribution of FT/NFT teachers by Sponsor, grade, community size, and geographical region.

A subset of 507 FT teachers also had complete data on all FT relevant variables, such as training and attitudes toward FT. Data from this subgroup were used in those analyses pertaining only to FT teachers. Table MII-2 describes these teachers by Sponsor, grade, and community size and location.

It is obvious from Tables MII-1A to MII-2 that the teachers studies are not well distributed geographically. There are very few teachers from Western areas or from communities of less than 10,000 inhabitants. Kindergarten teachers are largely from non-southern, urban communities, whereas teachers at other grade levels are more evenly distributed by geographical region and community size. There is also wide variation among Sponsors: some are primarily southern and rural, some are primarily northern and urban, and still others are more widely represented.

Table MII-1

DISTRIBUTION OF TEACHERS IN FT/NFT STUDIES BY SPONSOR AND GRADE LEVEL

	Kindergarten			Other Grades			All Grades		
Sponsor	FT	NFT	Total	FT	NFT	Total	FT	NFT	Total
2	28	23	51	29	32	61	57	55	112
3	37	26	63	58	47	105	95	73	168
5	36	24	60	59	40	99	95	64	159
7	27	19	46	54	39	93	81	58	139
8	38	23	61	20	12	32	58	35	93
9	25	22	47	21	25	46	46	47	93
10	24	16	40	50	34	84	74	50	124
11	16	17	33	30	37	67	46	54	100
12	17	11	28	16	7	23	33	18	51
14	17	10	27	29	27	56	46	37	83
TOTALS	265	191	456	366	300	666	631	491	1122

Table MII-1A

DISTRIBUTION OF TEACHERS IN FT/NFT STUDIES
BY SPONSOR, GRADE, AND CITY-SIZE

SPONSOR	RURAL AREA									SMALL CITY								
	KINDERGARTEN			OTHER GRADES			ALL GRADES			KINDERGARTEN			OTHER GRADES			ALL GRADES		
	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL
2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3	--	--	--	12	9	21	12	9	21	12	9	21	15	5	20	27	14	41
5	--	--	--	--	--	--	--	--	--	10	9	19	30	14	44	40	23	63
7	--	--	--	5	2	7	5	2	7	--	--	--	22	20	42	22	20	42
8	7	2	9	10	6	16	17	8	25	--	--	--	--	--	--	--	--	--
9	--	--	--	--	--	--	--	--	--	6	7	13	14	20	34	20	27	47
10	3	2	5	--	--	--	3	2	5	4	2	6	13	8	21	17	10	27
11	--	--	--	12	23	35	12	23	35	4	4	8	--	--	--	4	4	8
12	6	4	10	16	7	23	22	11	33	6	3	9	--	--	--	6	3	9
14	4	2	6	11	16	27	15	18	33	8	4	12	8	5	13	16	9	25
TOTAL	20	10	30	66	63	129	86	73	159	50	38	88	102	72	174	152	110	262

SPONSOR	MEDIUM CITY									LARGE CITY								
	KINDERGARTEN			OTHER GRADES			ALL GRADES			KINDERGARTEN			OTHER GRADES			ALL GRADES		
	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL
2	24	19	43	29	32	61	53	51	104	4	4	8	--	--	--	4	4	8
3	10	7	17	10	8	18	20	15	35	15	10	25	21	25	46	36	35	71
5	13	8	21	7	9	16	20	17	37	13	7	20	22	17	39	35	24	59
7	26	17	43	23	14	37	49	31	80	1	2	3	4	3	7	5	5	10
8	9	6	15	--	--	--	9	6	15	22	15	37	10	6	16	32	21	53
9	--	--	--	--	--	--	--	--	--	19	15	34	7	5	12	26	20	46
10	--	--	--	16	12	28	16	12	28	17	12	29	21	14	35	38	26	64
11	5	5	10	6	9	15	11	14	25	7	8	15	12	5	17	19	13	32
12	--	--	--	--	--	--	--	--	--	5	4	9	--	--	--	5	4	9
14	--	--	--	--	--	--	--	--	--	5	4	9	10	6	16	15	10	25
TOTAL	87	62	149	91	84	175	178	146	324	108	81	189	107	81	188	215	162	377

Table MII-1B

DISTRIBUTION OF TEACHERS IN FT/NFT STUDIES BY SPONSOR, GRADE, AND REGION

SPONSOR	WEST									NON-WEST								
	KINDERGARTEN			OTHER GRADES			ALL GRADES			KINDERGARTEN			OTHER GRADES			ALL GRADES		
	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL
2	13	11	24	11	16	27	24	27	51	15	12	27	18	16	34	33	28	61
3	--	--	--	--	--	--	--	--	--	37	26	63	58	47	105	95	73	168
5	2	1	3	--	--	--	2	1	3	34	23	57	59	40	99	93	63	156
7	--	--	--	5	2	7	5	2	7	27	19	46	49	37	86	76	56	136
8	--	--	--	--	--	--	--	--	--	38	23	61	20	12	32	58	35	93
9	14	13	27	--	--	--	14	13	27	11	9	20	21	25	46	32	34	66
10	--	--	--	--	--	--	--	--	--	24	16	40	50	34	84	74	50	124
11	--	--	--	--	--	--	--	--	--	16	17	33	30	37	67	46	54	100
12	--	--	--	--	--	--	--	--	--	17	11	28	16	7	23	33	18	51
14	8	4	12	8	5	13	16	9	25	9	6	15	21	22	43	30	28	58
TOTAL	37	29	66	24	23	47	61	52	113	228	162	390	342	277	619	570	439	1009

SPONSOR	SOUTH									NON-SOUTH								
	KINDERGARTEN			OTHER GRADES			ALL GRADES			KINDERGARTEN			OTHER GRADES			ALL GRADES		
	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL	FT	NFT	TOTAL
2	--	--	--	--	--	--	--	--	--	28	23	51	29	32	63	57	55	112
3	6	5	11	28	30	58	34	35	69	31	21	52	30	17	47	61	38	99
5	5	4	9	32	18	50	37	22	59	31	20	51	27	22	49	58	42	100
7	--	--	--	22	20	42	22	20	42	27	19	46	32	19	51	59	38	97
8	8	4	12	--	--	--	8	4	12	30	19	49	20	12	32	50	31	81
9	3	4	7	14	20	34	17	24	41	22	18	40	7	5	12	29	23	52
10	16	11	27	44	24	68	60	35	95	8	5	13	6	10	16	14	15	29
11	2	3	5	12	23	35	14	26	40	14	14	28	18	14	32	32	28	60
12	--	--	--	4	1	5	4	1	5	17	11	28	12	6	18	29	17	46
14	4	2	6	11	16	27	15	18	33	13	8	21	18	11	29	31	19	50
TOTAL	44	33	77	167	152	319	211	185	396	221	158	379	199	148	347	420	306	726

Table MII-2

DISTRIBUTION OF TEACHERS IN FT-ONLY STUDIES BY CITY-SIZE AND REGION

Sponsor	RURAL AREA			SMALL CITY			MEDIUM CITY			LARGE CITY		
	Kinder-garten	Other Grades	All Grades	Kinder-garten	Other Grades	All Grades	Kinder-garten	Other Grades	All Grades	Kinder-garten	Other Grades	All Grades
2	0	0	0	0	0	0	19	22	41	4	0	4
3	0	10	10	9	11	20	10	8	18	14	17	31
5	0	0	0	10	24	34	12	6	18	11	19	30
7	0	4	4	0	13	13	23	20	43	0	4	4
8	7	7	14	0	0	0	7	0	7	19	8	27
9	0	0	0	6	12	18	0	0	0	19	6	25
10	2	0	2	4	10	14	0	12	12	13	12	25
11	0	5	5	4	0	4	5	5	10	4	7	11
12	6	12	18	4	0	4	0	0	0	5	0	5
14	4	8	12	7	5	12	0	0	0	4	8	12
Totals	19	46	65	44	75	119	76	73	149	93	81	174

Sponsor	SOUTH			NON-SOUTH			WEST			NON-WEST		
	Kinder-garten	Other Grades	All Grades	Kinder-garten	Other Grades	All Grades	Kinder-garten	Other Grades	All Grades	Kinder-garten	Other Grades	All Grades
2	0	0	0	23	22	45	9	9	18	14	13	27
3	6	23	29	27	23	50	0	0	0	33	46	79
5	5	25	30	28	24	52	2	0	2	31	49	80
7	0	13	13	23	28	51	0	4	4	23	37	60
8	6		6	27	15	42	0	0	0	33	15	48
9	3	12	15	22	6	28	14	0	14	11	18	29
10	14	32	46	5	2	7	0	0	0	19	34	53
11	1	5	6	12	12	24	0	0	0	13	17	30
12	0	1	1	15	11	26	0	0	0	15	12	27
14	4	8	12	11	13	24	7	5	12	8	16	24
Totals	39	119	158	193	156	349	32	18	50	200	257	457

2.2 Variable Development

The Spring 1972 Teacher Questionnaire contained approximately 180 items for both FT and NFT teachers, and 100 additional items for FT teachers only. A limited number of these items, pertaining to the research questions described above, were organized into the following categories for cluster analysis:

- attitudes toward Follow Through and Sponsors
- focus of teacher training given
- teaching goals and practices
- parent and community involvement

A brief description of the cluster analysis procedure follows.[1]

The first two categories analyzed contained items relevant to FT teachers only. To adjust for the unique distribution of teachers within Sponsors, correlation matrices were first computed separately for each Sponsor and then averaged across Sponsors using the Fisher z transformation. The averaged correlation matrices for each subgroup served as input to the cluster analyses.

The remaining categories contained items appropriate to both FT and NFT teachers. To adjust for the unequal distribution of teachers by FT/NFT within Sponsors, separate correlation matrices were computed for each FT and NFT group within each Sponsor. Once again, these correlations were averaged using Fisher's z transformation and then submitted to cluster analysis.

To obtain some estimate of the stability of results, all cluster analysis procedures were performed on two equal subgroups of teachers, chosen by means of an odd-even split. Nine relevant cluster variables thereby emerged that were comparable across both sets of data. These variables are presented in Table MII-3. Additionally, several other variables were

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[1] For a more thorough presentation of the cluster analysis techniques utilized, see the Parent Studies, Monograph I.

Table MII-3

SELECTED CLUSTER VARIABLES DEVELOPED FROM THE SPRING, 1972 TEACHER QUESTIONNAIRE

FT-Only Cluster Variables

	Item #
Teacher satisfaction	
Teacher would choose to use Sponsor's approach	5
Teacher would recommend FT/Sponsor's approach for friend's child	6
Teacher would advise friend to teach in FT/Sponsor's approach	7
Perceived faithfulness to Sponsor's approach	
Materials and equipment	10a
Amount of student choice	10b
Amount of teacher direction	10c
Number of structured group activities	10d
Flexibility of daily schedule	10e
Overall classroom program	10f
Amount of training: structure	
How to present structured materials to small groups	19a
How to use rewards to shape behavior	19b
How to sequence instruction	19c
Amount of training: child-centeredness	
How to use culturally relevant materials	19d
How to develop problem solving and reasoning abilities	19f
How to promote optimal development of children's self concept	19g
How to develop children's social interaction skills	19h
How to encourage decision making and carrying out plans	19i
How to guide children in individual learning activities	19j
How to develop intrinsic motivation	19k
How to diagnose individual learning problems	19l
Amount of training: working with parents and aides	
How to use a classroom aide effectively	19e
How to train parents to use effective reinforcement techniques	19m
How to give parents a sense of participation in the school	19r

FT/NFT Cluster Variables

Teacher attitudes toward meeting with parents to:	
Learn parents' views on teaching and curriculum	55b
Discuss availability of services	55c
Have parents understand school program	55d
Obtain support for school program	55e
Obtain classroom volunteers	55f
Gain understanding of parents and community	55g

Table MII-3 (cont'd.)

	Item #
Teacher values: parent-community orientation	
Goal--Developing ethnic pride	43l
Goal--Involving parents in children's learning	43n
Practice--Working with parents	43m
Teacher values: social skills development	
Goal--Developing cooperation	43n
Goal--Developing respect for others	43o
Practice--Encouraging children to work and play together in groups	44n
Teacher values: structured/academic vs. child-centered orientation	
Goal--Giving child a solid grasp of basic skills	43j
Practice--Presenting structured materials to small groups	44a
Practice--Using rewards to shape behavior	44b
Practice--Preparing instructional materials, divided into small pieces and carefully sequenced	44c
Practice--Establishing a clear time structure and set routines	44o
Practice--Using rewards for specific objectives	46
versus	
Goal--Developing motivation to explore	43i
Practice--Preparing a classroom environment for exploration	44d
Practice--Encouraging children to explore materials	44e
Practice--Giving children praise, affection and a sense of their own worth	44l

developed from single items on the instrument, and these are described in Table MII-4.

It should be pointed out that the three cluster variables related to teacher values are not completely independent of one another. Teachers were asked to choose from among competing goals and practices on the teacher questionnaire. Their responses were forced into a quasi-normal distribution. To the extent that teachers did not have an equal chance of responding to all items on each of these variables, they are not orthogonal and should be considered as a set.

The cluster analysis "samples" were larger than the teacher "samples" (FT only and FT/NFT) described in Section 2.1. The cluster samples included all teachers from whom relevant questionnaire data were available. These enlarged groups permit various analytic subgroups to be drawn, depending upon the issues to be examined. They also lend somewhat more stability to the results of the cluster analyses.

2.3 Scoring Cluster Variables

The Method of Reciprocal Averages[2] was employed to develop item weights for each item response. All teachers were included in the weight ing routine, with the exception of teachers missing one or more items on the cluster variable to be scored. After response weights were obtained,[3] data for all teachers in both the FT/NFT and FT-only analytic samples were scored. When the response to an item was missing from a teacher's record, the group mean item response was substituted. Teachers with one third or more of the items missing for any one cluster were excluded from further analysis.

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[2] The Method of Reciprocal Averages is introduced in the Parent Studies, Monograph I.

[3] Table AMII-2 in the Appendix presents a complete description of the item weights used in scoring.

Table MII-4

OTHER VARIABLES DEVELOPED AND/OR SELECTED FROM THE SPRING, 1972 TEACHER QUESTIONNAIRE

Teacher age in years

Teacher education
1 = Credits or degrees beyond the Bachelor's level
0 = Bachelor's degree or less

Years of total teaching experience

Years of experience in current school

Years of experience in Sponsor's approach

Teacher ethnicity
1 = White
0 = Non-white

Place of residence
1 = Neighborhood similar to that of pupils
0 = Neighborhood different from that of pupils

Teacher salary
1 = Less than $ 4,000
2 = $ 4,000 - $ 4,999
3 = $ 5,000 - $ 5,999
4 = $ 6,000 - $ 6,999
5 = $ 7,000 - $ 7,999
6 = $ 8,000 - $ 8,999
7 = $ 9,000 - $ 9,999
8 = $ 10,000 - $ 10,999
9 = $ 11,000 - $ 11,999
10 = $ 12,000 - $ 12,999
11 = $ 13,000 - $ 13,999
12 = $ 14,000 - $ 14,999
13 = $ 15,000 - $ 15,999
14 = More than $ 16,000

Frequency of teacher visits to pupils' homes

Teacher expectations for pupils' academic progress
1 = 8th grade or less
2 = 9th grade or more but less than high school
3 = Graduate from high school
4 = Post high school, but not college
5 = Enter college
6 = Graduate from college

2.4 Reliability of Cluster Variables

Coefficient Alpha was used to estimate reliability. Table MII-5 presents the reliability coefficients for each cluster variable. These coefficients reflect the internal consistency of the variables. Other measures of reliability, including test-retest reliability, are not available, since the Teacher Questionnaire was administered only once to these teachers.

2.5 Analytic Techniques

The teacher studies are primarily descriptive in nature. To the extent possible, means, standard deviations, percentages, simple and partial correlations have been employed. However, to answer questions 1.2.2 through 1.2.4 more fully, and to partition variance more adequately among FT/NFT within Sponsor, and grade level factors, two miltiple regression designs were also utilized: one for FT/NFT studies, the other for FT-only studies.

The FT/NFT studies employed a 2 x 2 x 9 factorial analysis of variance design in which the treatment factor was contrast coded with FT = .5 and NFT = -.5; the grade level factor was dummy coded with kindergarten = 0 and other grades (i.e., first, second, and third) = 1; and the Sponsor factor was effects coded as described in Monograph IV. The analyses for the FT-only studies utilized a 2 x 9 factorial analysis of variance design, identical to the FT/NFT design except that the treatment factor was excluded. Both designs were analyzed with and without covariate adjustment.

Table MII-6 summarizes the predictors, covariates, and dependent variables used in each of the multiple regression analyses performed. Once again, they have been organized by research question. Tables MII-6A and MII-6B summarize the ANOVA and ANCOVA utilized in these studies. Monograph IV presents the complete coding schemes for each of these designs, as well as the assumptions underlying them.

F ratios were computed to test the significance of the variance accounted for by each of the predictors of interest. Tables AMII-3 and AMII-4 in the Appendix summarize the statistics for each of the dependent variables in the FT/NFT and FT-only analyses, respectively. The .05

Table MII-5

RELIABILITY COEFFICIENTS FOR NINE CLUSTER VARIABLES UTILIZED IN TEACHER STUDIES

Cluster	Reliability
Teacher satisfaction	.76
Perceived faithfulness to Sponsor's approach	.80
Amount of training:	
Structure	.71
Child-centeredness	.90
Working with parents and aides	.92
Teacher attitudes toward meeting with parents	.73
Teacher values:	
Parent-community orientation	.54
Social skills development	.50
Structured/academic vs. child-centered orientation	.72

Table MII-6

PREDICTORS, COVARIABLES AND DEPENDENT VARIABLES FOR EACH TEACHER STUDY

Teacher training in basic sponsor philosophy (FT-only)

Predictors

Sponsor
Grade

Covariables (Analyses have been made with and without covariables)

City-size (Except for training in child-centeredness)
South-Non South
West-Non West
Years of total teaching experience
Years of experience in Sponsor's approach
Teacher education
Teacher ethnicity

Dependent Variables

Amount of training: structure
Amount of training: child-centeredness
Amount of training: working with parents and aides

Teacher values, attitudes, and reported behaviors (FT/NFT)

Predictors

FT/NFT
Sponsor
Grade

Covariables

City-size (except for frequency of visits to children's homes)
South-Non South (except for frequency of visits to children's homes)
West-Non West
Years of total teaching experience
Teacher education
Teacher ethnicity

Dependent Variables

Teacher values: parent-community orientation
Teacher values: social skills development
Teacher values: structured/academic vs. child-centered orientation
Teacher attitudes toward meeting with parents
Frequency of teacher visits to pupils' homes
Teacher expectations for pupils' academic progress

Table MII-6 (cont'd.)

Teacher satisfaction with and perceived faithfulness to Sponsor's approach (FT only)

Predictors

Sponsor
Grade

Covariables

City-size (Except for teacher satisfaction)
South-Non South
West-Non West
Years of total teaching experience
Years of experience in Sponsor's approach
Teacher education
Teacher ethnicity

Dependent Variables

Teacher satisfaction
Perceived faithfulness to Sponsor's approach

Table MII-6A

ANOVA AND ANCOVA DESIGNS FOR FT-ONLY TEACHER STUDIES

ANOVA DESIGN

F Ratios: To test for Grade level Contrast

$$F = \frac{sr_A^2 \div 1}{(1 - R^2_{Y.AB}) \div 4\,96}$$

To test for Sponsor Contrast

$$F = \frac{sr_B^2 \div 9}{(1 - R^2_{Y.AB}) \div 221}$$

To test for Sponsor by Grade Level Contrast

$$F = \frac{sr_D^2 \div 9}{(1 - R^2_{Y.ABD}) \div 487}$$

Where:

A Grade Level

B Sponsor = 2,3,5,7,8,9,10,11,12,14

D Sponsor by Grade Level

$sr_A^2 = R^2_{Y.AB} - R^2_{Y.B}$

$sr_B^2 = R^2_{Y.AB} - R^2_{Y.A}$

$sr_D^2 = R^2_{Y.ABD} - R^2_{Y.AB}$

ANCOVA DESIGN

F Ratios: To test for Grade Level Contrast

$$F = \frac{sr_A^2 \div 9}{(1 - R^2_{Y.AB}) \div X^*}$$

To test for Sponsor Contrast

$$F = \frac{sr_B^2 \div 9}{(1 - R^2_{Y.AB}) \div Y^*}$$

To test for Sponsor by Grade Level Contrast

$$F = \frac{sr_D^2 \div 9}{(1 - R^2_{Y.ABD}) \div Z^*}$$

Where:

A Grade Level

B Sponsor = 2,3,5,7,8,9,10,11,12,14

D Sponsor by Grade Level

cov covariates

$sr_A^2 = R^2_{Y.covAB} \quad R^2_{Y.covB}$

$sr_B^2 = R^2_{Y.covAB} \quad R^2_{Y.covA}$

$sr_D^2 = R^2_{Y.covABD} - R^2_{Y.covAB}$

---

sr^2 represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated

hese degrees of freedom vary by dependent variable utilized; See Table AMII - 4B.

Table MII-6B

ANOVA and ANCOVA Designs for FT/NFT Teacher Studies

ANOVA Design

F RATIOS:

To test FT/NFT Contrasts

$$F = \frac{sr_C^2 \div 1}{(1 - R^2_{Y \cdot ABC}) \div 454}$$

To test Grade Level Contrasts

$$F = \frac{sr_A^2 \div 1}{(1 - R^2_{Y \cdot ABC}) \div 1110}$$

To test FT/NFT by Sponsor Contrasts

$$F = \frac{sr_F^2 \div 9}{(1 - R^2_{Y \cdot ABCDEF}) \div 435}$$

To Test FT/NFT by Grade Level Contrasts

$$F = \frac{sr_E^2 \div 1}{(1 - R^2_{Y \cdot ABCDEF}) \div 1091}$$

To test FT/NFT by Sponsor by Grade Level Contrasts

$$F = \frac{sr_G^2 \div 9}{(1 - R^2_{Y \cdot ABCDEFG}) \div 1082}$$

Where:

- A Grade Level
- B Sponsor = 2,3,5,7,8,9,10,11,12,14
- C FT/NFT
- D Grade Level by Sponsor
- E Grade Level by FT/NFT
- F Sponsor by FT/NFT
- G Grade Level by Sponsor by FT/NFT

$sr_A^2 = R^2_{Y \cdot ABC} - R^2_{Y \cdot BC}$

$sr_C^2 = R^2_{Y \cdot ABC} - R^2_{Y \cdot AB}$

$sr_E^2 = R^2_{Y \cdot ABCDEF} - R^2_{Y \cdot ABCDF}$

$sr_F^2 = R^2_{Y \cdot ABCDEF} - R^2_{Y \cdot ABCDE}$

$sr_G^2 = R^2_{Y \cdot ABCDEFG} - R^2_{Y \cdot ABCDEF}$

ANCOVA Design

F RATIOS:

To test FT/NFT Contrasts

$$F = \frac{sr_C^2 \div 1}{(1 - R^2_{Y \cdot cov\ ABC}) \div P^*}$$

To test Grade Level Contrasts

$$F = \frac{sr_A^2 \div 1}{(1 - R^2_{Y \cdot cov\ ABC}) \div Q^*}$$

To test FT/NFT by Sponsor Contrasts

$$F = \frac{sr_F^2 \div 9}{(1 - R^2_{Y \cdot cov\ ABCDEF}) \div R^*}$$

To test FT/NFT by Grade Level Contrasts

$$F = \frac{sr_E^2 \div 1}{(1 - R^2_{Y \cdot cov\ ABCDEF}) \div S^*}$$

To test FT/NFT by Sponsor by Grade Level Contrasts

$$F = \frac{sr_G^2 \div 9}{(1 - R^2_{Y \cdot cov\ AB[illegible]}) \div T^*}$$

Where:

- A Grade Level
- B Sponsor = 2,3,5,7,8,9,10,11,12,14
- C FT/NFT
- D Grade Level by Sponsor
- E Grade Level by FT/NFT
- F Sponsor by FT/NFT
- G Grade Level by Sponsor by FT/NFT

$sr_A^2 = R^2_{Y \cdot cov\ ABC} - R^2_{Y \cdot cov\ BC}$

$sr_C^2 = R^2_{Y \cdot cov\ ABC} - R^2_{Y \cdot cov\ AB}$

$sr_F^2 = R^2_{Y \cdot cov\ ABCDEF} - R^2_{Y \cdot cov\ ABCDE}$

$sr_E^2 = R^2_{Y \cdot cov\ ABCDEF} - R^2_{Y \cdot cov\ ABCDF}$

$sr_G^2 = R^2_{Y \cdot cov\ ABCDEFG} - R^2_{Y \cdot cov\ ABCDEF}$

sr^2 represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

*These degrees of freedom vary by dependent variable utilized; See Table AMII-3B.

probability level was chosen to determine the statistical significance of each of the main effects and interactions. In addition, only those mean differences which were greater than .25 of a standard deviation of the dependent variable were considered for discussion.

3.0 RESULTS

3.1 Do the Personal and Professional Characteristics of Teachers Vary by FT/NFT, by FT/NFT within Sponsor, by Grade Level, by Community Location, or by a Combination of These?

3.1.1 Age and Experience

Tables MII-7 through MII-9 display the mean age, length of total teaching experience, and length of experience in the same school for FT and NFT teachers, by Sponsor and grade level. Table MII-10 displays the mean number of years teachers have spent with their Sponsor's approach by Sponsor and grade level.

As can be seen FT teachers are on the whole younger than NFT teachers, somewhat less experienced in general, and slightly newer to their present school assignments. Despite their relative youthfulness and inexperience, however, the FT teachers are not novices. While there are variations by Sponsors and grade levels, on the average they are in their mid-thirties, have over nine years of total teaching experience, and over five years experience in their present schools. The FT/NFT contrasts are generally consistent across Sponsors and grade levels with the exception of Sponsor 12 (Pittsburgh), which appears to have FT teachers who are older and more experienced than their NFT counterparts, especially at the higher grade levels.

Although there is some variation by Sponsor, on the average FT kindergarten teachers have been with their Sponsor's approach somewhat longer than teachers in the higher grades. (The mean for kindergarten and higher grades are 2.29 and 1.90 years, respectively.)

Table XII - 7

MEANS AND STANDARD DEVIATIONS FOR
TEACHER AGE
BY FT/NFT, SPONSOR AND GRADE

SPONSOR	KINDERGARTEN						OTHER GRADES						ALL GRADES								
	FT			NFT			FT			NFT			FT			NFT			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
2	27	36.67	12.79	22	37.73	12.46	27	36.74	11.09	31	41.19	13.68	54	36.70	11.86	53	39.76	13.18	107	38.22	12.56
3	35	36.09	12.03	25	41.84	14.29	55	33.09	9.83	45	39.78	13.49	90	34.26	10.78	70	40.51	13.71	160	36.99	12.50
5	35	33.83	13.60	23	40.22	13.01	56	34.68	10.88	40	34.55	12.53	91	34.35	11.94	63	36.62	12.90	154	35.28	12.35
7	27	30.78	10.31	19	39.53	11.75	53	36.72	13.51	39	40.49	12.05	80	34.71	12.77	58	40.17	11.86	138	37.01	12.64
8	38	35.95	12.25	23	37.13	14.23	19	31.00	9.68	12	35.08	14.09	57	34.30	11.61	35	36.43	14.01	92	35.11	12.54
9	23	35.13	10.91	21	42.91	12.68	21	31.81	8.75	24	36.91	12.50	44	33.55	9.97	45	39.71	12.80	89	36.66	11.84
10	23	36.91	10.76	15	34.67	12.82	47	36.28	12.77	32	42.28	12.25	70	36.49	12.07	47	39.85	12.80	117	37.84	12.43
11	16	36.81	10.88	15	43.33	15.54	29	32.21	12.43	34	37.12	14.17	45	33.84	11.98	49	39.02	14.72	94	36.43	13.66
12	17	37.65	10.52	11	38.00	10.83	16	39.56	17.03	7	34.14	14.37	33	38.58	13.86	18	36.50	12.07	51	37.84	13.17
14	17	33.47	9.71	10	40.50	17.12	28	33.96	14.01	27	34.52	13.20	45	33.78	12.44	37	36.14	14.37	82	34.84	13.31
TOTAL	258	35.23	11.66	184	39.67	13.37	351	34.70	12.04	291	38.22	13.18	609	34.92	11.87	475	38.78	13.26	1084	36.61	12.64
		N = 442		X = 37.08	S.D. = 12.58			N = 642		X = 36.29	S.D. = 12.68										

Table XII-8

MEANS AND STANDARD DEVIATIONS FOR
YEARS OF TOTAL TEACHING EXPERIENCE
BY FT/NFT, SPONSOR AND GRADE

SPONSOR	KINDERGARTEN						OTHER GRADES						ALL GRADES								
	FT			NFT			FT			NFT			FT			NFT			TOTAL		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
2	28	11.32	11.78	23	12.09	9.41	29	9.17	6.28	32	14.81	12.06	57	10.23	9.37	55	13.67	11.03	112	11.92	10.32
3	37	8.87	10.32	26	13.81	11.10	58	8.62	7.99	47	13.19	11.41	95	8.72	8.92	73	13.41	11.22	168	10.76	10.22
5	36	7.75	6.95	24	11.04	8.06	59	9.12	8.43	40	9.58	9.39	95	8.60	7.89	64	10.13	8.88	159	9.21	8.31
7	27	4.59	4.14	19	9.21	5.97	54	9.78	10.16	39	11.46	8.06	81	8.05	8.94	58	10.72	7.46	139	9.17	8.43
8	38	8.84	8.70	23	10.00	8.92	20	8.45	9.21	12	11.67	10.92	58	8.71	8.80	35	10.57	9.53	93	9.41	9.08
9	25	8.92	6.48	22	15.91	9.41	21	6.62	7.10	25	9.88	9.33	46	7.87	6.79	47	12.70	9.75	93	10.31	8.72
10	24	10.42	6.17	16	9.25	9.56	50	11.88	11.37	34	14.35	10.18	74	11.41	9.97	50	12.72	10.17	124	11.94	10.03
11	16	9.44	7.89	17	16.41	11.61	30	8.97	8.48	37	10.51	10.38	46	9.13	8.19	54	12.37	11.03	100	10.88	9.91
12	17	9.65	7.47	11	9.27	5.82	16	17.38	15.97	7	10.00	11.48	33	13.39	12.77	18	9.56	8.16	51	12.04	11.42
14	17	7.29	7.97	10	9.80	11.59	29	8.00	9.51	27	9.56	9.28	46	7.74	8.89	37	9.62	9.79	83	8.58	9.29
TOTAL	265	8.66	8.27	191	11.96	9.49	366	9.60	9.56	300	11.72	10.22	631	9.21	9.04	491	11.81	9.94	1122	10.35	9.53
	N = 456 X = 10.04 S.D. = 8.94						N = 666 X = 10.55 S.D. = 9.91														

Table III-9

MEANS AND STANDARD DEVIATIONS FOR
YEARS OF TEACHING EXPERIENCE
IN CURRENT SCHOOL
BY FT/NFT, SPONSOR AND GRADE

SPONSOR	KINDERGARTEN						OTHER GRADES						ALL GRADES								
	FT			NFT			FT			NFT			FT			NFT			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
2	28	5.70	6.36	23	6.22	6.40	29	5.07	5.15	32	5.22	4.10	57	5.42	5.74	55	5.64	5.16	112	5.53	5.43
3	37	3.78	4.88	26	6.08	6.63	58	4.07	4.24	47	7.49	8.36	95	3.96	4.48	73	6.99	7.77	168	5.27	6.29
5	36	4.50	4.86	24	7.25	5.97	59	5.83	6.35	40	6.33	6.71	95	5.33	5.84	64	6.47	6.41	159	5.87	6.09
7	27	2.07	1.39	19	4.42	2.34	54	4.74	5.93	39	7.44	6.25	81	3.85	5.05	58	6.45	5.46	139	4.94	5.36
8	38	4.95	5.93	23	4.83	3.92	20	4.20	2.90	12	8.25	9.16	58	4.69	5.08	35	6.00	6.31	93	5.18	5.57
9	25	3.20	2.27	22	7.59	5.61	21	2.86	2.15	25	5.64	6.51	46	3.04	2.20	47	6.55	6.12	93	4.82	4.92
10	24	5.79	5.54	16	4.06	4.77	50	4.24	5.67	34	6.41	6.01	74	4.74	5.64	50	5.66	5.70	124	5.11	5.66
11	16	5.44	7,22	17	12.24	10.64	30	4.53	5.72	37	6.92	7.54	46	4.85	6.22	54	8.59	8.89	100	6.87	7.96
12	17	5.41	5.75	11	5.00	3.52	16	10.56	10.94	7	5.29	5.68	33	7.91	8.91	18	5.11	4.32	51	6.92	7.68
14	17	4.24	3.73	10	4.70	4.88	29	4.90	5.22	27	4.85	6.19	46	4.65	4.69	37	4.81	5.80	83	4.72	5.19
TOTAL	265	4.44	5.09	191	6.35	6.20	366	4.88	5.74	300	6.48	6.75	631	4.70	5.48	491	6.43	6.54	1122	5.46	6.02
	N = 456	$\overline{X}$ = 5.24	S.D. = 5.65				N = 666	$\overline{X}$ = 5.60	S.D. = 6.26												

Table MII-10

Means and Standard Deviations for Number of Years in Sponsor's Approach by Sponsor and Grade Level

SPONSOR	KINDERGARTEN			OTHER			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
2	23	2.83	1.67	22	2.36	1.26	45	2.60	1.48
3	33	2.42	1.17	46	1.78	1.15	79	2.05	1.20
5	33	2.64	1.37	49	2.12	1.18	82	2.33	1.28
7	23	1.96	.77	41	2.09	1.24	64	2.05	1.09
8	33	2.06	1.06	15	1.73	.80	48	1.96	.99
9	25	1.68	.80	18	1.67	.69	43	1.67	.75
10	19	2.47	.90	34	1.56	1.44	53	1.89	1.34
11	13	2.39	1.50	17	1.53	.80	30	1.90	1.21
12	15	2.13	.83	12	2.33	.65	27	2.22	.75
14	15	2.33	1.11	21	1.71	1.19	36	1.97	1.18
TOTAL	232	2.29	1.18	275	1.90	1.16	507	2.08	1.19

Table MII-11 presents the correlations between city size, region, and each of the teacher background characteristics under study. As can be seen, age and experience are relatively independent of the size of the community or the region in which teachers are located.

3.1.2 Education

As seen in Table MII-12, there is little difference between the FT and NFT teachers on education attainment. Overall, 71.8% of the FT teachers and 68.8% of the NFT teachers have earned credits or degrees beyond the Bachelor's level. Unlike age and experience, however, teachers' education varies by grade level. In general, the kindergarten teachers have attained more advanced credits and degrees than the teachers in higher grades. Moreover, at the kindergarten level, the NFT teachers have attained a higher level of education than the FT teachers; at the higher grade levels, the FT teachers have attained a higher level of education than the NFT teachers.

Although there is little difference between FT and NFT teachers overall in the number of advanced credits or degrees earned, the relative educational attainment of FT/NFT teachers does vary from Sponsor to Sponsor. For most Sponsors, the FT teachers are slightly more apt to have earned advanced credits or degrees than the NFT teachers. For Sponsors 2, 3, and 7, however, the reverse it true. In addition, Sponsors 2 and 5 differ from the overall FT/NFT by grade level pattern described above. At the kindergarten level, the FT teachers associated with Sponsor 5 (Bank Street) have earned more advanced credits or degrees than the NFT teachers. At the higher grade levels, the FT teachers associated with Sponsor 2 (Far West) have earned fewer advanced credits or degrees than their NFT counterparts.

Table MII-11

Intercorrelation Matrix for Community-Related Variables and Teacher Background Characteristics

	Age	Years of total teaching experience	Years of experience in present school	Teacher salary	Teacher education	Teacher ethnicity[a]	Place of residence[b]
City Size	.03	.01	.00	.48	.24	-.26	.33
South	.00	.02	-.05	-.40	-.19	-.06	-.08
West	.06	.02	-.04	.05	.12	.08	.02

---

[a] 1 = White
0 = Non-White

[b] 1 = Neighborhood similar to that of pupils
0 = Neighborhood different from that of pupils

Table III-12

PERCENTAGE OF TEACHERS WITH CREDITS OR DEGREES
BEYOND THE BACHELOR'S LEVEL
BY FT/NFT, SPONSOR AND GRADE

SPONSOR	KINDERGARTEN				OTHER GRADES				ALL GRADES					
	FT		NFT		FT		NFT		FT		NFT		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
2	28	78.6	23	78.3	29	58.6	32	81.3	57	68.4	55	80.0	112	74.1
3	37	48.6	26	69.2	58	65.5	47	66.0	95	58.9	73	67.1	168	62.5
5	36	94.4	24	75.0	59	81.4	40	57.5	95	86.3	64	64.1	159	77.4
7	27	77.8	19	94.7	54	75.9	39	76.9	81	76.5	58	82.8	139	79.1
8	38	76.3	23	78.3	20	70.0	12	58.3	58	74.1	35	71.4	93	73.1
9	25	76.0	22	81.8	21	76.2	25	52.0	46	76.1	47	66.0	93	71.0
10	24	70.8	16	75.0	50	66.0	34	61.8	74	67.6	50	66.0	124	66.9
11	16	75.0	17	88.2	30	53.3	37	40.5	46	60.9	54	55.6	100	58.0
12	17	70.6	11	72.7	16	68.8	7	57.1	33	69.7	18	66.7	51	68.6
14	17	82.4	10	90.0	29	72.4	27	59.3	46	76.1	37	67.6	83	72.3
Total	265	74.7	191	79.6	366	69.7	300	62.0	631	71.8	491	68.8	1122	70.5
	N = 456		% = 76.8		N = 666		% = 66.2							

To describe the overall grade level differences more fully, it is necessary to consider once again the unique group under study. The kindergarten teachers are located for the most part in non-southern communities with populations numbering more than 50,000 persons, whereas at the higher grade levels, the teachers are more evenly distributed by region and community size. The education of the teachers is not independent of either of these geographical factors. As can be seen in Table MII-11, the teachers from large or non-southern communities are more apt to have received advanced credits or degrees than teachers from rural areas or communities in the South. The higher education of the kindergarten teachers may thus be a function of their primarily non-southern, urban location.

3.1.3 Salary

Table MII-13 presents the mean salary level of the FT/NFT teachers by Sponsor and grade. In general, the NFT teachers earn slightly higher salaries than the FT teachers, possibly reflecting the difference in experience. The kindergarten teachers also earn higher salaries than the teachers in other grade levels. Once again, it must be pointed out that the kindergarten teachers represent primarily non-southern, urban communities. These communities are likely to have higher salary schedules than southern rural communities. (For the correlation between city size, southern location, and salary, see Table MII-11.) Thus, these grade level differences are apt to reflect a geographic difference as well.

3.1.4 Ethnicity and Localism

In addition to education, experience, age, and salary, two other characteristics of these teachers are presented here: ethnicity and localism. As discussed in the introduction, these characteristics provide some information concerning teachers' cultural-social-economic similarity to their pupils.

Table MII-14 presents the percentage of White FT/NFT teachers by Sponsor and grade level.

Table MII-13

MEANS AND STANDARD DEVIATIONS FOR TEACHER SALARY BY FT/NFT, SPONSOR AND GRADE

SPONSOR	KINDERGARTEN						OTHER GRADES						ALL GRADES								
	FT			NFT			FT			NFT			FT			NFT			TOTAL		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
2	28	6.46	2.62	23	6.35	2.33	29	6.59	2.24	32	9.03	2.88	57	6.53	2.41	55	7.91	2.96	112	7.21	2.77
3	37	6.19	2.22	26	6.31	2.29	58	6.00	2.18	47	6.60	2.12	95	6.07	2.18	73	6.49	2.17	168	6.26	2.18
5	36	7.50	1.84	24	8.00	3.01	59	6.54	2.56	40	7.48	3.00	95	6.91	2.35	64	7.67	2.99	159	7.21	2.64
7	27	6.04	1.65	19	8.16	2.69	54	5.87	1.87	39	6.00	1.75	81	5.93	1.79	58	6.71	2.32	139	6.25	2.06
8	38	6.90	1.93	23	7.26	2.80	20	6.80	2.40	12	6.00	1.54	58	6.86	2.08	35	6.83	2.49	93	6.85	2.23
9	25	7.84	2.59	22	8.55	3.13	21	5.48	2.14	25	5.68	2.53	46	6.76	2.65	47	7.02	3.15	93	6.89	2.90
10	24	6.71	1.97	16	7.13	3.22	50	5.60	1.87	34	6.94	3.16	74	5.96	1.96	50	7.00	3.15	124	6.38	2.55
11	16	7.75	2.79	17	8.53	3.06	30	7.33	2.83	37	6.62	2.39	46	7.48	2.80	54	7.22	2.74	100	7.34	2.75
12	17	6.24	1.86	11	6.64	1.43	16	6.38	1.54	7	5.57	0.79	33	6.30	1.69	18	6.22	1.31	51	6.28	1.55
14	17	6.59	2.85	10	6.60	1.65	29	6.52	2.50	27	6.37	1.50	46	6.54	2.61	37	6.43	1.52	83	6.49	2.18
TOTAL	265	6.81	2.25	191	7.38	2.77	366	6.24	2.28	300	6.79	2.56	631	6.48	2.28	491	7.02	2.66	1122	6.72	2.47
	N = 456 $\bar{X}$ = 7.05 S.D. = 2.49						N = 666 $\bar{X}$ = 6.49 S.D. = 2.41														

Table XII-14

PERCENTAGE OF WHITE TEACHERS
BY FT/NFT, SPONSOR AND GRADE

SPONSOR	KINDERGARTEN				OTHER GRADES				ALL GRADES					
	FT		NFT		FT		NFT		FT		NFT		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
2	28	78.6	23	82.6	29	82.8	32	90.6	57	80.7	55	87.3	112	83.9
3	37	83.8	26	88.5	58	81.0	47	66.0	95	82.1	73	74.0	168	78.6
5	36	77.8	24	70.8	59	35.6	40	65.0	95	51.6	64	67.2	159	57.9
7	27	55.6	19	84.2	54	59.3	39	71.8	81	58.0	58	75.9	139	65.5
8	38	57.9	23	56.5	20	70.0	12	75.0	58	62.1	35	62.9	93	62.4
9	25	64.0	22	72.7	21	61.9	25	84.0	46	63.0	47	78.7	93	71.0
10	24	58.3	16	56.3	50	70.0	34	55.9	74	66.2	50	56.0	124	62.1
11	16	93.8	17	52.9	30	53.3	37	78.4	46	67.4	54	70.4	100	69.0
12	17	94.1	11	90.9	16	100.0	7	100.0	33	97.0	18	94.4	51	96.1
14	17	70.6	10	100.0	29	62.1	27	77.8	46	65.2	37	83.8	83	73.5
Total	265	72.1	191	74.3	366	64.5	300	73.3	631	67.7	491	73.7	1122	70.3
	N = 456		% = 73.0		N = 666		% = 68.5							

Overall, there are more minority teachers in FT than NFT classes, suggesting that FT is making some progress towards equalizing job opportunities for minority groups. There are also slightly more minority teachers in kindergarten, once again reflecting the non-southern, urban location of the kindergarten group. (For the correlation between teacher ethnicity, region, and city size, see Table MII-11.) Moreover, there is variation by FT/NFT and grade level within Sponsor. Approximately 42% of the FT/NFT teachers associated with Sponsor 5 (Bank Street) are from minority groups, whereas only 16% and 4% of the FT/NFT teachers associated with Sponsors 2 and 12, respectively, represent minority groups. Although most Sponsors have more minority teachers in FT than in NFT classes, Sponsors 3 and 10 have fewer minority teachers in FT classes, especially at the higher grade levels. Sponsor 12 (Pittsburgh) also has slightly fewer minority FT than NFT teachers; however, this Sponsor has very few minority teachers in either group. Finally, Sponsors 5 and 11 have different FT/NFT patterns by grade level. Both Sponsors have fewer minority FT teachers than NFT teachers at the kindergarten level, but more minority FT than NFT teachers at higher grade levels.

Turning to localism, Table MII-15 reveals that a slightly higher percentage of FT than NFT teachers report living in the same neighborhood or in a neighborhood similar to the one in which their pupils live. While there are slight variations by grade level within Sponsors, this FT/NFT contrast is generally consistent for all Sponsors across grades. Overall, the kindergarten teachers are slightly more apt to report living in the neighborhood of their pupils than the teachers at higher grade levels.

Teacher localism is also correlated with the size of the city in which the teacher resides. (See Table MII-11 for the correlations.) The larger the city, the more apt teachers are to report living in a neighborhood similar to that of their pupils. Once again, the variations described above must be viewed with the particular geographic distribution of the teachers in mind.

Table XII-15

PERCENTAGE OF TEACHERS RESIDING IN THE SAME NEIGHBORHOOD
OR A NEIGHBORHOOD SIMILAR IN SOCIOECONOMIC STATUS TO THAT OF THEIR PUPILS
BY FT/NFT, SPONSOR AND GRADE

SPONSOR	KINDERGARTEN				OTHER GRADES				ALL GRADES					
	FT		NFT		FT		NFT		FT		NFT		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
2	28	28.6	23	17.4	29	27.6	32	43.8	57	28.1	55	32.7	112	30.4
3	37	27.0	26	42.3	58	34.5	47	34.0	95	31.6	73	37.0	168	33.9
5	36	22.2	24	41.7	59	28.8	40	30.0	95	26.3	64	34.4	159	29.6
7	27	25.9	19	5.3	54	31.5	39	53.8	81	29.6	58	37.9	139	33.1
8	38	31.6	23	21.7	20	40.0	12	58.3	58	34.5	35	34.3	93	34.4
9	25	8.0	22	50.0	21	38.1	25	48.0	46	21.7	47	48.9	93	35.5
10	24	29.2	16	37.5	50	30.0	34	35.3	74	29.7	50	36.0	124	32.3
11	16	18.7	17	35.3	30	56.7	37	64.9	46	43.5	54	55.6	100	50.0
12	17	41.2	11	54.5	16	93.8	7	100.0	33	66.7	18	72.2	51	68.6
14	17	29.4	10	40.0	29	44.8	27	37.0	46	39.1	37	37.8	83	38.6
Total	265	26.0	191	33.5	366	37.7	300	45.0	631	32.8	491	40.5	1122	36.2
	N = 456	% = 29.2			N = 666	% = 41.0								

3.2 Does the Amount and Type of Teacher Training Vary by Sponsor, by Grade Level, by Community Location, or by a Combination of These?

Tables MII-16 through MII-18 present Sponsor profiles for the amount o training teachers report receiving in three content areas: structure, child-centeredness, and working with parents and aides. These tables present data for kindergarten FT teachers only, to provide maximum correspondence with the pupil studies. Since there were no significant differences in training by grade level within Sponsor when geographic location and teacher background characteristics were taken into account, we have reason to believe they are representative of the other grades as well.

It should be pointed out that these profiles display Sponsor comparisons that are <u>relative</u>. (Tables AMII-5 through AMII-7 in the Appendix present the mean raw scores for each training variable by Sponsor and grade level.) An arrow pointing up for a given Sponsor indicates that the <u>average</u> FT kindergarten teacher associated with that Sponsor reports receiving more training than the <u>average</u> kindergarten FT teacher. An arrow pointing down for a given Sponsor indicates that the reverse is true. Broken arrows are used to represent unadjusted scores and solid arrows to represent covariance adjusted scores. All differences are reported in standard deviation units of the dependent variable, for the sake of comparability.

3.2.1 Training in Structure

Turning to Table MII-16, we see that the FT kindergarten teachers in Sponsors 7 and 8 report receiving a great deal more training in structure than the average FT kindergarten teacher. To a lesser extent, the teachers associated with Sponsors 12 and 14 also report receiving greater than average amounts of training in structured learning activities. On the other hand, the teachers in Sponsors 5, 10, and 11 report receiving far less training in this area than average and teachers in Sponsors 2 and 9 somewhat less. FT teachers in Sponsor 3 (Arizona) report receiving an average amount of training in structure.

Table MII-16

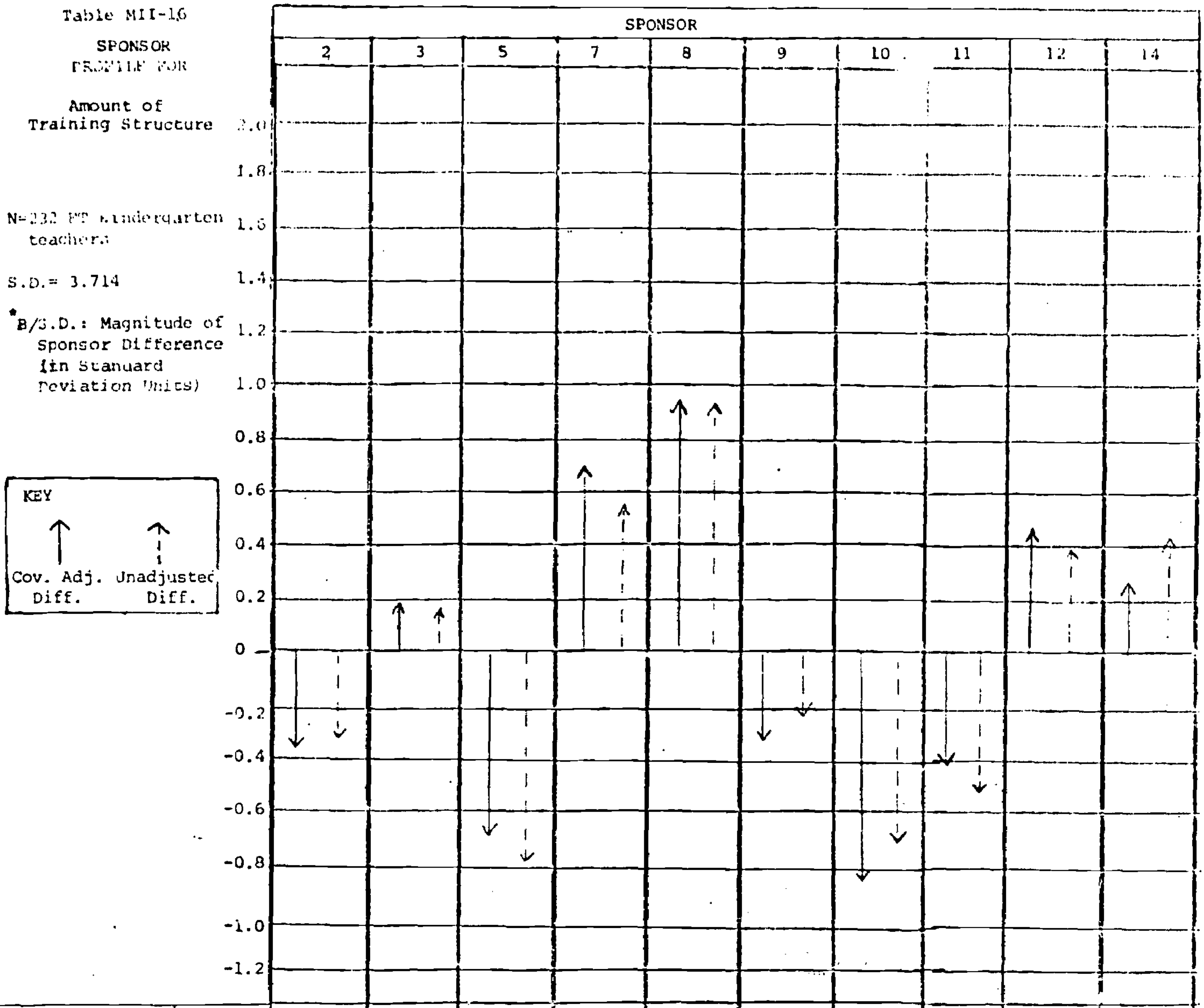
SPONSOR PROFILE FOR

Amount of Training Structure

N=232 FT Kindergarten teachers

S.D.= 3.714

*B/S.D.: Magnitude of Sponsor Difference (in Standard Deviation Units)



		2	3	5	7	8	9	10	11	12	14
B = Magnitude of the difference	Adjusted	-1.344	0.687	-2.487	2.564	3.579	-1.037	-3.111	-1.509	1.662	0.997
	Unadj.	-1.078	0.601	-2.884	2.053	3.510	-0.779	-2.602	-1.877	1.461	1.595
SE_B = Standard Error of B	Adjusted	0.621	0.524	0.523	0.616	0.522	0.632	0.545	0.782	0.751	0.753
	Unadj.	0.630	0.540	0.540	0.630	0.540	0.608	0.553	0.816	0.763	0.764
t = B/SE_B = "Significance" Statistic	Adjusted	-2.165	1.312	-4.754	4.163	6.861	-1.642	-5.708	-1.927	2.213	1.324
	Unadj.	-1.709	1.113	-5.343	3.257	6.502	-1.281	-4.702	-2.301	1.913	2.088
*B/S.D.	Adjusted	-0.362	0.185	-0.670	0.690	0.964	-0.279	-0.838	-0.406	0.448	0.268
	Unadj.	-0.290	0.162	-0.777	0.553	0.945	-0.210	-0.701	-0.505	0.394	0.429
N = Number of Teachers in Computation	FT	23	33	33	23	33	25	19	13	15	15

Table MII-17

SPONSOR

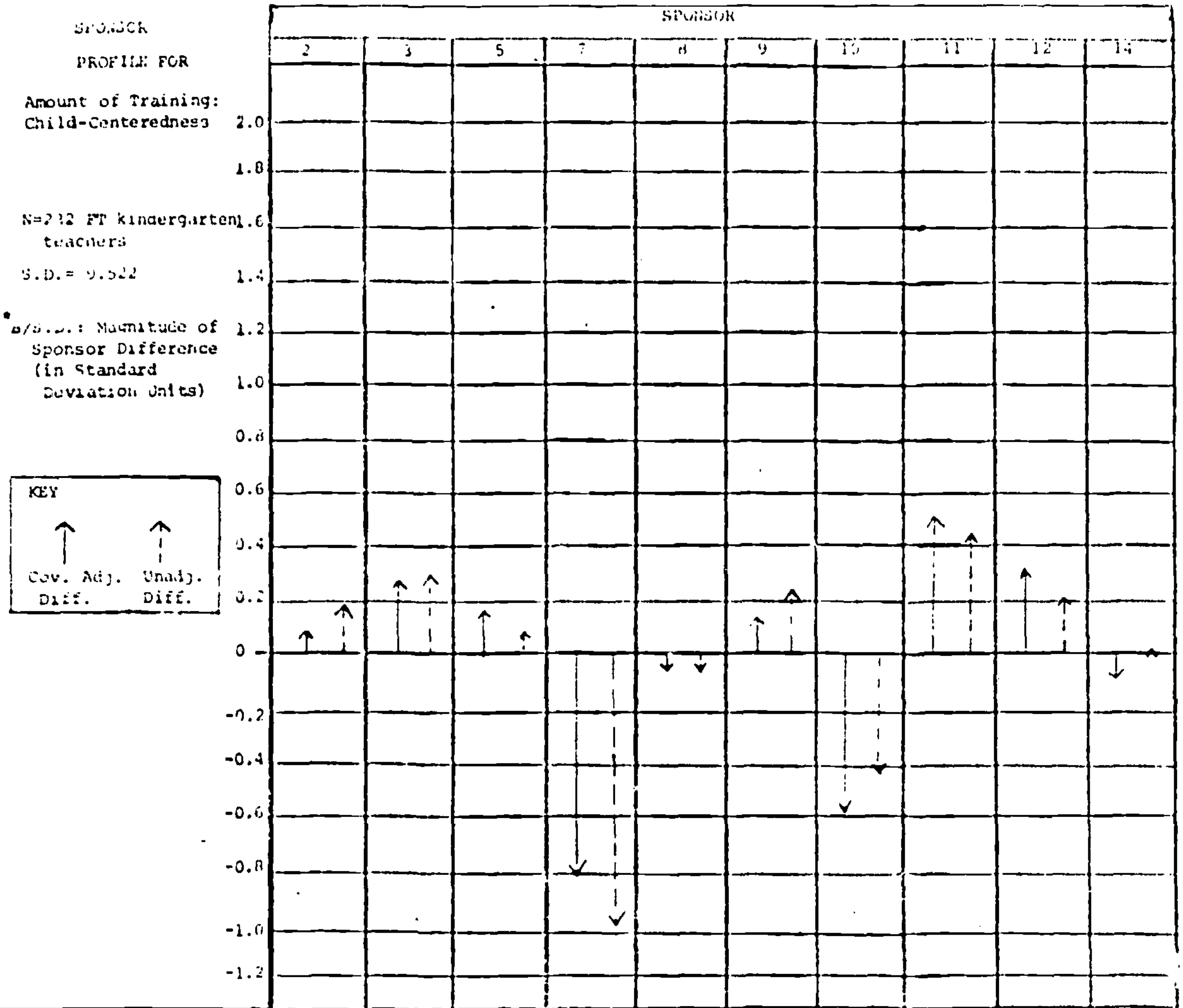
PROFILE FOR

Amount of Training:
Child-Centeredness

N=232 FT kindergarten
teachers

S.D.= 9.522

*B/S.D.: Magnitude of
Sponsor Difference
(in Standard
Deviation Units)



		2	3	5	7	8	9	10	11	12	14
B = Magnitude of the difference	Adjusted	0.259	2.571	1.772	-7.697	-0.366	1.262	-5.578	4.975	[illegible]	[illegible]
	Unadj.	1.864	2.644	0.644	-9.291	-0.417	2.372	-3.929	4.104	[illegible]	[illegible]
SE_B= Standard Error of B	Adjusted	1.839	1.526	1.527	1.762	1.522	1.618	1.666	2.065	2.154	2.196
	Unadj.	1.826	1.564	1.564	1.826	1.564	1.761	1.603	2.364	2.213	2.213
t = B/SE_B = "Significance" Statistic	Adjusted	0.417	1.685	1.162	-4.294	-0.242	0.694	-3.348	2.178	1.469	-0.351
	Unadj.	1.032	1.690	0.412	-5.088	-0.266	1.347	-2.451	1.738	0.935	0.01.
*B/S.D.	Adjusted	0.079	0.270	0.186	-0.808	-0.038	0.133	-0.586	0.522	0.323	-0.081
	Unadj.	0.198	0.278	0.068	-0.976	-0.044	0.249	-0.413	0.431	0.206	0.003
N = Number of Teachers in Computation	FT	23	33	33	23	33	25	19	13	15	15

Table MII-16

SPONSOR

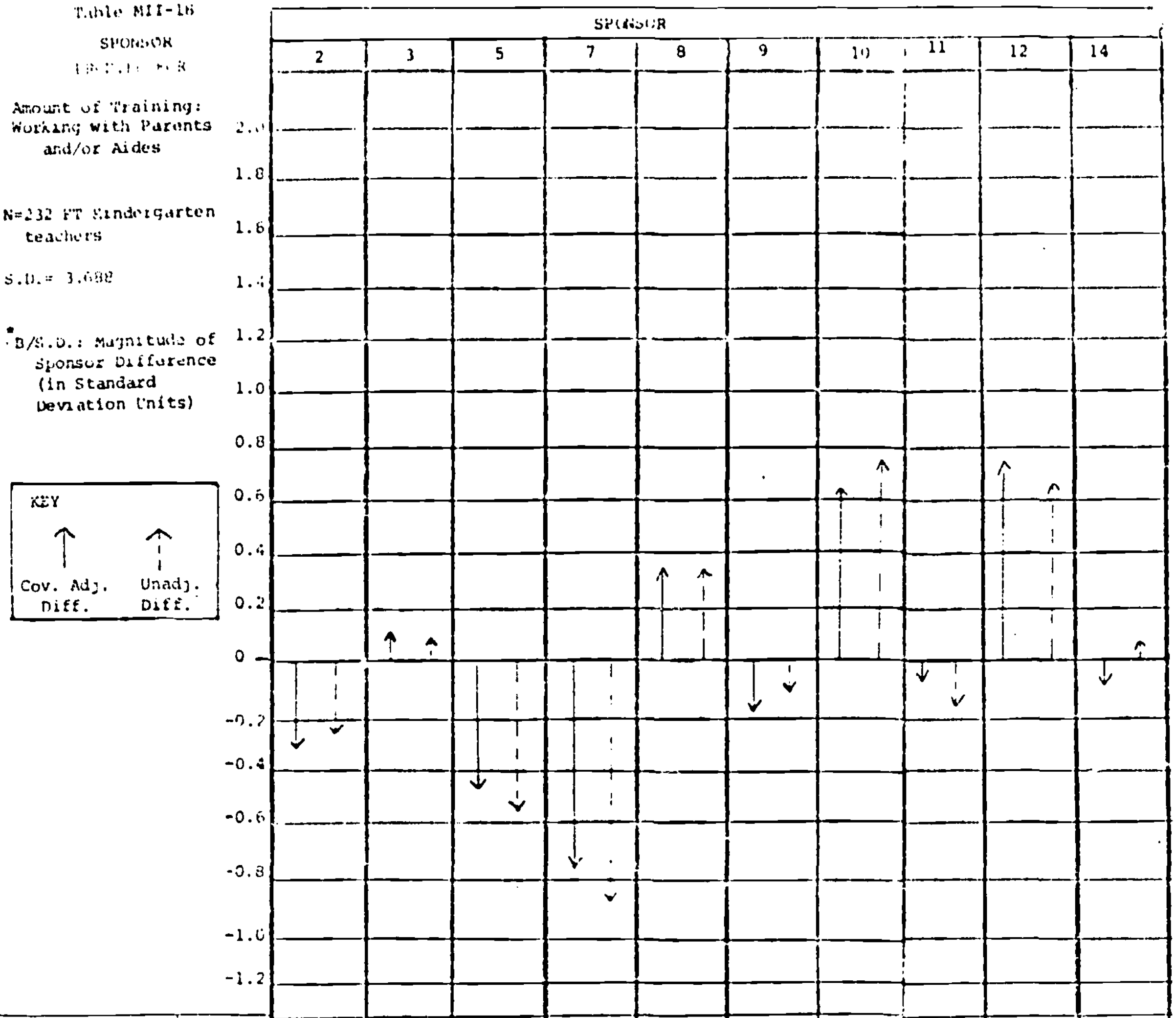
[illegible]

Amount of Training:
Working with Parents
and/or Aides

N=232 FT Kindergarten
teachers

S.D.= 3.688

*B/S.D.: Magnitude of
Sponsor Difference
(in Standard
Deviation Units)



		2	3	5	7	8	9	10	11	12	14
B = Magnitude of the difference	Adjusted	-1.120	0.383	-1.718	-2.762	1.344	-0.649	2.298	-0.236	2.747	-0.288
	Unadj.	-0.827	0.273	-2.032	-3.175	1.333	-0.337	2.777	-0.620	2.436	0.170
SE_B = Standard Error of B	Adjusted	0.675	0.570	0.569	0.670	0.568	0.688	0.593	0.852	0.817	0.818
	Unadj.	0.677	0.580	0.580	0.677	0.580	0.653	0.594	0.876	0.820	0.820
t = B/SE_B = "Significance"	Adjusted	-1.658	0.672	-3.018	-4.121	2.367	-0.944	3.876	-0.279	3.361	-0.352
	Unadj.	-1.222	0.470	-3.500	-4.690	2.300	-0.516	4.671	-0.707	2.970	0.207
*B/S.D.	Adjusted	-0.304	0.104	-0.466	-0.749	0.364	-0.176	0.623	-0.064	0.745	-0.078
	Unadj.	-0.224	0.074	-0.551	-0.861	0.362	-0.091	0.753	-0.168	0.661	0.046
N = Number of Teachers in Comparison	FT	23	33	33	23	33	25	19	13	15	15

3.2.2 Training in Child-Centeredness

Table MII-17 presents the Sponsor profile for the amount of training received in child-centered activities. On the whole, variability is not as marked in this content area as it was in structure. The kindergarten teachers in Sponsors 7 and 10 report receiving less training in child-centeredness, as defined by training in individualized instruction devoted to promoting problem solving, decision making, social interaction skills, and self concept. The kindergarten teachers in Sponsor 11 (EDC) report receiving far more of this type of training, and those in Sponsors 3 and 12 somewhat more, than the average FT kindergarten teacher. The teachers in the remaining Sponsors report receiving an average amount of training in this area.

3.2.3 Training in Working with Parents and Aides

Finally, Table MII-18 presents the Sponsor profile for the amount of training given to kindergarten teachers in working with parents and aides. The teachers in Sponsors 2, 5, and 7 report receiving less training in developing these skills than the average FT teacher; the teachers in Sponsors 8, 10, and 12 report receiving more training; and the teachers in the other Sponsors report receiving an average amount of training in this area.

3.2.4 Training Patterns

To describe more fully the variations among Sponsors, it is necessary to compare the amount of training given to these FT kindergarten teachers in all three areas. Figure MII-1 summarizes the training program delivered by each of the ten Sponsors, as reported by their teachers. It is clear from these profiles that Sponsors differ not only in the amount of training they give in various content areas but also in the overall amount of training they provide. While the teachers in Sponsor 12 (Pittsburgh) report receiving a great deal of training in all three content areas, those in Sponsors 2, 5, 9, and 14 report receiving relatively little. What training

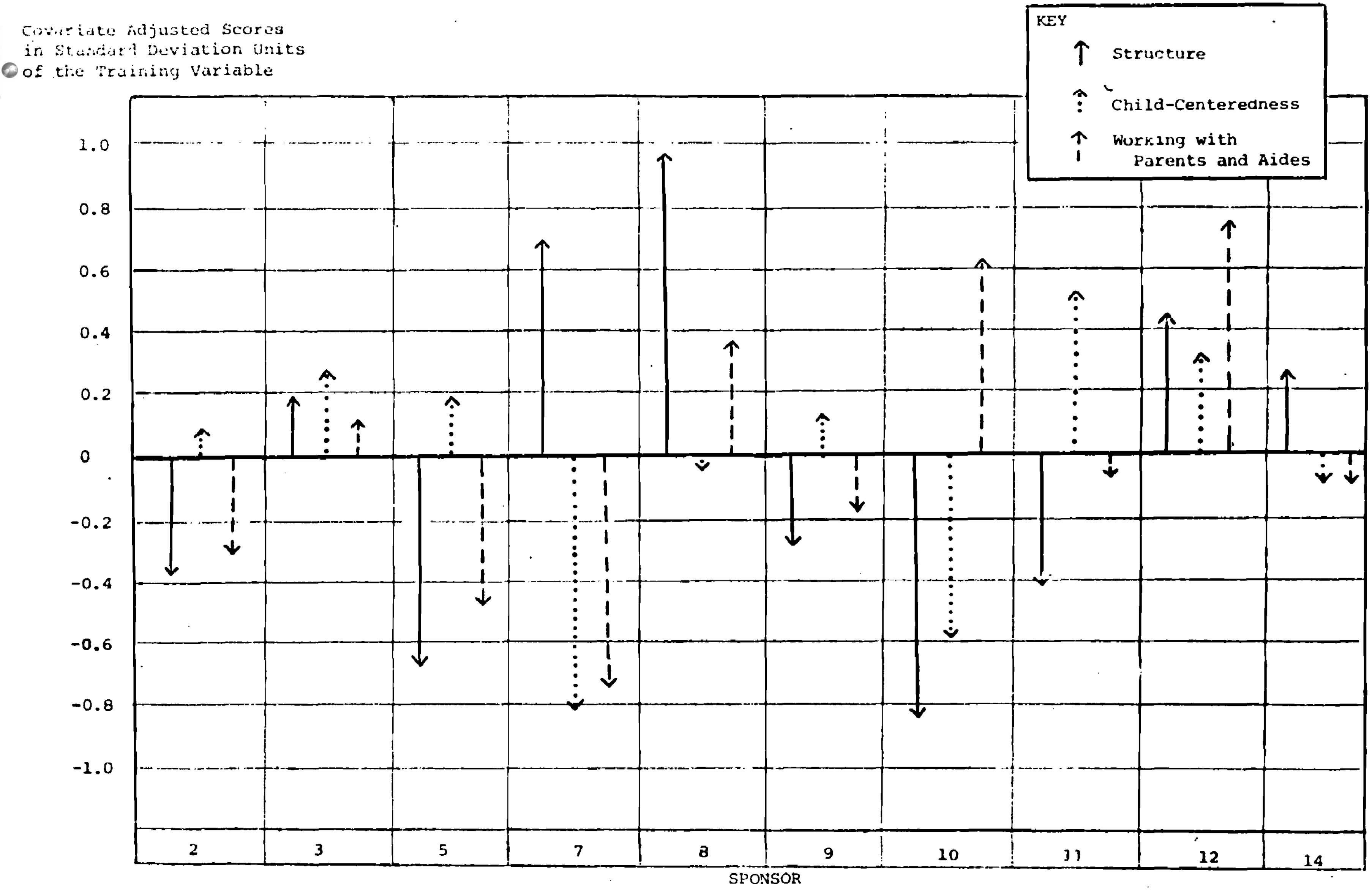


Figure MII-1. Sponsor Profiles for Amount of Training Given in Three Areas: Structure, Child-Centeredness and Working with Parents and Aides did occur is focused primarily on child-centered activities for Sponsors 2, 5, and 9 and on structured activities for Sponsor 14 (SEDL).

Sponsors 7 and 8 are often linked together as representing the behaviorist approach to early childhood education. If these teachers' reports are accurate, however, these Sponsors differ sharply in the overall program orientation they deliver. While both provide a great deal of training in structured learning activities, Sponsor 7 (Oregon) provides far less training in child-centered activities and working with parents and aides than the average Sponsor. Sponsor 8 (Kansas), on the other hand, provides an average amount of training in child-centered activities and a greater than average amount of training in working with parents and aides.

Finally, the training profiles for Sponsors 10, 3, and 11 are worthy of note. Sponsor 10 (Florida) is a parent education model, focusing more on parent training in home reinforcement techniques than on teacher training in curriculum or teaching strategies. The teachers associated with this Sponsor report receiving a great deal of training in working with parents and aides, but little training in other areas. Sponsors 3 and 11, on the other hand, while having different cognitive emphases, both advocate a highly individualized approach to education. Both also encourage the use of exploration, manipulation, and discovery learning. Teachers in these Sponsors report receiving a great deal of training in child-centered instruction and relatively little in structure or in working with parents and aides.

3.2.5 Community Size and Training in Child-Centeredness

Before leaving the subject of teacher training, it is worthwhile to consider once again the effects sampling has on these data. Wherever possible, we have adjusted both geographical and teacher background characteristics in the findings reported. However, in the case of training in child-centeredness, community size was not taken into account because it is heterogeneous across Sponsors. That is, the relationship of community size and the amount of training teachers report having received in this area differ from Sponsor to Sponsor.

Figure MII-2 displays this heterogeneity using the raw, unadjusted scores of FT teachers at all grade levels on this variable. This figure is interesting for two reasons. Not only does it display the wide variation among Sponsors, but it also highlights the overall relationship between city size and training in this area. In general, the FT teachers in very large communities report receiving less training in child-centered activities than those in medium-sized communities. Within some Sponsors, the FT teachers in very small communities also report receiving less training than others.

3.3 Do Teacher Values, Attitudes, and Reported Behaviors Vary by FT/NFT, by FT/NFT within Sponsor, by Grade Level, by Community Location, or by a Combination of These?

In the preceding section we saw that, at least according to teachers' reports, Sponsors differ in the training programs they deliver. We shall now examine variations in teachers' values, attitudes, and reported behaviors. (For the raw score means and standard deviations for each of these variables by FT/NFT, Sponsor, and grade level, see Tables AMII-8 through AMII-13 in the Appendix.)

3.3.1 FT/NFT Contrasts

Table MII-19 presents a profile of the FT/NFT contrasts for the kindergarten teachers across all Sponsor approaches. (For summary statistics see Table AMII-3.) When asked to choose from among competing values, FT kindergarten teachers as a group do not differ significantly from NFT kindergarten teachers in their emphasis on structured activities aimed at teaching basic skills or on the traditional early childhood goal of developing children's social skills, nor do the two groups differ significantly in the value they place on parent involvement and developing ethnic pride as primary teaching goals.

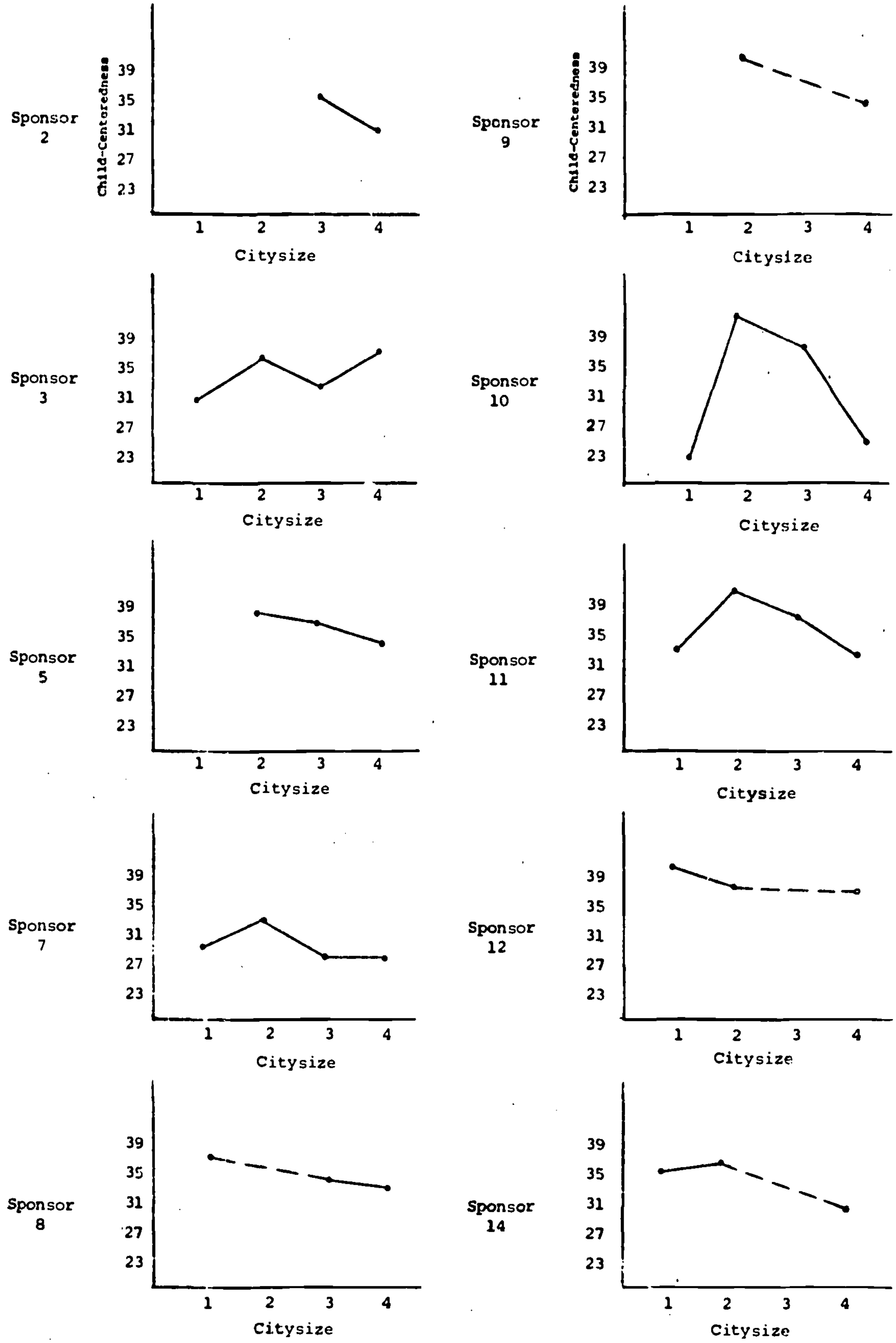


Figure MII-2 Training: Child-Centeredness by Sponsor and City-size

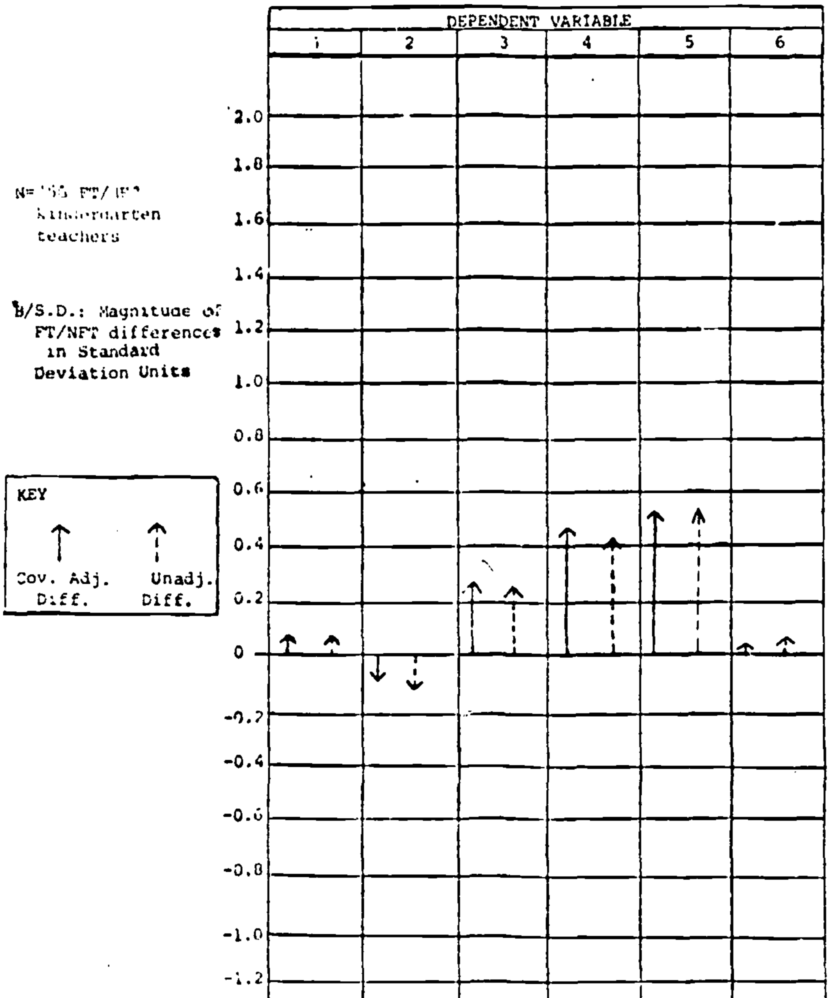
KEY

Citysize

1 = less than 10,000
2 = 10,000 to 49,999
3 = 50,000 to 199,999
4 = 200,000 or more

Table MII-19

Profile of FT/NFT Differences for Selected Teacher Values, Attitudes, and Behaviors



N=[illegible] FT/NFT Kindergarten teachers

*B/S.D.: Magnitude of FT/NFT differences in Standard Deviation Units

B=Magnitude of the Difference	Adjusted	.277	- .293	2.016	1.982	4.408	.032
	[illegible]	.289	- .331	1.992	1.965	4.410	.067
Standard Deviation		3.318	2.978	7.588	4.453	8.126	.977
*B/S.D.	Adjusted	0.083	-0.098	.265	.445	.542	.038
	Unadj.	.087	-0.111	.263	.429	.543	.069

DEPENDENT VARIABLES:

1. Teacher Values: Parent-Community Orientation
2. Teacher Values: Social Skills Development
3. Teacher Values: Structured/Academic vs. Child-Centered Orientation
4. Teacher Attitudes Towards Meeting with Parents
5. Frequency of Teacher Visits to Pupils' Homes
6. Teacher Expectation of Pupils' Academic Progress

However, FT kindergarten teachers do have a much more positive attitude towards meeting with parents for a variety of school-related purposes, and they make more visits to children's homes.than do NFT kindergarten teachers. Finally, there is no significant difference between the FT and NFT groups in their expectations of their children's academic progress.

3.3.2 Grade Level Contrasts

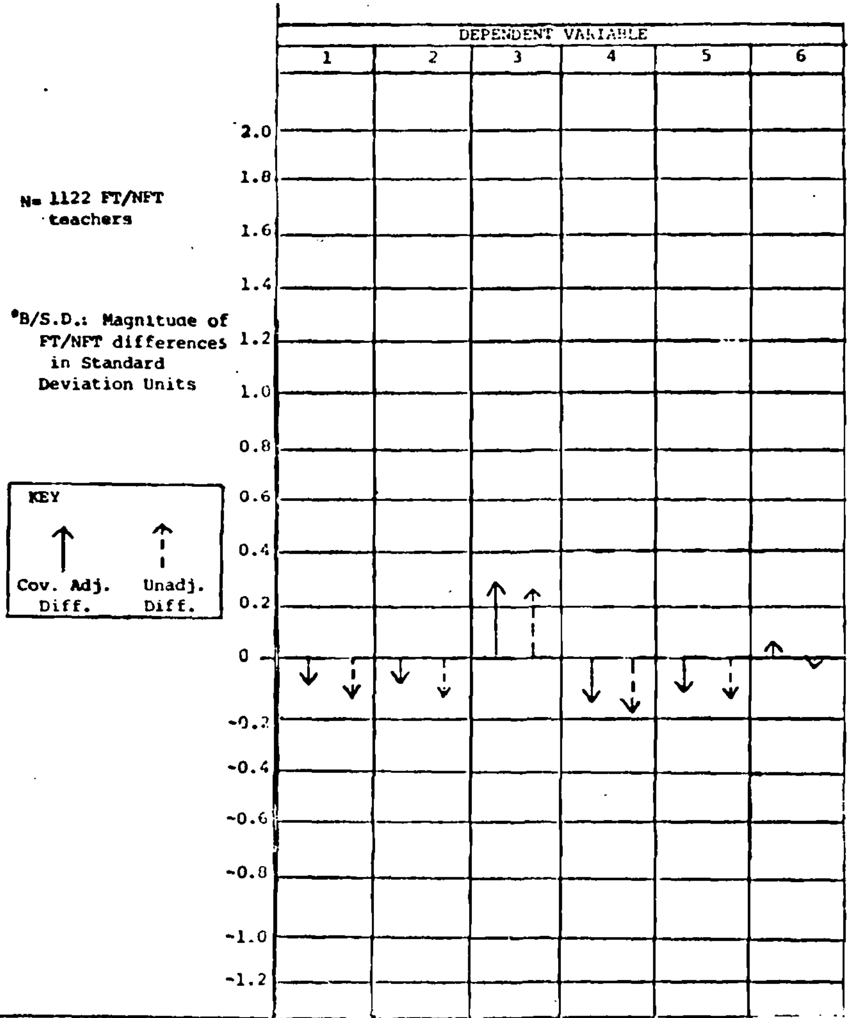
There are small but significant differences in values, attitudes, and reported behaviors between the kindergarten teachers and the teachers at higher grade levels. (See Table MII-20 and AMII-2.) The teachers at higher grade levels are more apt to value a structured academic approach over a child-centered approach to education. This is not surprising given the emphasis on reading and basic skills in these grades. On the other hand, the kindergarten teachers are slightly more apt to feel that involving parents in their children's education is a primary goal of their program, to place importance on meeting with parents, and to make frequent visits to children's homes. Perhaps the latter represents close articulation with Headstart and other preschool programs where home-school interaction has traditionally been a vital part of the program. Finally, there is no significant grade level difference in teachers' orientations toward social skills or in their expectations for their children's academic progress.

3.3.3 FT/NFT Contrasts within Sponsors

While the overall FT/NFT contrasts reveal something of the impact of the FT program on kindergarten teachers as a whole, it is only through examining FT/NFT contrasts within Sponsors that the nature of planned variation can be observed. Four of the FT/NFT variables described above will be discussed here. Two of these variables have significant Sponsor by FT/NFT interactions: (1) teacher values: structured/academic versus child-centered orientation and (2) frequency of teacher visits to children's homes. The

Table MII-20

Profile of Grade Level Differences for Selected Teacher Values, Attitudes and Behaviors



		1	2	3	4	5	6
B=Magnitude of the Difference	Adjusted	-.2438	-0.1832	2.2412	[illegible]	-0.8452	0.0452
	Unadj.	-.3958	[illegible]	1.9511	-0.6132	-1.0107	-0.0181
Standard Deviation		3.318	2.978	7.588	[illegible]	9.126	0.927
*B/S.D.	Adjusted	-.0735	[illegible]	0.2951	[illegible]	[illegible]	0.0473
	Unadj.	-.1190	[illegible]	0.2573	[illegible]	[illegible]	[illegible]

DEPENDENT VARIABLES

1. Teacher Values: Parent-community orientation
2. Teacher Values: Social skills development
3. Teacher Values: Structured/Academic vs. Child-centered orientation
4. Teacher attitudes towards meeting with parents
5. Frequency of teacher visits to pupils' homes
6. Teacher expectations of pupils' academic progress

other two provide additional insight into Sponsor variation in teahcer values.

3.3.3.1 Teacher Values

Tables MII-21 through MII-23 present the FT/NFT within Sponsor contrasts for three teacher value outcomes: parent-community orientation, social skills development, and structured/academic versus child-centered orientation. The arrows for each Sponsor represent the FT/NFT contrast within that Sponsor. Arrows pointing up indicate higher scores for FT than NFT teachers; arrows pointing down indicate lower scores for the FT than the NFT teachers. Broken arrows represent unadjusted scores; solid arrows represent covariance adjusted scores. Once again, only data for Cohort III, kindergarten teachers, are represented in these profiles.

Turing to Table MII-21, we see that, when asked to choose from among competing goals, the FT kindergarten teachers in Sponsors 2, 8, and 12 are somewhat more apt to place greater value on involving parents and developing ethnic pride than the NFT teachers, whereas FT kindergarten teachers in Sponsors 5 and 7 are less apt to value these goals than their NFT counterparts. FT kindergarten teachers in the remaining Sponsors are not markedly different from NFT teachers on this variable.

As for social skills, Table MII-22 reveals that FT kindergarten teachers in Sponsors 7, 9, and 11 place less value on the development of social skills than do NFT teachers, while in Sponsors 12 and 14 the reverse is true. There are not marked FT/NFT contrasts for the remaining Sponsors.

Table MII-23 presents the FT/NFT within Sponsor contrasts for the structured/academic versus child-centered variable. The FT kindergarten teachers in Sponsors 7, 8, 10, 12, and 14 value basic skills and the use of structured learning activities more than do their NFT kindergarten counterparts. On the other hand, the FT kindergarten teachers in Sponsors 3 and 9, and to some extent 11, are more child-centered than their NFT counterparts. Finally, in Sponsors 2 and 5 FT kindergarten teachers do not differ markedly from the NFT teachers.

Table MII-21

PROFILE OF FT/NFT DIFFERENCES
WITHIN SPONSOR FOR

TEACHER VALUES:

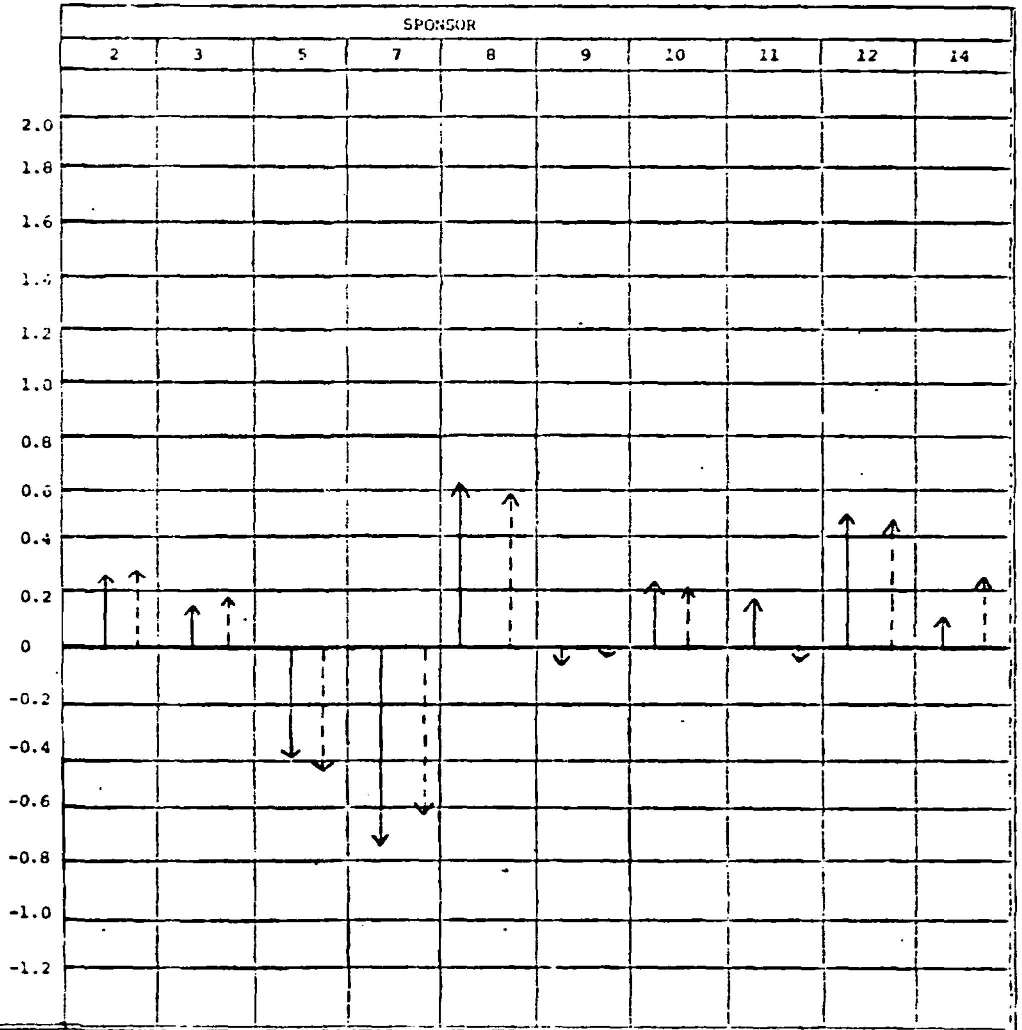
PARENT-COMMUNITY

ORIENTATION

N=456 FT/NFT kindergarten teachers

S.D. = 3.318

*B/S.D.: Magnitude of FT/NFT Differences in Standard Deviation Units



		2	3	5	7	8	9	10	11	12	14
B = Magnitude of the difference	Adjusted	.829	.499	-1.320	-2.492	2.065	-.181	.751	.596	1.650	.380
	Unadj.	.879	.504	-1.431	-2.053	1.9[illegible]	-.024	.7[illegible]	-.092	1.567	.788
*B/S.D.	Adjusted	.250	.150	-.398	-.751	.622	-.054	.226	.180	.497	.114
	Unadj.	.265	.179	-.431	-.619	.599	-.007	.213	-.028	.469	.238
N = Number of Teachers	FT	28	37	36	27	38	25	24	16	17	17
	NFT	23	26	24	19	23	22	16	17	11	10

Table MII-22

PROFILE OF FT/NFT DIFFERENCES WITHIN SPONSOR FOR

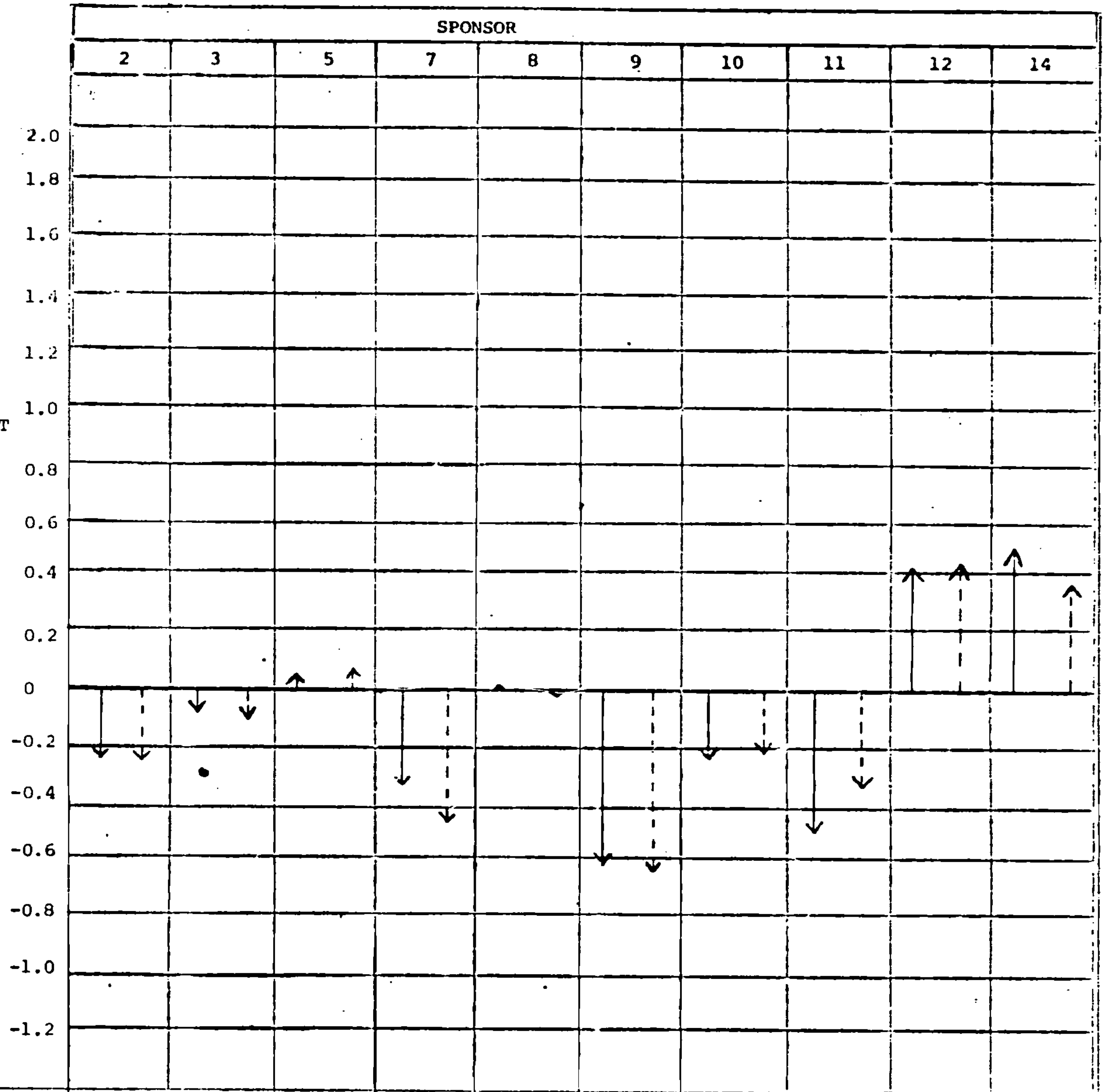
TEACHER VALUES:
SOCIAL SKILLS
DEVELOPMENT

N=456 FT/NFT kindergarten teachers

S.D.= 2.980

*B/S.D.: Magnitude of FT/NFT Differences in Standard Deviation Units

KEY:
↑ Cov. Adj. Diff.
⇡ Unadj. Diff.



		2	3	5	7	8	9	10	11	12	14
B = Magnitude of the difference	Adjusted	-0.666	-0.220	0.133	-0.963	0.005	-1.833	-.673	-1.426	1.199	1.514
	Unadj.	-0.713	-0.290	0.236	-1.322	-0.023	-1.913	-.646	-0.982	1.225	1.112
*B/S.D.	Adjusted	-0.224	-0.074	0.045	-0.323	0.002	-0.615	-.226	-0.479	0.402	0.508
	Unadj.	-0.239	-0.097	0.079	-0.444	-0.008	-0.642	-0.217	-0.330	0.411	0.373
N = Number of Teachers	FT	28	37	36	27	32	25	24	[illegible]	17	17
	NFT	23	26	24	19	23	22	16	17	11	10

Table MII-23

PROFILE OF FT/NFT DIFFERENCES WITHIN SPONSOR FOR

TEACHER VALUES:

STRUCTURED/ACADEMIC vs.

CHILD CENTERED ORIENTATION

N=456 FT/NFT kindergarten teachers

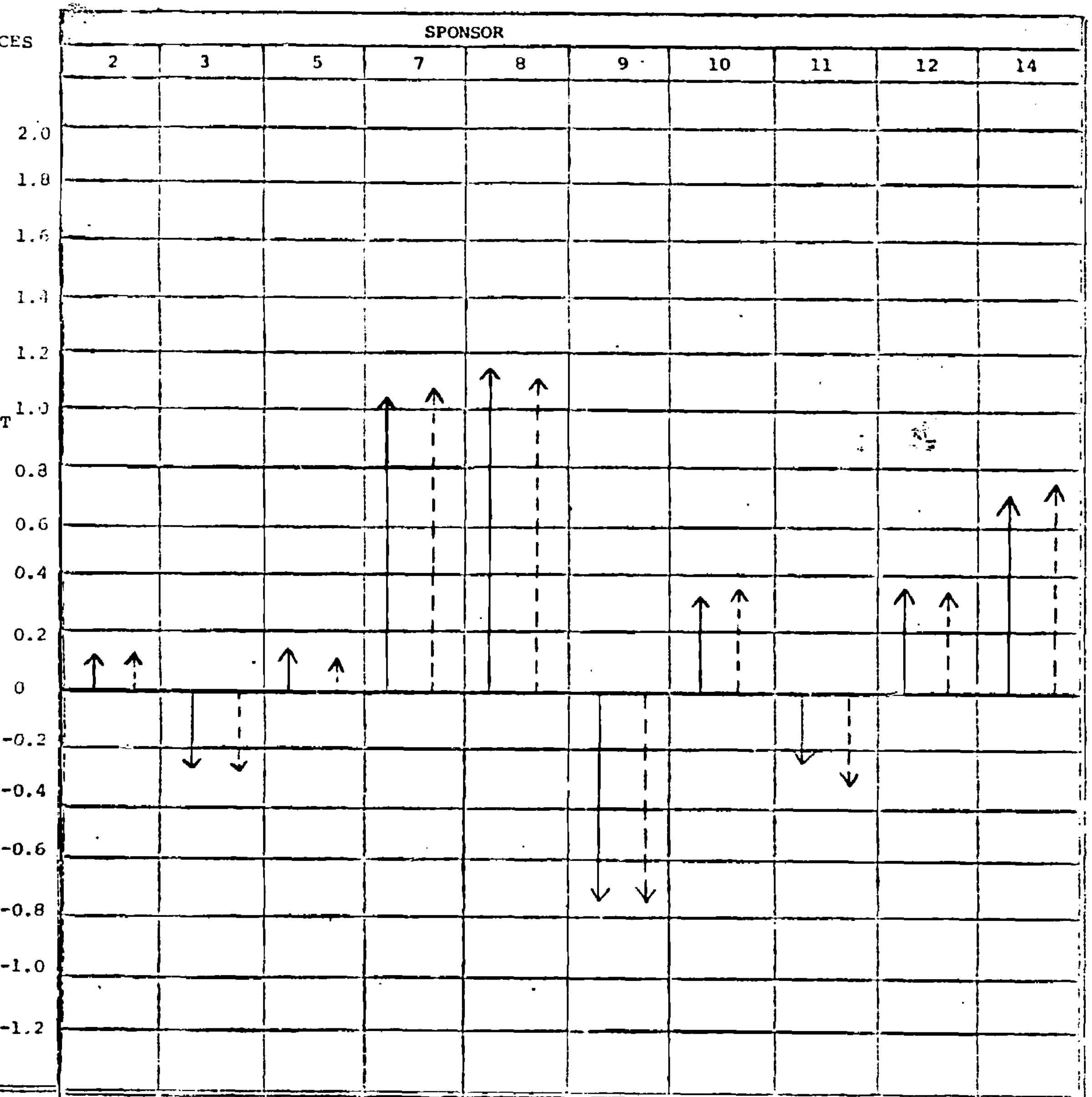
S.D.=7.588

*B/S.D.: Magnitude of FT/NFT Differences in Standard Deviation Units

KEY:

Cov. Adj. Diff.

Unadj. Diff.



		2	3	5	7	8	9	10	11	12	14
B = Magnitude of the difference	Adjusted	1.020	-1.945	1.127	7.850	8.613	-5.490	2.493	-1.676	2.789	5.387
	Unadj.	1.026	-1.984	0.903	8.185	8.495	-5.511	2.521	-2.335	2.743	5.782
*B/S.D.	Adjusted	0.134	-0.256	0.149	1.035	1.135	-0.724	0.328	-0.221	0.368	0.710
	Unadj.	0.135	-0.261	0.119	1.079	1.120	-0.726	0.332	-0.308	0.3615	0.762
N = Number of Teachers	FT	28	37	36	27	34	25	[illegible]	16	17	17
	NFT	23	26	24	[illegible]	23	22	16	[illegible]	[illegible]	[illegible]

It is important to point out, once again, that these FT/NFT within Sponsor contrasts are only relative, for which reason examination of both the normative and ipsitive scores is essential if we are to fully describe these teacher characteristics. For example, the raw means on the structured/academic versus child-centered variable (see AMII-11 in the Appendix) show that Sponsors 2 and 5 have very child-centered NFT kindergarten teachers relative to the average NFT group at this grade level. The child-centered orientation of these NFT groups may reflect (1) the predilection of the communities for this approach -- a preference which may have led initially to the selection of the Sponsor -- or (2) the diffusion of the Sponsor's program. In either case, this orientatior obscures the highly child-centered values of the FT groups. It is suggested that the reader examine the descriptive statistics for all variables to more fully understand the nature of these FT/NFT within Sponsor contrasts.

Figure MII-3 summarizes the three value orientations showing the FT/NFT contrasts on adjusted scores for each Sponsor. Despite the fact that neither the variables nor the analytic groups are the same, many of these contrasts bear close resemblance to the training profiles displayed in Figure MII-1 above. For example, the FT kindergarten teachers in Sponsor 7 (Oregon) place a great deal of value on structured learning activities and relatively little on social skills development or parent-community involvement, as compared to the NFT teachers. The FT kindergarten teachers in Sponsor 12 (Pittsburgh) place greater value on all three goals than their NFT counterparts.

One overall pattern is worthy of note. For several Sponsors, there is a close similarity between the relative value FT kindergarten teachers place on structure and on social skills development. That is, the more relative emphasis the teachers place on structure and basic skills, the more they also place on social skills development.

At first glance, this pattern may appear somewhat anomalous. The child-centered teacher who focuses on the child's emotional development might also be expected to value social skills development as a program goal. Prescott et al. (1967) however, found taht adult-centered teahcers, who aspired to teach children ways of behavior valued by adults, also had

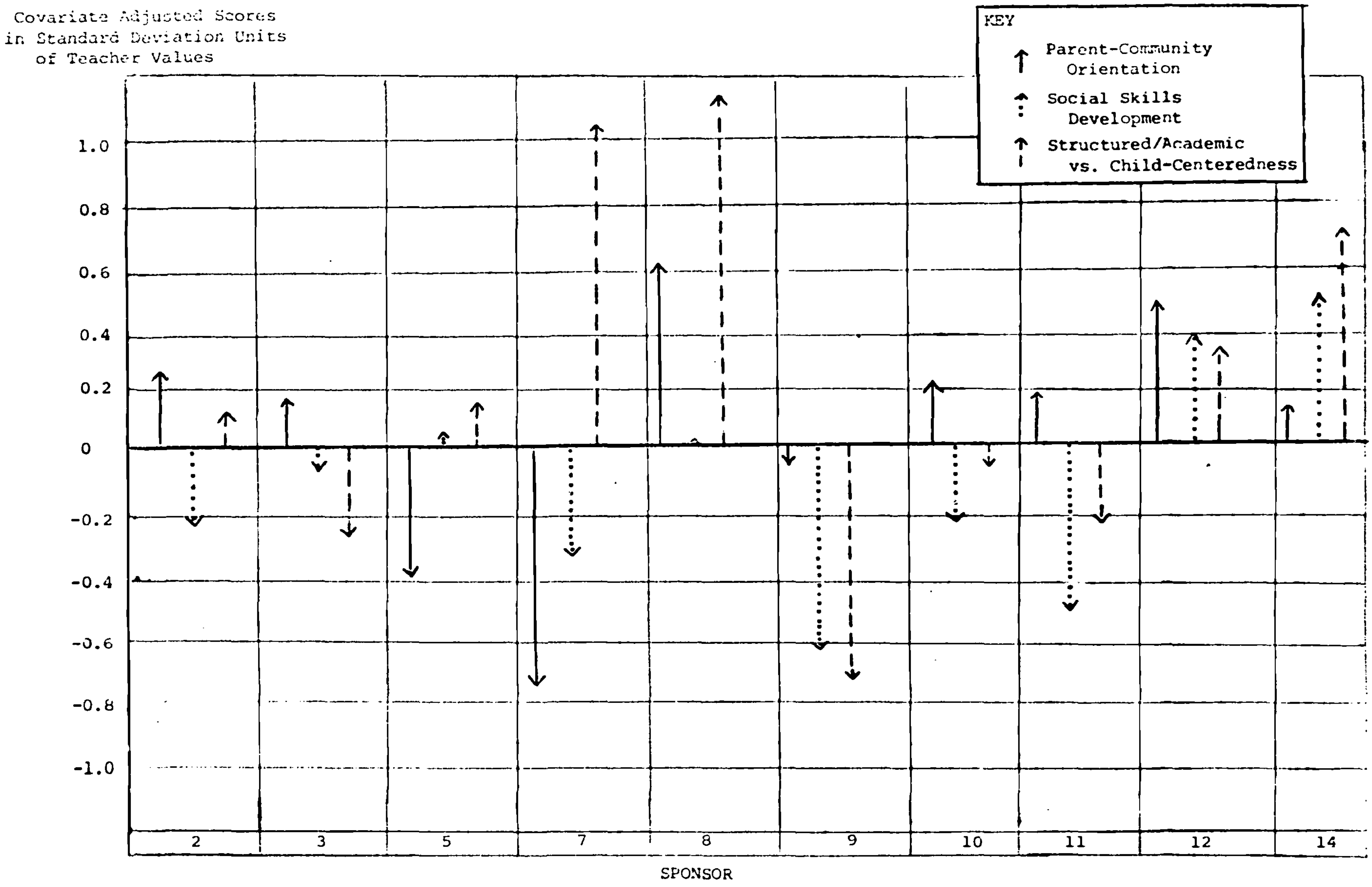


Figure MII-3: FT/NFT Within Sponsor Profile for Teacher Values: Parent-Community Orientation, Social Skills Development and Structured/Academic vs. Child Centeredness higher expectations for the mastery of cognitive skills than child-centered teachers. It would appear, that for at least ome Sponsors, FT teachers also perceived socialization and the development of group mores as closely linked with the acquisition of basic skills.

Before leaving teacher values, it should be pointed out that teachers' orientations toward structured/academic versus child-centered instruction also vary by FT/NFT depending on grade level within Sponsors. Figure MII-4 presents the covariance adjusted scores for the grade by FT/NFT interactions within each Sponsor. As noted above, in most cases, the higher a teacher's grade level, the more structured her orientation is likely to be. However, this pattern is reversed in Sponsor 9, whose NFT teachers value structure less in higher grades than in kindergarten.

3.3.3.2 Reported Behaviors

Table MII-24 presents the last significant FT/NFT within Sponsor contrast, namely, the frequency of teacher visits to children's homes. Despite the overall main effect favoring FT, there is wide variation among Sponsors. FT kindergarten teachers in Sponsors 3, 9, 12, and 14 make far more home visits than do NFT kindergarten teachers, in Sponsor 7 they make someqhat fewer, and in Sponsors 5, 8, 10, and 11 they make about the same number of home visits as their NFT counterparts. It should be pointed out, however, that Sponsor 10's NFT group makes far more home visits ($\bar{\bar{x}}$ = 5.06) than the average NFT group ($\bar{\bar{x}}$ = 2.76).

For reasons of heterogeneity, it was impossible to adjust this variable for community size or Southern location, both of which are related to the frequency with which <u>these</u> teachers make home visits. To better describe these relationships, Figures MII-5 and MII-6 graphically represent the city size by Sponsor and south by Sponsor interactions in terms of raw, unadjusted scores. The wide variability among Sponsors and sites is readily apparent.

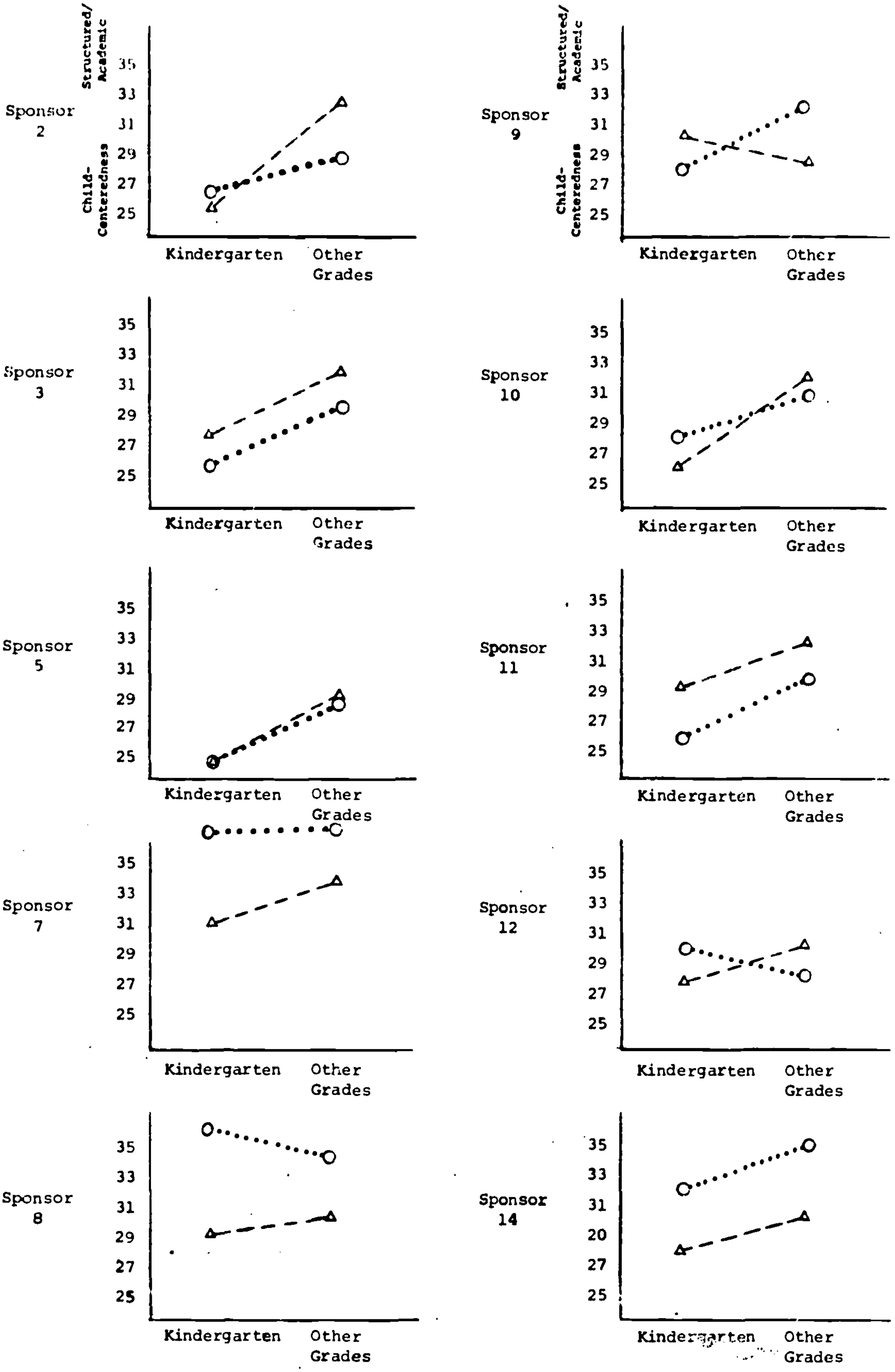


Figure MII-4. Teacher Values: Structured/Academic versus Child-Centered Orientation by Sponsor, FT/NFT, and Grade

KEY
○ • ○ FT
△ - △ NFT

Table MII-24

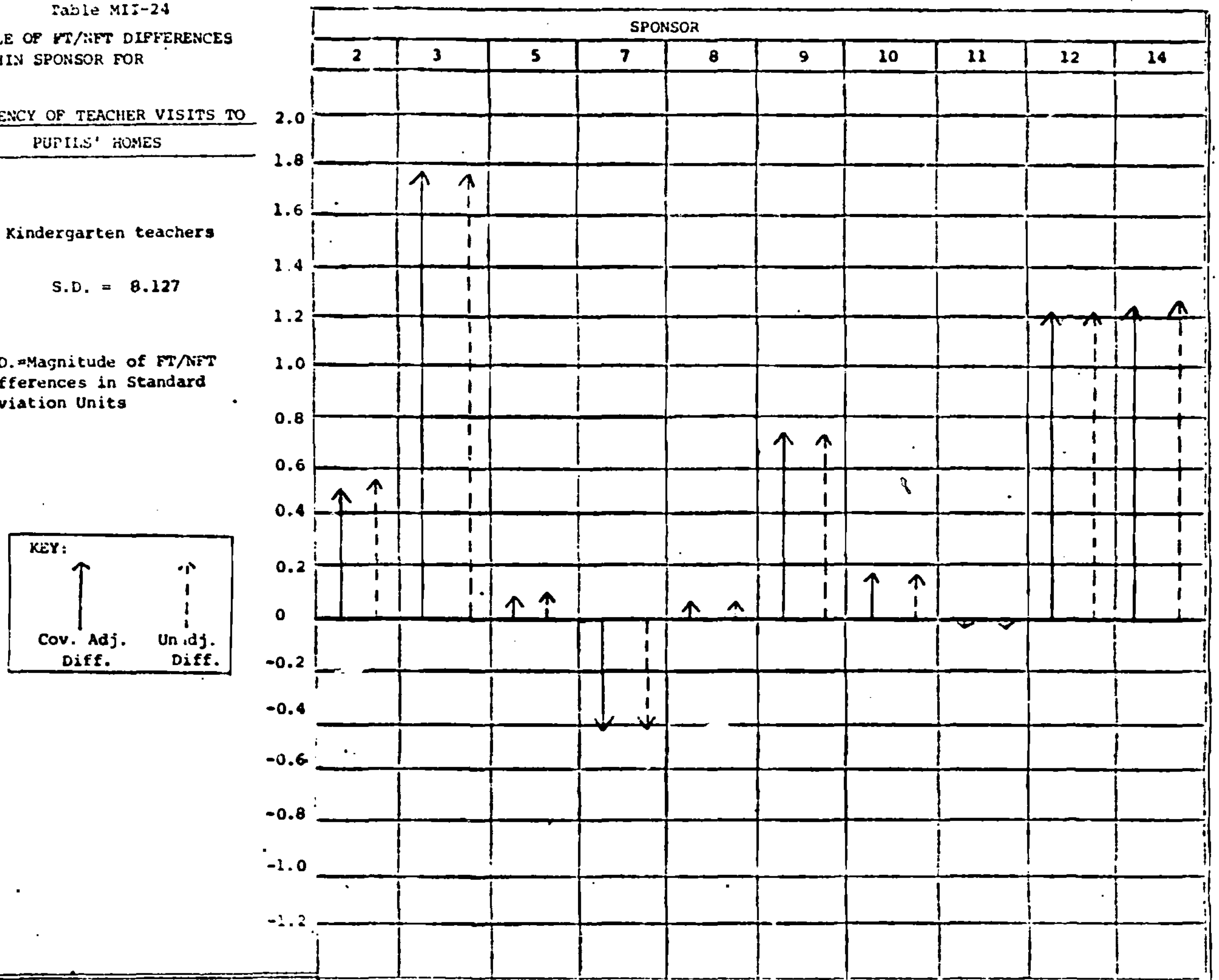
PROFILE OF FT/NFT DIFFERENCES WITHIN SPONSOR FOR

FREQUENCY OF TEACHER VISITS TO PUPILS' HOMES

N=456 Kindergarten teachers

S.D. = 8.127

*B/S.D.=Magnitude of FT/NFT Differences in Standard Deviation Units



		2	3	5	7	8	9	10	11	12	14
B = Magnitude of the difference	Adjusted	4.206	14.479	0.592	-3.287	0.566	6.120	1.477	-0.089	9.878	10.138
	Unadj.	4.646	14.467	0.611	-3.285	0.562	6.036	1.479	-0.129	9.877	10.306
*B/S.D.	Adjusted	0.518	1.782	0.073	-0.405	0.070	0.753	0.182	-0.011	1.215	1.247
	Unadj.	0.572	1.780	0.075	-0.404	0.069	0.743	0.182	-0.016	1.215	1.268
N = Number of Teachers	FT	28	37	36	27	38	25	24	16	17	17
	NFT	23	26	24	19	23	22	16	17	11	10

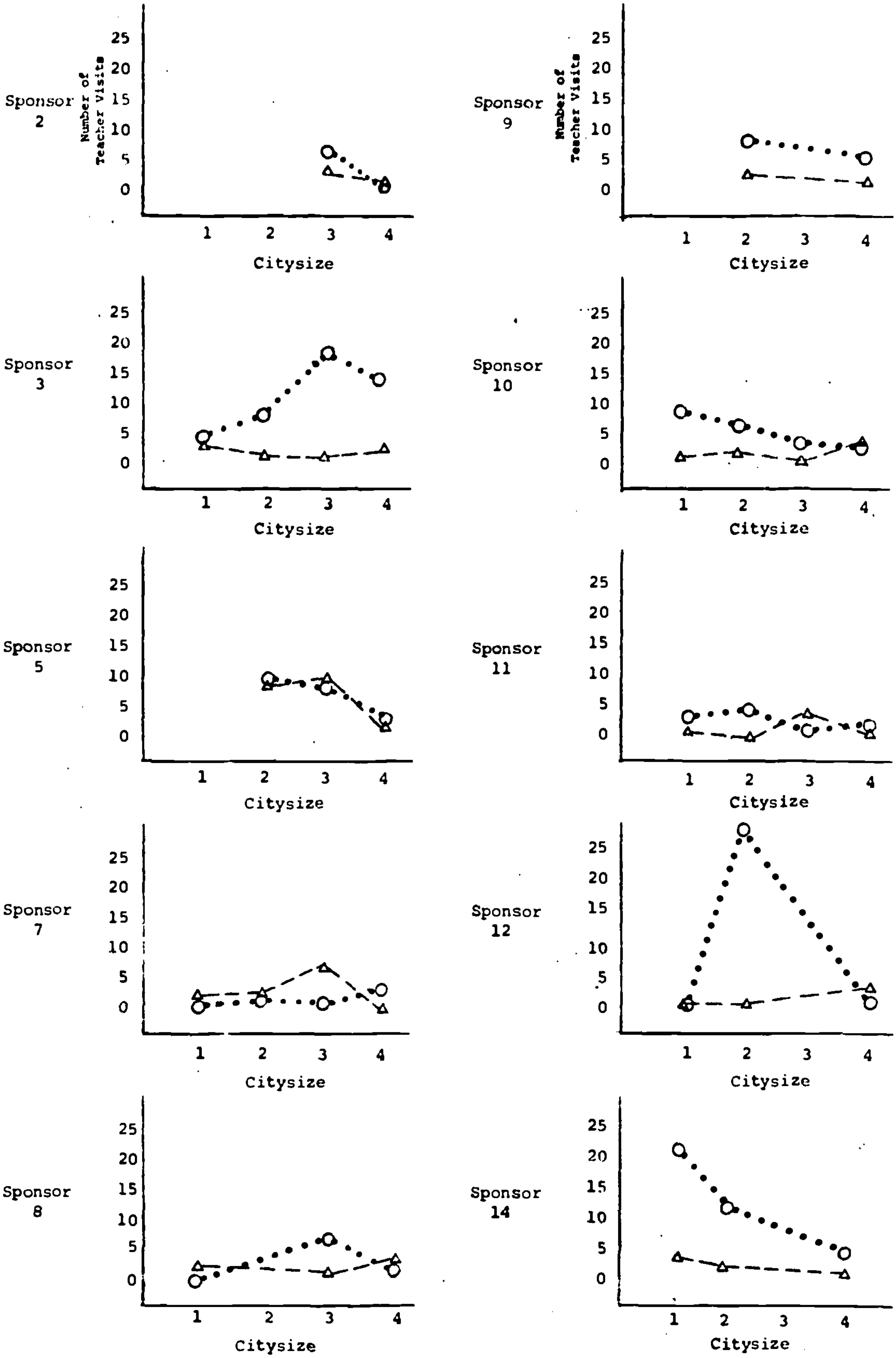


Figure MII-5. Frequency of Teacher Visits to Pupils' Homes by City-size by Sponsor

KEY

Citysize

1 = less than 10,000
2 = 10,000 to 49,999
3 = 50,000 to 199,999
4 = 200,000 or more

KEY

O • • O FT
△ - - △ NFT

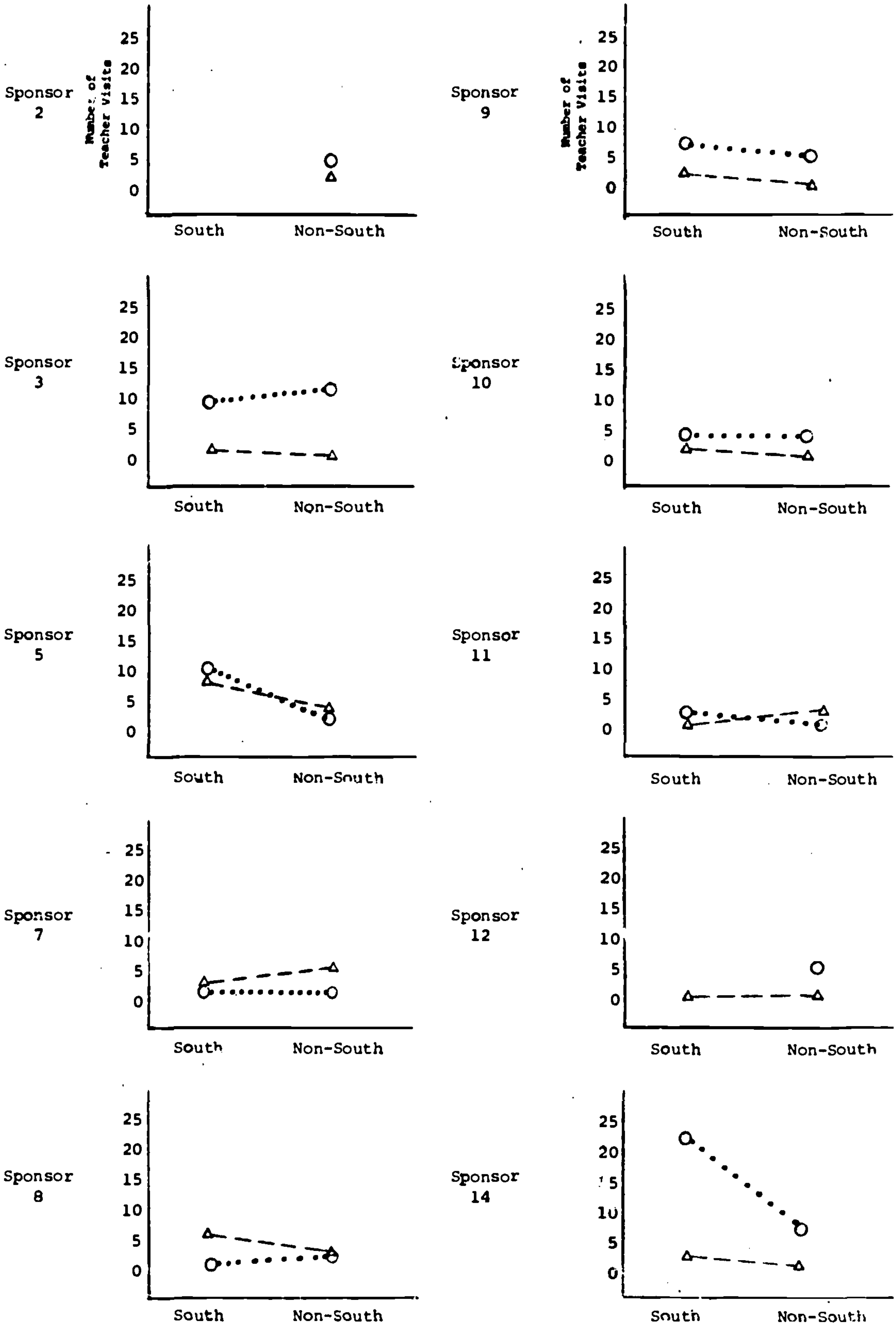


Figure MII-6. Frequency of Teacher Visits to Pupils' Homes by South by Sponsor

KEY
O • • O FT
Δ - - Δ NFT

3.4 Does Either Teacher Satisfaction with or Perceived Faithfulness to the Sponsor's Approach Vary by Sponsor, by Grade Level, by Community Location, or by a Combination of These?

In this section, FT teachers' satisfaction with, and perceived faithfulness to their Sponsor's approach will be examined. However, because Sponsor and grade level differences should be considered in the context of overall means, we will first examine these average. (See Tables AMII-14 and 15 in the Appendix for the mean raw scores of each of these variables by Sponsor and grade level.) With a possible range of 4 to 17 points on the satisfaction variable, FT teachers overall have a mean raw score of 15.00 and a standard deviation of 2.99. Thus, to the teahcers who work in the programs, FT appears to be extremely satisfying personally and worthy of recommendation to others. The faithfulness variable has a possible range of 9 to 33 points. With a mean raw score of 26.33 and a standard deviation of 5.13, FT teachers also feel that their classrooms reflect the Sponsor's ideal. With this said, we turn to Sponsor and grade level differences.

3.4.1 Satisfaction

Table MII-25 presents the Sponsor and grade profiles for the teacher satisfaction variable. Arrows pointing down in column 1 indicate that kindergarten teachers appear to be slightly more satisfied than teachers at higher grade levels, both before and after adjusting for regional and teacher background variables. There are two plausible and related explanations for this grade level difference. First, as noted above, kindergarten teachers have been with their Sponsor's approach slightly longer than teachers of higher grades. Second, many of the approaches being used in kindergarten classes not only have been tried and tested for at least two years in that grade level, but also were originally developed for preschool programs.

In addition to this grade level difference, there is much variation in teacher satisfaction among Sponsors at the kindergarten level. While

Table MII-25

SPONSOR AND GRADE PROFILES FOR

TEACHER SATISFACTION

N = 507 FT Teachers

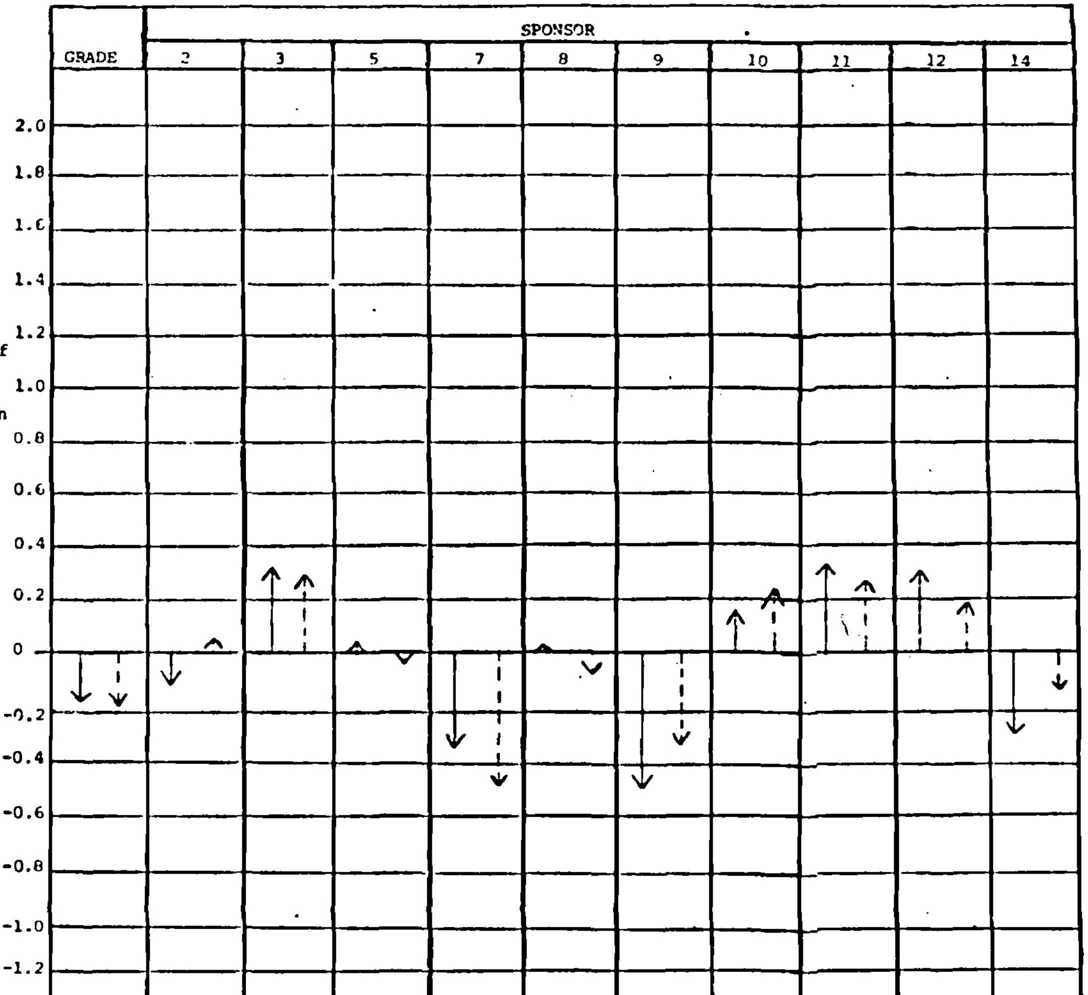
S.D.= 3.006

*B/S.D.: Magnitude of Sponsor and Grade Differences (in Standard Deviation Units)

KEY

↑ Cov. Adj. Diff.

⇡ Unadj. Diff.



		GRADE	2	3	5	7	8	9	10	11	12	14
B = Magnitude of the difference	Adjusted	-0.542	-0.275	0.980	0.131	-0.992	0.019	-1.440	0.519	1.001	0.893	-0.836
	Unadj.	-0.559	0.196	0.929	-0.101	-1.457	-0.192	-1.003	0.665	0.794	0.584	-0.416
SE_B = Standard Error of B	Adjusted	0.295	0.606	0.511	0.511	0.600	0.510	0.609	0.558	0.765	0.721	0.732
	Unadj.	0.293	0.592	0.507	0.507	0.592	0.507	0.571	0.520	0.767	0.718	0.719
t = B/SE_B = "Significance" Statistic	Adjusted	-1.838	-0.453	1.916	0.255	-1.653	0.037	-2.365	0.931	1.308	1.238	-1.142
	Unadj.	-1.977	0.330	1.832	-0.199	-2.459	-0.379	-1.756	0.921	1.035	0.814	-0.580
*B/S.D.	Adjusted	-0.180	-0.091	0.326	0.043	-0.330	0.006	-0.479	0.173	0.333	0.297	-0.278
	Unadj.	-0.186	0.065	0.309	-0.034	-0.484	-0.064	-0.333	0.221	0.264	0.194	-0.138
N = Number of Teachers in Computation	FT	507	23	33	33	23	33	25	19	13	15	15

it must be emphasized again that these variations are relative only, and that overall teachers are highly positive in their attitudes, it is clear that certain Sponsors engender somewhat more satisfaction than others. When region and teacher background are held constant, teachers in Sponsors 3, 11, and 12 report relatively more satisfaction,and teachers in Sponsors 7, 9, and 14 relatively less.

It is not easy to interpret these results. These Sponsors are not clearly of one "type" or another. Probably teacher satisfaction is based on a number of factors including, but not necessarily limited to, the teacher's own philosophy of education, assignment procedures, the Sponsor's delivery system, the receptivity of the school and community, and the flexibility with which the teacher feels she can adapt the approach to meet her own needs.

The degree to which teachers are satisfied with their Sponsor's approach is further affected by city size. In general, the bigger the city the less satisfied the teachers. (For the correlation, see Table MII-28, Section 3.5.) The Sponsor comparisons above, however, are not adjusted for city size because relationship between city size and satisfaction varies from Sponsor to Sponsor. Figure MII-7 graphically portrays this relationship for each Sponsor in terms of unadjusted scores. It is clear from this figure that despite the overall trend for satisfaction to decrease as city size increases, there is marked variation among Sponsors.

3.4.2 Faithfulness

Turning to Table MII-26, which presents Sponsor and grade profiles for teachers' perceptions of their faithfulness to their Sponsor's approach, a grade level difference is once again apparent: kindergarten teachers feel that their classroom is somewhat closer to their Sponsor's ideal classroom than do teachers at higher grade levels.

Teachers' perceived faithfulness also varies among Sponsors, especially when one fails to adjust for city size, region and teacher background variables. With these adjustments, three Sponsors appear to

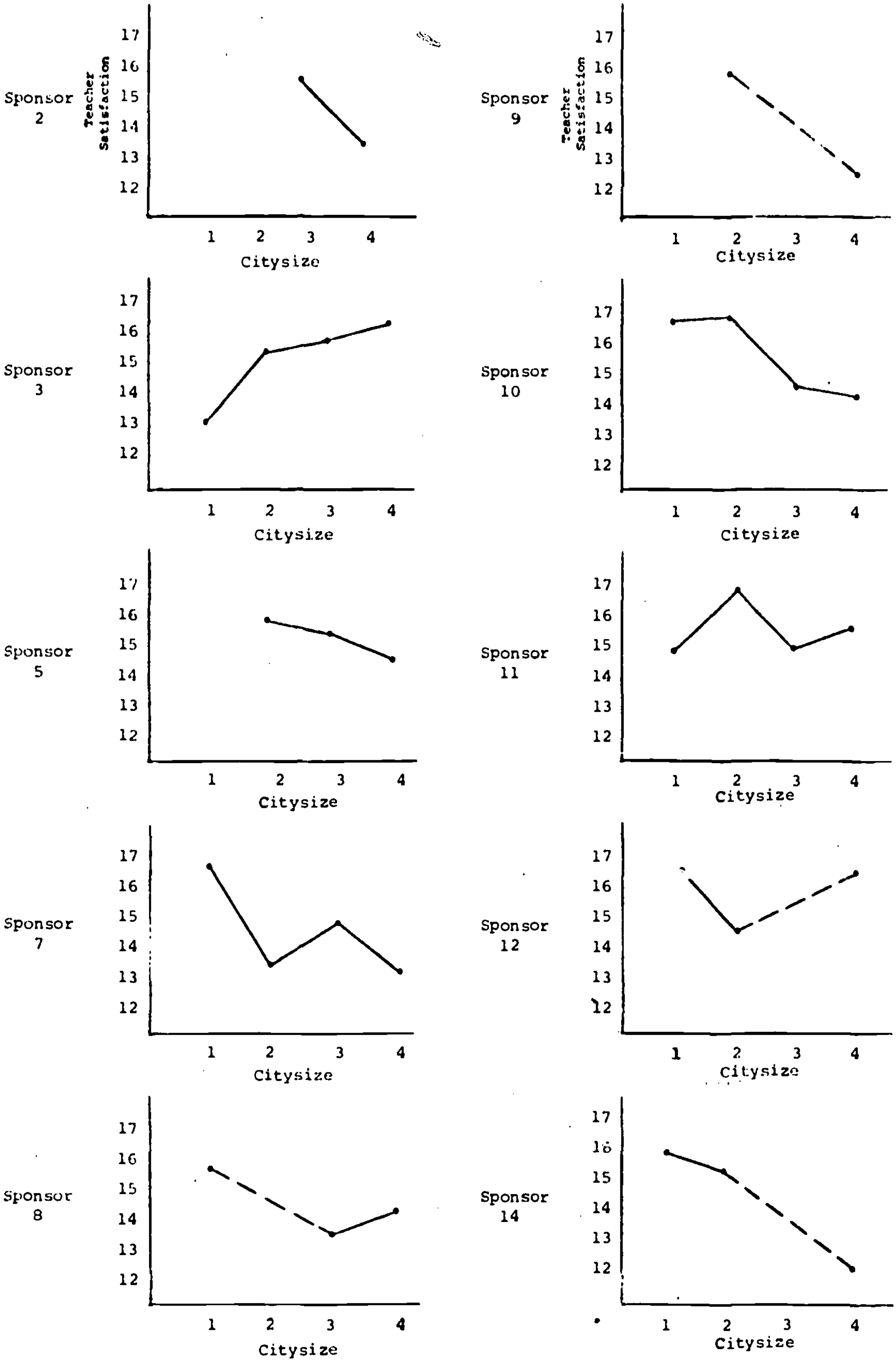


Figure MII-7. Teacher Satisfaction
by Sponsor and City-size

KEY

Citysize

1 = less than 10,000
2 = 10,000 to 49,999
3 = 50,000 to 199,999
4 = 200,000 or more

Table XII-26

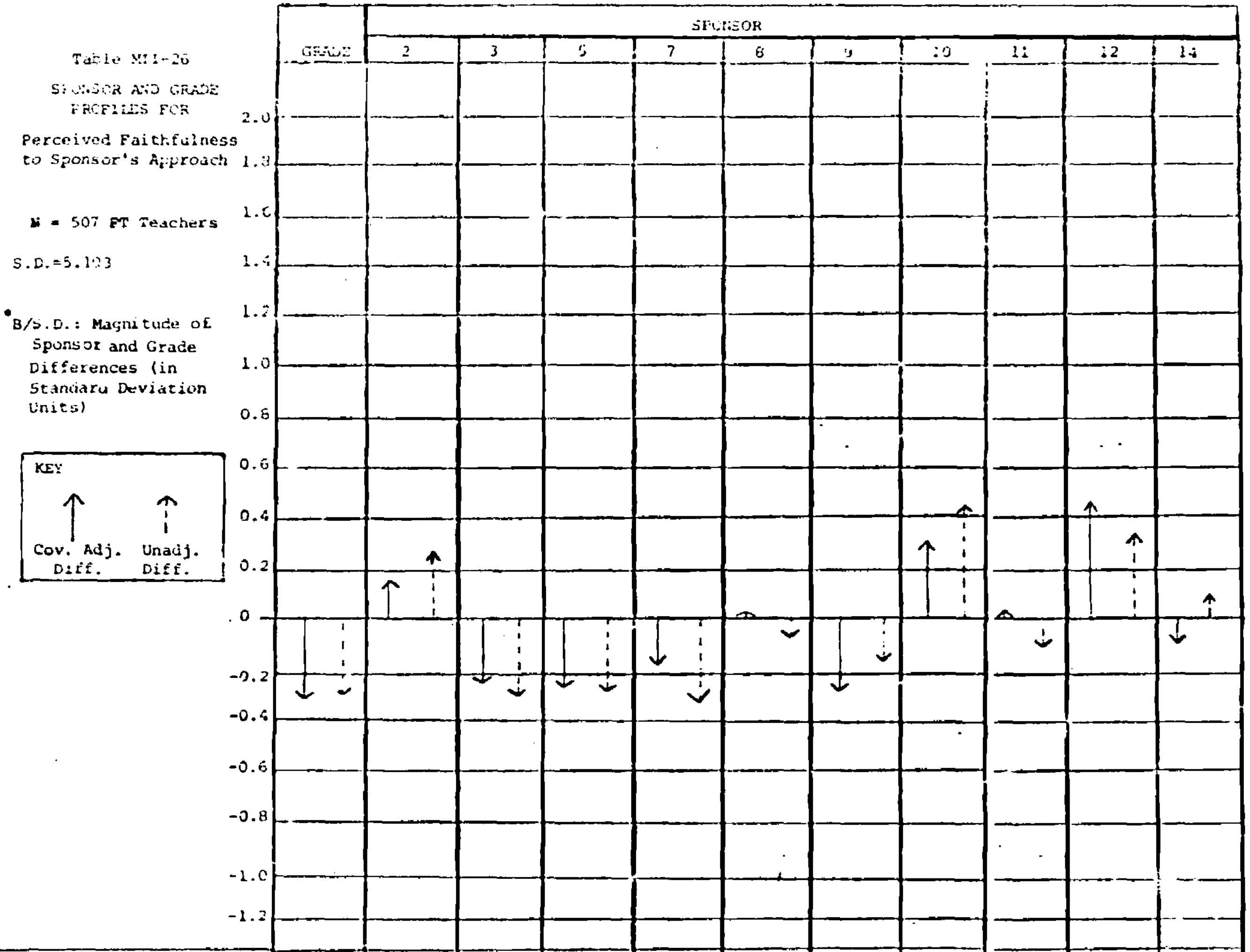
SPONSOR AND GRADE PROFILES FOR

Perceived Faithfulness to Sponsor's Approach

N = 507 FT Teachers

S.D.=5.103

*B/S.D.: Magnitude of Sponsor and Grade Differences (in Standard Deviation Units)



		GRADE	2	3	5	7	8	9	10	11	12	14
B = Magnitude of the difference	Adjusted	-1.542	0.848	-1.103	-1.196	-0.881	0.044	-1.280	1.635	0.062	2 326	-0.456
	Unadj.	-1.494	1.453	-1.472	-1.290	-1.590	-0.260	-0.759	2.222	-0.507	1.734	0.468
SE_B = Standard Error of B	Adjusted	0.495	1.398	1.112	1.109	1.249	1.459	1.508	1.228	1.691	1.787	1.560
	Unadj.	0.473	0.992	0.850	0.850	0.992	0.850	0.957	0.871	1.284	1.202	1.202
t = B/SE_B = "Significance" Statistic	Adjusted	-3.112	0.606	-0.992	-1.079	-0.705	0.033	-0.849	1.332	0.037	1.302	-0.292
	Unadj.	-3.155	1.465	-1.732	-1.518	-1.603	-0.306	-0.793	2.552	-0.[illegible]5	1.442	0.389
*B/S.D.	Adjusted	-0.302	0.166	-0.216	-0.234	-0.173	0.009	-0.251	0.320	0.012	0.456	-0.089
	Unadj.	-0.293	0.285	-0.288	-0.253	-0.312	-0.051	-0.149	0.436	-0.099	0.340	0.092
N = Number of Teachers in Computation	FT	507	23	33	33	23	33	25	19	13	15	15

fall outside the norm. FT kindergarten teachers in Sponsors 10 and 12 feel more faithful to their respective models than the other and teachers in Sponsor 9 somewhat less so. Clearly, site variability must once again be taken into account.

Before concluding this section, one significant interaction should be pointed out. Teachers' perceptions of faithfulness to their Sponsor's approach vary not only by Sponsor and grade level, but also by grade level within Sponsor. Most kindergarten teachers perceive themselves as being more faithful to their Sponsor's approach than teachers at higher grade levels. Kindergarten teachers in Sponsors 3 and 8, however, feel less faithful to their respective models. Table MII-27 presents these Sponsors by grade level interactions.

3.5 Are Teachers and Professional Characteristics Related to Teachers' Reports of Sponsor Training, Values, Attitudes and Reported Behaviors? Do These Relationships Vary by FT/NFT, by FT/NFT within Sponsor, or by Grade Level?

In section 3.1 various personal and professional characteristics of teachers were described. In this section, the relationship of certain of these background characteristics to teachers' reports of training, values, attitudes, and behaviors will be explored. There were no significant differences in the relationships among the two sets of variables by FT/NFT, by FT/NFT within Sponsor, or by grade level. Therefore, all teachers have been treated as a single group, and simple and partial correlations have been used to explore overall relationships. Table MII-28 shows the correlations to be relatively small. There are a few, however, worthy of discussion.

As can be seen, there is a small positive correlation between length of total teaching experience and FT teachers' perceived faithfulness to, and satisfaction with, their Sponsor's approach. Since total teaching experience was found to be positively related to length of teaching experience in a Sponsor's approach, this latter variable was partialled out of the correlation. The partial correlations are .09 and .08 respectively.

While these correlations are small in size, they are still worth noting. As mentioned in the introduction, some have hypothesized that older, more experienced teachers would find adjusting to a Sponsor's approach more difficult than younger, less experienced teachers with less

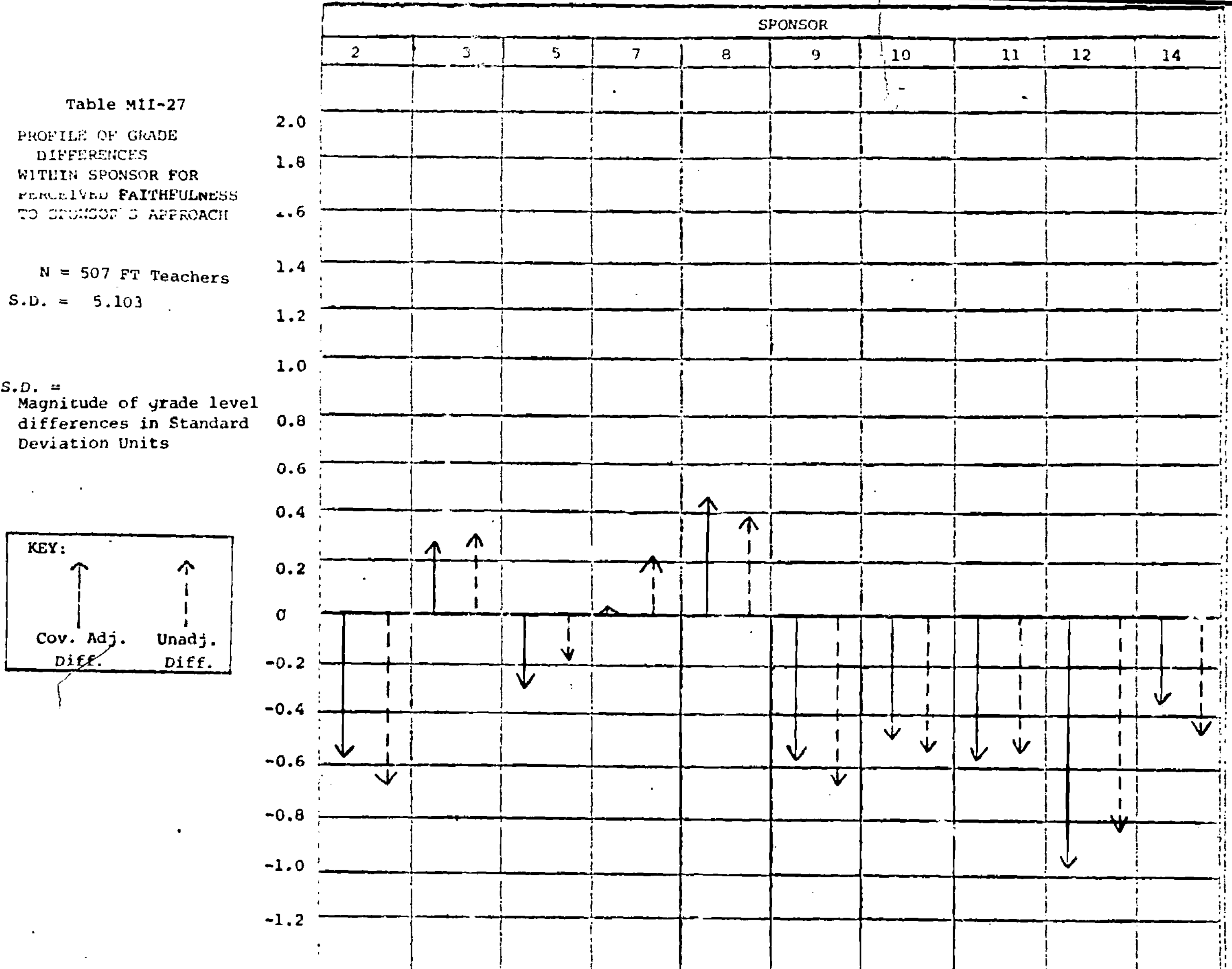
Table MII-27

PROFILE OF GRADE DIFFERENCES WITHIN SPONSOR FOR PERCEIVED FAITHFULNESS TO SPONSOR'S APPROACH

N = 507 FT Teachers

S.D. = 5.103

*B/S.D. = Magnitude of grade level differences in Standard Deviation Units



		2	3	5	7	8	9	10	11	12	14
B = Magnitude of the difference	Adjusted	-2.885	1.406	-1.415	.098	2.448	-2.923	-2.427	-2.948	-4.972	-1.797
	Unadj.	-3.361	1.608	-.901	1.060	2.021	-3.307	-2.674	-2.786	-4.233	-2.362
*B/S.D.	Adjusted	-.565	.275	-.277	.019	.480	-.573	-.476	-.578	-.974	-.352
	Unadj.	-.659	.315	-.177	.208	.396	-.648	-.524	-.546	-.830	-.463
N = Number of Teachers	FT	45	79	82	64	48	43	53	30	27	36

Table MII-28

Intercorrelation Matrix of Community Related Variables, Teacher Background Characteristics, Teacher Training and Teacher Values, Attitudes, and Behaviors [a]

Variable Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. City Size		-.34	-.01	.01	.24	-.26	.07	-.14	-.02	-.20	-.15	-.07	.09	.15	.00	.01	-.11	.04
2. South			-.26	.02	-.19	-.06	-.12	.02	.05	.03	.06	.14	-.04	-.03	-.05	-.03	.11	-.14
3. West				.02	.12	.08	-.03	.05	.08	.00	.06	.00	-.03	.02	.00	.02	.08	.03
4. Total Experience					.16	-.14	.38	.12	.14	.16	.23	.25	-.01	.04	.01	.03	-.04	-.02
5. Education						-.14	.13	-.07	.05	-.07	-.08	-.06	.06	.04	.00	.02	-.02	.05
6. Ethnicity							-.03	.00	-.07	-.15	-.13	-.15	-.08	-.23	.17	-.13	.00	-.14
7. Experience with Approach*								.12	.15	.05	.14	.10	-.1[illegible]	.02	-.0[illegible]	-.07	-.01	.04
8. Satisfaction*									.27	.22	.44	.24	-.16	.06	-.03	-.12	.16	.11
9. Perceived Faithfulness*										.22	.22	.24	-.11	.04	-.11	.09	.07	.04
10. Training: Structure*											.45	.39	-.09	.06	-.14	.24	-.02	.05
11. Training: Child Centeredness*												.57	-.19	.09	-.05	-.11	.08	.10
12. Training: Working with Parents and Aides*													-.21	.21	-.02	-.07	.10	.10
13. Attitude Toward Meeting with Parents														.27	-.02	-.12	.11	.03
14. Values: Parent Orientation															-.05	-.06	.10	.10
15. Values: Social Skills																-.14	.03	.01
16. Values: Structure/Academic vs. Child Centeredness																	-.06	.00
17. Frequency of Home Visits																		-.01
18. Teacher Expectations of Academic Progress																		

[a] N = 1122 FT and NFT teachers except where asterisked. For these variables N = 507 FT teachers only.

set routines. Yet, these data indicate that the more experienced teachers are as satisfied with, and faithful to, their Sponsor's approach as the less experienced teachers, if not more so.

There is also a small positive correlation between length of total teaching experience and the amount of training teachers report receiving in three different content areas: structure, child-centeredness, and working with parents and aides. It is clear that the longer a teacher is associated with FT, the more training she is likely to have. If we hold this variable constant (via partial correlation), the correlations between experience and amount of training reported remain small, positive, and significant. (The partial correlations are .15, .20, and .23, respectively.) Whether or not these perceptions reflect reality is unclear. The fact that more experienced teachers report receiving slightly more training than less experienced teachers, however, does not appear to indicate that they are dissatisfied or that they feel that the training is excessive. As noted above, the more experienced teachers appear to feel as comfortable with and faithful to the Sponsor's approach as the less experienced teachers.

Turning to ethnicity, there is also a small correlation between the race of these teachers and the amount of training they report having received. White teachers report having received less training than minority teachers in all three areas. Even after partialling out community size and total teaching experience (both of which are related to ethnicity and the amount of training reported), this relationship remains. (That is, r = -.19, -.15, and -.15, respectively.) Again, it is not clear whether these correlations represent actual differences in the amount of training provided or differeing teachers' perceptions of that training.

Teacher ethnicity is also associated with teacher values and expectations. Compared to white teachers, minority teachers are somewhat more apt both to have high expectations of their children's academic progress and to value working with parents and developing ethnic pride in their pupils. As Soar (1972) found, they are also more apt to value a structured/academic program over a child-centered one. They also tend to place less emphasis on social skill development than do Whaite teachers. These relationships are remarkably consistent across FT/NFT, Sponsors, and grade levels.

What is perhaps most striking about Table MII-28 is the relatively small size of the relationships observed between teachers' personal and professional characteristics and their values, attitudes and reported behaviors. For example, teacher education correlates with none of the latter variables; teacher experience bears some very slight relationship only with the amount of training reported; and the relationship of teacher experience to satisfaction and faithfulness are noteworthy only for their direction. Of all the background characteristics studied, teacher ethnicity alone appears to be related to teachers' values and attitudes, but even these relationships are small. In fact, it would appear that the traditional credentials used to admit teachers to and advance them in the education profession (namely, length of teacher experience and number of advanced credits or degrees earned) bear almost no relation to their reported values and behavior, and further that community size and location are more closely related to the values, attitudes, and behaviors teachers report than are their background characteristics.

4.0 DISCUSSION

In this chapter we have examined several characteristics of a group of FT/NFT teachers in ten Sponsor programs. While these teachers are not necessarily representative of FT/NFT teachers as a whole, or of teachers in general, these data are of interest both for their own sake and as a background for the other studies in this report.

4.1 Personal and Professional Characteristics of Teachers

We first examined the personal and professional characteristics these teachers bring with them to their teaching assignments. We found that, on the average, FT teachers are younger, have had less teaching experience, receive lower salaries than NFT teachers, and are also more apt to be non-White and to live in the same neighborhood as their pupils. These characteristics vary, however, by Sponsor, by grade level, and by geographical location. In the last case, teachers in non-Southern or urban communities are more apt to be non-White. This may reflect an attempt to match them with their pupils who are also more apt to be non-White in these locales. These teachers are also more highly educated, and better paid than southern rural teachers and more apt to live in the same neighborhood as their pupils.

Much of the Sponsor to Sponsor and grade level variation in teacher background variables may also be linked to these geographical variables. The teachers in Sponsor 12 (Pittsburgh) for example, are primarily located in small towns, with populations numbering less than 10,000 persons. Considering the relationship between community size and teacher ethnicity, it is not surprising that this Sponsor has fewer non-White teachers than any other. Teachers associated with Sponsor 5 (Bank Street) on the other hand, are located, for the most part, in highly populated cities. Not unexpectedly, many of these teachers are non-White.

Apart from geographic variability, however, there are many possible reasons for differences in what teachers bring with them to the various classrooms under study. These include differences in Local Education Agency (LEA) policy, Policy Advisory Committee (PAC) guidelines related to recruitment and selection of FT staff, and teacher preference, as well as Sponsor design. For example, Sponsor 14 (SEDL) has more non-White teachers than any other Sponsor. Since Sponsor 14 advocates a bilingual-bicultural approach to education, and would most likely seek to attract Spanish speaking teachers, this is not surprising.

4.2 Teacher Training in Basic Sponsor Philosophy

Turning to teacher reports of the amount of Sponsor training they have recieved in various areas, we found that there is variation in both the overall amount of training reported and its focus. Some Sponsors, such as Sponsor 12 (Pittsburgh), appear to provide more than an average amount of training in each of the three areas. Other Sponsors appear to give relatively little training in any area. We also found that although most Sponsors' training profiles reflect their basic program orientation, it is not easy to group any two Sponsors in a single category. The two Sponsors most often linked together -- Sponsors 7 and 8 -- have widely different training profiles. The former provides training in structure only; the latter provides training not only in structure, but in other areas as well. Teacher reports of the amount of training received vary

much more widely from Sponsor to Sponsor for structure-related training than for child-centeredness training. Nevertheless, amounts of child-centeredness training reported do seem to be influenced by community size in the following ways: FT teachers in very large communities report receiving less training in child-centered activities than do teachers in medium-sized communities; and in some Sponsors, teachers in very small communities report low amounts of training. This pattern may be accounted for by the isolation of very rural areas and the bureaucracy, union codes, and sheer number of teachers who must be reached in very large communities.
What is indisputable is the fact that the delivery of a Sponsor's approach cannot be studies outside its context.

Before leaving this topic, it should be pointed out that these findings are based on teachers' perceptions, which may not perfectly reflect actual practice. It is possible that the more teachers value a given Sponsor's philosophy, the more training they desire in it. For example, for the teacher who values parent involvement, four training sessions devoted to working with parents and aides may not seem like very many; for the teacher who places little value on parent involvement, on the other hand, one session may seem like more than enough. Much more information is needed on both the quantity and focus of Sponsor training as it is actually delivered to teachers. Data are also needed on the training programs provided by L.E.A.s, which may either facilitate or interfere with program implementations.

4.3 Teacher Values, Attitudes, and Reported Behaviors

Overall, FT teachers value meeting parents more and make more home visits than do NFT teachers. Moreover, kindergarten teachers value parent-community involvement more than do teachers in other grades, who tend to prefer structured learning activities designed to teach basic skills. In addition to these FT/NFT and grade level differences, teacher values, attitudes, and reported behaviors also vary by Sponsor. While these Sponsor differences are generally consistent with Sponsors' philosophical orientations, they also underscore the need for examining Sponsors multidimensionally. It is inaccurate to classify Sponsors on the basis of curriculum model alone; the Sponsors' parent component must also be considered along with other program aspects. Furthermore, we have found once again that implementation of a Sponsor's program, as measured here, is not independent of the community or grade level in which the program takes place.

4.4 Teacher Satisfaction and Perceived Faithfulness to Sponsor's Approach

Overall, the FT teachers appear to be highly satisfied with their Sponsor's approach. Most would like to continue teaching in it and would recommend it to others. Thus, in the professional opinion of those who must implement the program, FT appears to be judged favorably. Most teachers also agree with their Sponsor's philosophy. They perceive their classrooms as being very close to their Sponsor's ideal. While there are some variations by Sponsor and grade level, these findings reflect a generally positive teacher orientation toward the FT program.

4.5 Teacher Background and Teacher Values, Attitudes, and Reported Behavior

We next explored the relationship between teacher background characteristics and teacher reports of Sponsors' training, and their own values, attitudes, and reported behaviors. We found no difference in these relationships by FT/NFT, Sponsor or grade level. If a given Sponsor looks best with a certain type of teacher, we have not yet found that special combination.

Overall, the educational attainment of these teachers was found to bear little relationship to their perceptions of training, their values, attitudes, or reported behaviors. It must be pointed out, however, that we have a highly restricted range on this particular background variable. Most of the teachers in this study (approximately 70%) have earned credits or degrees beyond the Bachelor's level. Furthermore, it is possible that the teachers who have not earned such credits or degrees have been hired for other special qualifications, including their enthusiasm for a Sponsor's approach. Then too, we have no knowledge of the general area in which these teachers have earned their credits -- education or some other field -- or the focus of that education. Clearly teachers' values may vary as much with the quality or emphasis of the education they have received as with its quantity.

Teacher experience, on the other hand, was found to be positively related to the amount of training teachers reported receiving, and to a very limited extent to their satisfaction with the faithfulness to their Sponsor's approach. While it is true that self-selection and other factors enter into these relationships, the hypothesis that older, more experienced teachers are generally less receptive to change programs is not supported by these data.

The personal characteristic that related most highly to teacher values, attitudes, and behaviors was teacher ethnicity. Minority teachers in the FT/NFT group under study are more disposed to have high expectations for their pupils' academic progress than are White teachers, and to value parent-community involvement and the development of ethnic pride as primary program goals. These differences are consistent across both Sponsors and grades. Thus, at least according to teacher self-reports, minority teachers value two key concepts of the FT program more than do White teachers: (1) that education can improve the life chances of disadvantaged children and (2) that parent involvement in the education process is essential. In addition, the minority teachers were found to place greater value on a structured/academic approach to education than White teachers. This finding is consistent with Soar's findings (Soar 1972). However, it poses some serious questions for planned variation. For structured approaches, such as 7, 8, 12, and 14, non-White teachers may act as facilitators; for less structured approaches, the reverse may be true.

5.0 CONCLUSIONS

In conclusion, we have found that there is a great deal of variability in the background characteristics teachers bring with them to their classrooms, the training they report having received from Sponsors, and their values, attitudes and reported behaviors. This variability generally reflects overall FT philosophy and Sponsor principles as well. It is interwoven, however, with community size, region, and other non-program related factors. While we have begun to explore the relationship of teacher background to teacher values, attitudes and behaviors, we have yet to examine the relationship of these teacher characteristics to pupil and parent outcomes.

MONOGRAPH III

IMPLEMENTATION

1.0 INTRODUCTION

The primary objective of the longitudinal study of FT is to determine what changes in children, parents, and teachers occur as the result of several "Planned Variations" designed to affect any or all of these essential components of schooling. Unfortunately, in addition to the basic problems of experimental design, FT is a large-scale social innovation and as such is susceptible to the many different types of confounding to which all such endeavors are vulnerable.

In the first place, the treatments or interventions are externally imposed on existing systems which may not be operating at an optimal level. These systems consist not only of procedures and processes but also of people. And people react in a variety of unpredictable ways to any type of change. When innovations are initiated without the participation and concurrence of the people who are expected to implement them, the difficulty inherent in introducing an innovation may be greatly increased. Additionally, the members of comparison groups, who may previously have been functioning at less than maximum efficiency, may, under conditions of competition, be spurred on to perform at peak levels. Also, through other funding sources, comparison classes may be provided with services similar to those of the experimental group. Further, there may be many different types of idiosyncratic, site-specific reactions to the various components of total educational interventions. Certain features of the model may be accepted, others modified, and still others rejected or just not available in the local setting. Thus the experimental ideal of replicability may not be even approximated and already vague treatments may be further impaired by unpredictable interactions among various system and program characteristics.

Almost from the outset, FT administrators and the United States Office of Education (USOE) were aware of the necessity of documenting the two major facets of implementation: program delivery and system receptivity. It has become increasingly apparent that a major impact of FT may be as an agent of institutional change rather than as a booster of achievement test scores. A first effort to assess the impact of FT on features of community organization and educational institutions was a series of community studies commissioned by USOE in 1969. Somehow during the course of these explorations the focus was shifted from the effect of FT on the institutional structures of the recipient communities to that of the effect of activated parents on community processes.

Attempts to measure the delivery of programs in terms of carefully delineated model elements were also made. The first step in this process was to obtain a list of program descriptors which could encompass the diversity of Sponsor objectives, and then to determine the importance placed on a particular objective by a specific Sponsor. A Sponsor was then asked to rate the degree to which a specific class or site fulfilled the model's goals. More recently, Monaghan (1972) developed a series of check lists describing the critical features of Sponsors in the Head Start Planned Variations experiment and carried out a series of direct classroom observations to assess the fidelity of implementation at the teacher and classroom level. However, this latter work had not been completed in time to influence the FT evaluation, and the 1972 Stanford Research Institute (SRI) Interim Report, published in February, 1973, based its analyses almost entirely on a ceteris paribus (other things being equal) philosophy. Specific items in the various rosters, questionnaires, and interviews were used to make some statistical adjustment for the effects of differences in delivery and implementation. Lukas and Wohleb (Huron, 1972) utilized a similar approach in their study of implementation in the Head Start Planned Variations program. However, they make no attempt to aggregate items or to construct even a simplistic set of implementation variables.

Certain items of the Teacher Questionnaire do attempt to get at specific facets of implementation in an indirect fashion. Most relevant are the teacher perceptions of their faithfulness to the Sponsor's approach, teacher-perceived educational goals, and reported practices. There are also questions concerning teacher training, teacher satisfaction with facilities and various aspects of the curriculum, teacher attitude toward parent involvement, and teacher perceptions of the support which the model receives from the local education agency and its representatives at the school level. The Classroom Roster includes items which relate to specific FT services, and the Parent Interview theoretically provides some insights into the parents' perceptions of particular FT programs. These sources of data may provide some clues, but they are basically inadequate as a key to implementation. The information is obtained from reports of involved participants, hence susceptible to a great deal of bias, social desirability pressures, and unstable baselines.

A more direct picture of implementation, used extensively in the Huron Institute analyses, may be derived from the SRI Classroom Observation Instrument. Although it does supply valuable information, this measure is inadequate in that it is limited entirely to classroom events, and even here it is not sufficiently sensitive to important nuances of Sponsor differences. More limiting still is the fact that observations were carried out only in a small, non-randomly selected sample of FT sites.

Most important of all, none of these measures consider the wide variety of local educational agency (LEA) or community circumstances relevant perhaps only to a particular classroom, school, or site in a particular Sponsor's program, yet having a critical bearing on program reception. For example, these instruments do not provide any record that a particular LEA was so extremely opposed to parent participation that the parents were not even allowed entry to the school buildings. This local policy prevailed even into the third year of FT funding. When the situation was brought to the attention of the Washington office, the site lost FT support for over a six month period. A parent program of sorts was then thrown together, with concomitant stress and disruption of classroom programs. The site was reinstated in May 1972 and tests were administered at the end of the year, as usual. These data have been included as representing the performance of children and teachers under the rubric of that Sponsor.

This is an example of the many different types of events which have undoubtedly had some important bearing on whether or not a Sponsor's program actually reached the children and parents for whom it was intended, and in the form and manner in which it was conceived and developed. It is undoubtedly true that there have been many events with unknown impacts in other sites and programs, and that probability statistics are designed to handle such error variance when it occurs randomly in a large population. Unfortunately, the entire "randomicity" of the design is admittedly fallible, and the types of impediments or interference to program delivery are not independent.

Because implementation information is so vital in understanding and analyzing the data collected by the SRI evaluation measures, Abt Associates has been assigned the task of exploring the feasibility of developing a set of implementation scales. It is hoped that eventually it will be possible to assign a numerical value to several critical factors in the delivery of a model, and that these quantities or scores can then be used as covariates in accounting for differences within and across Sponsors. The present chapter is a report of a preliminary study to determine what type of inputs can reasonably be expected to contribute to such scale construction.

2.0 METHODOLOGY

2.1 Rationale of Study Approach

The first approach to the study involved a series of visits to Sponsors. While a great deal of relevant information was gathered, it was felt that the Sponsor's perspective might not be sufficiently reflective of the local situation. To begin with, changes have occurred in the Sponsors' field staff and much of what was reported was hearsay. Even those staff members who had been in regular contact with a field site had really not had a chance to observe the teachers under a variety of circumstances, and not being "insiders" in the LEA system, often were not informed of events which might be considered detrimental or evidence of inadequacy on the part of the local staff. Furthermore, Sponsors varied in the procedures they used in maintaining liaison; some used discipline-based consultants, some grade level consultants, and others locally-based professionals versed in the model. Thus the content of field reports varied considerably across Sponsors.

To avoid these problems, and also to be able to examine both features of local site receptivity and Sponsors' program delivery, an alternative strategy was adopted. The FT Director or the person employed by the LEA to implement the delivery of a specific FT program, or both if available, were interviewed. The person in either of these positions was able to provide information regarding both program delivery and receptivity. Ultimately, it will be necessary to obtain more information from a variety of informants. It will also be necessary to assess the fidelity with which a Sponsor's model is delivered in the classroom. In the meantime, these data provide some meaningful preliminary insights.

2.2 Development of Tentative Scales

Before embarking on the field visits, a list of questions reflecting several areas of interest were developed. The areas and the questions subsumed under each are:

2.2.1 Program or Sponsor Selection and Assignment within District

- Who selected the particular model for a particular school?
- On what basis and by whom were classes designated FT or NFT?

2.2.2 Relationship Between Sponsor and LEA

- What is the distance to the Sponsor's headquarters?
- Are lines of communication built into the Sponsor's model?
- Who hires the field representatives and trainers for the model?
- How much interaction does the Sponsor representative have with the administrative and teaching personnel in the regular local school system?
- Within the Sponsor's organization, how are responsibilities for training, curriculum development, and liaison with field staff handled?

2.2.3 Teachers: Assignment, Training, Characteristics

- What are teacher ethnic characteristics compared to FT population?
- How are teachers assigned to FT classes?
- What is the match between training and assignment?
- What restraints or constraints act upon teacher assignments?
- Have teachers trained for a particular model been retained for those FT classes?
- Do rules of local professional organizations pose restrictions on the model?

2.2.4 Relationships and Roles of School Principals

- What is the role of the principal in the selection of a model?
- What are assignment procedures for principals which might have implications for the model?
- What are the relationships among principals, specially trained teachers, and representatives (liaison persons) of the Sponsor?

2.2.5 Local Community Control and Role of Parents

- What control or influence do local boards of education or advisory committees have in relation to the program?
- How is the use of parents as aides or "educators" consistent or in conflict with usual relationships with parents?

2.2.6 LEA Problems or Crises

Were there:

- Any major disruptions in school programs such as strikes?
- Any major budget cuts affecting teacher hiring, class size, materials supplied, etc.?
- Any events, such as strikes which closed schools, resulting in tension or conflict between the school and the local community?
- Any non-program-related events such as floods, hurricanes, earthquakes, or epidemic illnesses, which could disrupt the program? Have these increased or decreased community-school distance?
- Any accidents to key personnel (death) or non-program-related change resulting in leadership changes affecting the model?
- Have there been significant population shifts in either characteristics of the local school population or size of population eligible for FT?

2.3 Procedure

The technique used to obtain the study data was a semi-structured interview following the above outline with either the FT Director or the Program Coordinator. Sometimes a staff person, such as the evaluation coordinator, or an LEA person, such as the principal or vice-principal, was also present, but the bulk of the information was obtained from the Program Coordinator who was the person most intimately involved in the process of receiving and delivering the Sponsor's approach.

Overviews of the FT Program in the cities being studied were obtained from the Directors of the LEA's Early Childhood Program and the FT Director for the city. Where the interviewee permitted, the conversations were taped and later transcribed verbatim. The interviewer reviewed the texts and edited out any personal comments or asides. Only one of the reports presented here was taken from notes because the Program Coordinator did not wish to be taped. The initial conversations in Philadelphia were carried out by two interviewers to establish a consistent format. The remaining interviews were recorded by one interviewer.

All of the specific statements presented in Section 3.0, whether as matters of fact or judgment, have been paraphrased from the transcriptions of the interviews. In a sense, this chapter presents a series of case studies in which the interviewer has attempted to be as objective and non-judgmental as possible. Undoubtedly there will be some personal bias, but whenever an evaluative or subjective statement is made it is associated with information obtained in an interview.

2.4 Selection of Subset of Interest

To obtain a cross-section of Sponsors in a relatively homogeneous situation, it was decided to concentrate on those Sponsors in Philadelphia and New York City who were also represented in several other communities across the country. Thus "Self-Sponsored" programs or those with only one Big City site were not included as part of this preliminary investigation.

In using the Big City Sponsors as the basis of the initial implementation study, it is important to draw attention to a little-known source of possible confounding. That is, New York City was one of the 40 communities which had been included in the pilot FT in 1967-68. At that time, each LEA was funded directly, and there were no Sponsors or models involved in any liaison or consultative capacity. Decisions as to how to use the additional funds made available by the federal government were completely within the province of the existing school system. In most cases, the major influences came out of the traditional/progressive child development orientation which prevailed in most of the early education units of the LEA. This was particularly true in New York City, where the Central Office personnel strongly favored the "child development" philosophy.

When the "Planned Variations" aspect of the FT longitudinal study was introduced in 1968-69, communities which had embarked on FT the previous year had already begun to develop their own programs. With the introduction of the sponsorship concept, local systems were inclined to select models which were consonant with their own innovative styles. However, in the Big Cities, where more than one Sponsor was prescribed, this was not always possible. While for the most part the schools included in the program were the same as the ones in the pilot year, only to a limited extent was it possible to obtain a Sponsor whose ideology coincided with that of the first year's efforts. Thus, two quite opposite effects might be anticipated. Where there was a great deal of overlap in ideology, an increased maturity of program implementation and delivery should be found; where there was a great deal of dissonance between the existing and the new models, delivery should be impeded, with a greater disadvantage to these models. No studies have thus far been undertaken to estimate the effects of congruence or conflict between the 1967-68 and the 1968-69 FT programs.

The Sponsors represented in Philadelphia include, in addition to a locally-based Parent Implemented program and the Philadelphia Process Model, the University of Kansas Behavior Analysis approach, the Bank Street College of Education approach, the EDC Open Education program, the Florida Parent Education Model, and the Southwest Educational Development Laboratory (SEDL) Language Development (Bilingual) approach. Both Bank Street and the Kansas Behavior Analysis approaches are also represented in the New York City FT program, in addition to the High/Scope's Cognitively Oriented Curriculum Model and the University of Orgegon/Engelmann-Becker Model for Direct Instruction. There are several other FT Sponsors in the Greater New York area, but they have a very limited number of replicates.

3.0 REPORT OF FINDINGS

3.1 The Philadelphia Sample

Philadelphia is one of the most important sites in the evaluation of the FT Planned Variations experiment, having approximately 10% of the total FT population. Because of its large urban-poverty population, the city has been receptive to innovations which offer some hope for a solution to its educational problems. Immediately prior to FT they had a five-year Education Improvement Project (EIP), which brought many new ideas and materials into the ghetto schools. However, their "improvements" were primarily within the traditional subject-matter, teacher-controlled, classroom context. Kindergartens, on the other hand, were considered "free of subject matter requirements," according to the 1960 Philadelphia curriculum guide, and the major focus was on the needs of the child.

In September 1968, a formal resolution was passed by the Philadelphia Board of Education approving the FT program but constraining Sponsor selection to five specifically named national Sponsors and two local or "self-sponsored" models. The presentation of these FT options was made to the Superintendent of Education, the eight District Superintendants, other Central Office personnel, and some of the principals. Two of the Philadelphia school districts with primarily white, middle class populations were ineligible for FT. The Superintendent wanted each of the remaining six districts to select a different Sponsor, with three schools in a district having the same program. However, at that time there was a great deal of pressure for decentralization, and the District Superintendents insisted on making their own decisions. Several districts elected to have more than one Sponsor, and not all districts had the same number of eligible schools.

The guidelines for school eligibility were basically economic. At least 50% of the children had to have been in Philadelphia Head Start ("Get Set") Centers which fed into the elementary schools, and sufficient classroom space had to be available to permit a top limit of 25 children in kindergarten and 30 children in first grade. In addition, the kindergarten programs had to provide a full day experience. Within these ground rules the District Superintendents selected the schools for inclusion in FT. Furthermore, although the school staff and parents had some opportunity to express their preferences, it was the District Superintendent who made the final decision.

At the outset the distribution of FT schools was as follows:

District 1: 3 Philadelphia Process Model;
District 2: 1 Kansas, 1 Bank Street, 1 SEDL;
District 3: 1 EDC, 1 Florida;
District 4: 2 Kansas;
District 5: 2 Bank Street, 2 SEDL, 1 Parent Model; and
District 6: 3 EDC.

Toward the end of the first year (1968-69), the FT administrators came to Philadelphia and expressed deep concern about the manner in which the schools had been allocated to the various Sponsors. As a result of a series of meetings with the Central Office staff and the District Superintendents, it was decided to decentralize the administration of the FT programs. A few changes in allocation of schools to Sponsors also occurred at this time. A separate budget was set up for each of the 18 schools and one for the Central Office.

One of the most crucial impacts of FT in Philadelphia is the emphasis on a totally new orientation to teaching. In the past Philadelphia has been subject-oriented, but now the schools are faced with a variety of program models based on different learning theories, focusing on the entire process of teaching rather than on curriculum content.

Institutional change is a basic goal of the FT program in Philadelphia. Along with the notion of decentralization, the Superintendent is attempting to develop procedures to carry on the most fruitful innovations after the present federal funding is terminated. Primary agents in the change process are the FT Program Coordinators. They were selected from among the personnel of the EIP program when it was disbanded; each Sponsor was assigned his own Project Coordinator. Presumably some attempt to match people with programs was made, with appropriate retraining in the basic tenets of the model, so that now each Coordinator is an advocate for that Sponsor.

During the 1972-73 school year, the Philadelphia Schools suffered a long and bitter teacher strike. The extent of involvement in this conflict varied considerably across the FT schools. The hostilities engendered among those who participated and those who crossed picket lines endured long after the strike was over. In general, most of the FT schools remained open, with parents and other community personnel replacing the absent teachers. This situation was particularly devastating to programs whose major focus was working with parents.

3.1.1 Philadelphia: Bank Street College Approach. In 1968-69 there were 200 children in eight FT kindergartens in three schools. In 1969-70 and 1970-71 there were only six FT kindergartens in two of these schools; the third school was dropped and another school with four kindergarten classes added. The 1971-72 Teacher Interview tape includes only seven kindergarten teachers from these three schools. According to the Project Coordinator, few of the teachers, either in the kindergarten or the primary grades, come close to being adequate Bank Street teachers. There are several previously traditional teachers who are trying to adopt the Bank Street teaching style but most of them find it difficult to handle a child-oriented classroom. The situation is made even more difficult because two of these three schools are in the most economically depressed area of the city.

In one school involved with the Bank Street program, the principal has been in the school system for over 30 years, and is reported to follow a traditional approach. She does not favor a child-centered approach nor does she believe parents should be involved in educational decisions. However, in spite of her personal feelings, she is described as not actively interfering with program implementation. From several recorded comments it might be inferred that she has a tolerance based on exposure to a wide range of innovative programs and feels, "This too will pass."

Another feature of this school is the fact that it is losing its population due to local urban redevelopment programs. To maintain minimum enrollment, children have to be bussed in from other areas. It is difficult to mount an effective parent program here because there is little sense of loyalty to either the school or the neighborhood. Only four or five "core" parents participate on a regular basis.

An even more drastic loss of students is occurring in the second Bank Street school in this area. Just four years ago there were 1200 children enrolled in the school; this year there were only 500, and it is expected that next year about 400 children will be enrolled. Because of the reduced population, there are many empty classrooms. However, budgetary restrictions and other local education problems have resulted in curtailed teacher employment and thus there are two classes which have enrollments of over 40 pupils in each.

The principal of this school is new and has had no formal training in elementary education. A further cause of concern on the part of the Sponsor is that a new psychologist has been employed without consultation. This psychologist is an advocate of behavior modification techniques with children who present discipline problems. This approach is antithetical to the model's philosophy. On the other hand, several of the staff trainers are described as very attracted to the model.

The financial problems of the Philadelphia City Schools have recently been the subject of headline stories. This situation is felt keenly at another Bank Street school, where the monies which were supposed to have been allocated for instructional materials were not forthcoming last year (1972-73). The situation became so detrimental to the model's functioning that the Sponsor offered to purchase some of the materials so that the children would not be penalized, but this was not permitted. Even more serious is the inadequate staffing. Two of the classrooms have no permanent teachers, and three classes have had three substitute teachers within a three-month period. Also because of the shortage of funds, teachers could not get released time to attend training sessions. When previously trained teachers are lost to the program for one reason or another, their replacements are usually pulled from the pool of "excessed" teachers; they do not have the model orientation since there is no money for hiring substitutes while they attend training sessions. The principal is described as not making any attempt to alleviate these conditions, which may be within his area of responsibility. Instead, he has several times requested transfer to an NFT school.

It is clear from the yearly progress reports that the Sponsor has put forth greater efforts in staff development each successive year, increasing the amount of time spent in Philadelphia by Bank Street trainers and consultants. There is a great deal of parent support, and the teachers are reported to favor the educational philosophy that the Bank Street College has fostered for many years. Nevertheless, an atmosphere of apathy and discouragement is reflected in the attitude of the Project Coordinator.

3.1.2 <u>Philadelphia: University of Kansas Behavior Analysis Model:</u> The Kansas model is based on behavior modification theory and employs a token reinforcement system to produce desired behavior. It advocates a particular process for bringing about learning, rather than a set of curriculum materials. Thus during 1968-69 each site was suppose to use whatever books or instructional materials were part of the existing curriculum, but to modify the process by which these materials were presented to the learners. It was soon evident that this approach was not satisfactory. The traditional texts and readers did not provide appropriate vehicles for a rapid and consistent flow of reinforcers, corrective feedback, and the other distinctive features of the reinforcement model. Early in 1969, the model began to introduce programmed instructional materials into the model framework. At first these consisted of Addison-Wesley math, the Skinner handwriting program (Lyons-Carnahan), and the Sullivan (BRL) readers. Later, Addison-Wesley math was replaced by the Suppes math program published by the Singer Company. The initial floundering without programmed texts, and the subsequent changes in a major section of the instructional program, resulted in a very slow introduction of this model in Philadelphia as well as in the other Kansas sites.

Because of its extreme departure from traditional teaching concepts, the Kansas model has had more public confrontations than any other Sponsor. A review of Sponsor records revealed that, in almost every case, the initial opposition stemmed from a disaffected member of the teaching staff, with the main support for the program spearheaded by the parents. According to the FT Director, this was also true in Philadelphia. Here there was a great deal of disruption caused by a newspaper article attacking the Kansas model, but this resulted in the tightening of the parent support behind it and a much stronger feeling of involvement.

Parents play an important role in the delivery of this program. In addition to the aides who are part of the regular paid staff, there are six-to-eight week rotating parent scholarships, giving many of the parents the opportunity to learn the techniques of the model. Through these experiences, parents are learning that they are valued participants in providing educational experiences for their children.

Two of the schools still have the same principals who initiated the model. At the third school there have been three principals in three years. One of the Kansas model schools represents the consolidation of two small schools in one building. This occurred just before the beginning of the FT program and has created some special administrative problems. Although the principals are reported as generally supportive of the model, they are not all fully trained in its procedures. Just as the educational program has been changing over the years, so too has the staff development and the relationship between the Sponsor personnel and that of the local school administrators, teachers, and parents.

Teachers in a model are either its extreme advocates or opponents. In general, older teachers have not chosen to adopt this model. Traditional teachers in the school frequently have had a hard time adapting, although the teacher described as the most effective Behavior Analysis teacher has been teaching in a traditional mode for many years. New teachers are selected by the principal with the concurrence of the other members of the Model Management Team which represents the various adults involved in a school's FT program. The supportiveness of the principals optimizes the possibility that the teachers assigned will be young, flexible, and favorable to the concepts of the model.

In 1970-71, the Eastern Regional Training Center for the Behavior Analysis Model was set up. This was reported to have greatly improved the delivery of training to teachers, aides, and parents. Because of budget cuts and the increasing competence of the people involved, the Center was closed at the end of the 1971-72 school year.

There is an unusually low turnover rate for this Sponsor. Of the total list of 23 Behavior Analysis teachers, only three are no longer there, and one of these three left because of pregnancy. The other two were encouraged to leave by the model liaison. Local staff assert that this does not mean that all the remaining teachers are committed to the program. The necessity for "excessing" teachers, described earlier, puts many teachers in the position of accepting the model as the only alternative to a non-teaching assignment.

In general, the staff developer at the school has a great deal of input. This past year, one of the Behavior Analysis schools did not have a person in this position, and it could not be filled because of the extreme disruption caused by the two strikes. Some of the staff developers are strong advocates, but several individuals holding this position are carryovers from the EIP program, and are concerned about radical departures from a traditional approach.

Although the FT kindergarten program has a longer day than the NFT classrooms, it is not a complete day. This means that there is a degree of overlap when both FT groups are present during the lunch period. There have been a number of problems where two teachers share the same facilities. The constraints which make nececessary for teachers to share their rooms and responsibilities with aides and parent assistants have precipitated some tense situations. Each classroom has a minimum of four adults: the teacher, an educational aide, and two parents. In addition, there are often parent volunteers and sometimes student teachers for limited periods of time. This places a great strain on the concept of the teacher as the single authority in the classroom. It is perhaps one of the greatest areas of institutional change for all FT models, but more particularly for this one.

3.1.3 Philadelphia: Educational Development Center (EDC). Three of the schools which adopted the EDC Sponsor are located in a community described as favorable to integration and innovation. According to local staff, the parents and teachers in this area have completely accepted the Open School model and it is here that the FT experiment has had the greatest impact. Other schools in the surrounding area, including the comparison schools, have adopted the approach and are getting EDC training. Two very tangible types of evidence of the force for institutional change may be seen in the fact that the LEA has issued a separate job description for EDC teachers and has provided a location for setting up an EDC Creative Workshop and Advisory Center.

The Project Coordinator for this model reported that at the time the FT Planned Variations was introduced, a group of parents in the area were exposed to a brochure, published by Featherstone, which described the British Infant School approach. Many parents were excited by the ideas and were interested in having the approach brought into their schools. It was the parent group who actually swung the decision in favor of EDC. Several of the principals in these schools were interested in Open Education, but they were not the ores whose schools were eligible for FT.

In the case of two of the FT schools, the parents were enthusiastic about the program; in the third school it was the principal who wanted this model and even went to England with a group of parents and teachers to study it. Unfortunately, this principal died as the program was developing and was replaced by a person who was described as having "absolutely no notion at all" as to what EDC was about. The new principal in effect inherited a particular FT model and was given no Sponsor options for the school.

The present EDC Project Coordinator had been in the EIP program and at first was not favorable to the EDC concepts. She reported that in the beginning she resisted attending the EDC workshops. She was persuaded by the FT Director to attend one of the demonstrations and was greatly impressed with the EDC consultants. She has since become a strong advocate of this model.

EDC started with a fourth school, geographically remote from the three described above, which apparently did not receive the same amount of attention or consultative service. Although the parents had originally favored the model, they became dissatisfied with the services they were receiving. The Philadelphia FT representatives discussed the situation with the Washington office and their own school administrators. At that time there was only one school which had selected the Florida model, and that was in the same district as the single EDC school. While parents play an important role in the EDC model, this is not usually expressed in terms of direct educational involvement in the school setting. Parents are encouraged to come to the Advisory Center, engage in creative activities, and learn a variety of skills, but they are not given a specific educational function. For its part, the Florida approach had no particular instructional component and there seemed to be no reason why the Florida "Parent Educator" model could not function within the EDC classroom approach. It seemed that a joint sponsorship would be appropriate, and that the two approaches would be compatible. Thus the fourth EDC school came under dual sponsorship in September, 1969. From the beginning this was reported as not a happy marriage, and EDC, which had not been active in the school, gradually moved out.

The EDC model departs in many major ways from the traditional concept of how a school should be run. It is reported, therefore, to be very difficult for principals and teachers to accept the model at the outset. Once accepted, it takes a long time for ingrained teaching styles to be modified. Continuity of leadership at the building level is described as extremely important, but this has been lacking in many of the EDC schools. At one of the EDC schools there were three principals during the past year, and for a great part of the time the school was run by the Project Coordinator, with the support and cooperation of the teachers. The fourth principal brought in was from a Behavior Analysis school, where he had implemented a very different kind of program. This might have been a disaster, but it has fortunately worked out very well and this principal is considered by the Coordinator to be one of their most effective supporters.

In commenting on the six kindergarten teachers included in the roster , the Project Coordinator felt that five of them were very open and capable, and the sixth one was "trying hard." According to this Coordinator, the teachers of the kindergarten and early grades have adapted readily to the model and there has been little turnover in staff.

3.1.4 Philadelphia: Florida "Parent Educator" Model. Although all Sponsors were supposed to be represented in three schools, the Florida model had only one school the first year. Neither the FT Director nor the Project Coordinator had any information as to why this was so. As indicated earlier, it had been the desire of both USOE and the Philadelphia School Board administration to develop an experimental design in which each Sponsor would have at least three replicates. However, because of the diverse characteristics of the Districts, and the strong feelings for or against certain models by many of the parents and/or school personnel, there were many deviations from the original plan. For reasons that are unclear, the Florida model was not the first choice of any schools in Philadelphia. According to the Project Coordinator, even the principal of the original Florida model school was not really enthusiastic about this approach.

The Florida model was far from a complete program when it was accepted into the FT Planned Variation study. In the first place, it was conceived as an Infant Stimulation Project in which mothers were taught to work with infants and preschool children. It was not at all a curriculum or even an instructional model on which a curriculum could be based. The tasks used in the infant program were based mainly on Piagetian theories of sensory-motor activity as the first stage of cognitive development. Many of the mothers in the Florida model objected to this type of task; they wanted structured activities more like traditional homework assignments.

After this feedback began coming in from other sites which utilized the Florida model, the Sponsor changed the nature of the home-based tasks. The mothers were brought into the school and a two-way dialogue ensued. As a result, a program evolved which was responsive to the needs of the particular mothers and children in each school. Here again is an instance of a model changing in response to the needs of the receiver community.

The "Parent Educators" in the Florida model have an extremely important role in helping to develop the parents' confidence in their abilities as educators and in convincing the teachers of these competencies. The Coordinator said that when she interviewed parents for positions as Parent Educators she asked them how they would feel working under a teacher who might be much younger than they were, perhaps unmarried, and with no experience as a mother. Invariably the response she got was that the teacher was trained and she knew best. She found that only after the parents had been in the program for a while were they able to see that they had a great deal to offer and that they could often make more perceptive prescriptions for learning tasks than the trained teachers.

From the teacher's point of view, having aides in the classroom as "Parent Educators" proved to be initially quite threatening. However, as the contributions of the aides to the children's learning became more evident, this resistance began to dissipate. Also, the model advocates a Model Management Team, and it is this committee of parents, Sponsor, and LEA personnel who make the decisions about the hiring of teachers as well as aides. If the parents do not approve, a teacher is not employed in this model. In actual practice, the teacher is responsible for all educational decisions and can override the suggestions of the aides.

There are two Parent Educator aides assigned to a classroom and they divide their time between the school and the home, according to a schedule usually arranged by the teacher. Once a week the Parent Educator visits each home for about 20 minutes. Sometimes the mothers try to unload a lot of their problems and the aides have to use a great deal of tact. Sometimes the aide comes to a home and there is someone there but no one answers the door. The aide must know how to handle many sensitive situations; this takes a lot of skill and training. The Coordinator noted that in some cases it would be better if the Parent Educators were not from the same community. She has found that some Parent Educators have difficulty assuming this new role with people whom they have known as friends and neighbors. This is counterbalanced by the fact that the aide from the same neighborhood knows the children and their families very intimately.

Not all teachers are capable of functioning in a personally satisfying manner with this type of program. Teacher turnover in the Florida model schools is quite high, with about 50% of the teaching staff leaving each year. Several of the regular teachers have been described as excellent but have had to face problems such as unfilled aide positions and parents who are unable to communicate in English. Most of the aides are monolingual Blacks who are reported to have difficulty communicating with Spanish-speaking parents.

Some teachers were optimistic about having two aides in the classroom but later found the two in contention. In several cases, aides have asked to be transferred out of a room because of the critical attitude of the teacher. Approximately 80% of the teachers are White whereas 100% of the aides are Black. There are no situations where a Black teacher has a White aide. Tension arises not as much because of the interracial mix but more because of status relationships.

The teacher strike (1972-73) was a severe setback to the Florida program particularly since it was in the only school which stayed closed throughout the strike. One of the teachers was an active union leader, and she was very persuasive in influencing the teachers to stay out, even though the parents were very much opposed to the strike. Emotions ran very high. People didn't speak to each other for a long time after the strike was over, and a residue of animosity was reported to be evident six months later.

Feelings still seem to be strong over this issue at the present time.

One of the most positive institutional change effects of the Parent Educator model is that the parents have developed a new perception of their role vis-a-vis their children's schooling. They are willing to stand up for their opinions, even with the principal.

3.1.5 Philadelphia: Southwest Educational Development Laboratory (SEDL). The SEDL Program is in three schools, two of which are in the most economically disadvantaged Philadelphia school district. This district also has a large proportion of Puerto Rican families. For this reason, the Bilingual-Bicultural SEDL program, which was built specifically for Spanish-speaking populations, was selected. There are unique problems facing this Sponsor, however. First, the model was developed for the Mexican-Spanish population in the Southwest, particularly Texas; second, the children in Philadelphia are almost entirely bilingual upon entry into school. Although the local Sponsor representative is generally pleased with how the program is being received, the Sponsor does not feel that Philadelphia is a particularly appropriate site for the SEDL approach and thus is not a fair test of the program.

In general, all SEDL sites have team leaders who serve as liaison between the Sponsor and the LEA. The team leaders keep track of materials, observe teachers, and provide on-going in-service training through demonstration lessons. In Philadelphia, there is one team leader assigned to each school. However, the team leader of one of the three schools went back to the classroom as a teacher so the SEDL Project Coordinator now serves as team leader in that school. She does not, however, speak Spanish. The lack of Spanish-speaking teaching and support personnel is one of the main problems in implementing this program.

Over the past several years, there has been considerable change in the way the Sponsor has delivered the staff development and liaison services. There has also been change in the instructional program. In the first three years (1968-1972) the materials were being pilot-tested and modified. This year (1972-73) is the first year the language materials were considered ready for publication. There was no SEDL Early Childhood Program in 1968-71, and a modified form of the Betty Ott preschool materials was used. The

Bilingual Early Childhood program, developed by Shari Nedler, was utilized in the kindergartens in 1971. This consisted primarily of a reading component. The math program was not finalized at that time.

In response to the shortage of certified Spanish-speaking teachers, the program has involved parents as aides in the classroom. This constitutes a major departure from the previous system where the parents were excluded from any participation in educational activities with their children. It is also a major role change for the parents with their children in their own homes.

Another solution to the need for Spanish-speaking adults in the classroom was the employment of bilingual teachers from the Bilingual Institute. These are people who have recently come from Cuba or Puerto Rico, who do not speak much English, nor have they had any professional teaching experience in their native countries. However, they have had several years of college. So the SEDL FT classes have Spanish-speaking teachers who do not speak English. The English-speaking teachers are being encouraged to learn Spanish, and are being given an opportunity to attend courses for which they are paid a stipend as well as their tuition fees.

At the same schools which house the SEDL program there is a second, competing bilingual program administered under Title VII funding. The Sponsor representative feels that this program has received more support locally than SEDL. There is a basic philosophical difference between the two approaches. In essence, SEDL aims at producing good English speakers by the fourth grade and all instruction is presented first in English. There is supplementary instruction in Spanish but the major emphasis is on acquiring facility in the English language. This is not true of the Title VII program. Although it is called bilingual, in the early grades it is actually monolingual in Spanish. Only gradually is English introduced into the regular classroom program. Thus it is not surprising that Spanish-speaking teachers have been assigned to these classes rather than those of the FT Bilingual Sponsor.

The instructional component of SEDL is based on a programmed learning approach. The materials are structured and must be purchased from SEDL, which makes it a comparatively expensive program for the LEA. In particular, it means they do not have money for parent scholarships. Getting parents involved in the program has been described as a very difficult task and it is felt that if there were funds to pay even token stipends it would stimulate a great deal more active parent participation.

The Project Coordinator feels that the principals provide a great deal of support for the program. This is not quite in agreement with the Sponsor's point of view. Also, one of the principals had previously been the principal of a Bank Street model school in the same district. She moved to this school because it was larger, which meant a higher salary. The Coordinator felt that the principal who had been with the Bank Street approach was now an active advocate of the SEDL program. On the other hand it was her opinion that the other principals were more neutral than supportive.

There has been a good deal of teacher turnover in the SEDL classes. The Coordinator feels that the new teachers have very little problem with the structured approach of this model. Some of the older teachers could not adjust and left, but new teachers adapt to the program very readily. There is also opportunity for aides to assume some of the responsibilities of the teachers. Such actions are welcomed since the aides can communicate with the non-English-speaking children.

A great many value changes are taking place as a result of the bilingual approach. This is true not only for FT but also for the Title VII classes. Both are having an important impact on changing the way the school relates to non-English-speaking minorities. There is also an important change in how these people feel about themselves. This has been reported by the Director of the Early Childhood Program, the FT Director, and the Coordinator.

In 1972-73 the program was adversely affected by the two teacher strikes. Many of the Spanish-speaking teachers stayed out because of their lack of job security. They felt they needed the union support to retain their positions. Almost all of the regular teachers and the aides did not join the strikers. The parents were angry with the Spanish teachers for staying out. The Coordinator agreed with the parents that the children should come first, but did not feel that she should tell the teachers what to do. There is still a large residue of ill-feeling as a result of the strike.

3.2 The New York City Sample

3.2.0 Overview

New York City was one of the earliest recipients of FT funding, and most of the present FT schools participated in the 1967-68 school year. However, there were no Sponsors and the FT program consisted primarily of some type of open, child development approach. In the interview with the Central staff it became apparent that this is the primary orientation of the New York City FT office. All the personnel, including the Early Childhood Program Director, the FT Director, and her assistants, have a strong bias in favor of this type of educational approach.

The procedure for Sponsor selection in New York City was very different from that used in Philadelphia. From all reports it was very similar to an auction sale.

The introduction of FT in New York City came close on the heels of the big strike of 1968, when the decentralization movement was at its peak. The pressure for community control of educational decisions meant that a great deal of attention was paid to the local preferences. The New York City Early Childhood Coordinator, the District Superintendents, and the Deputy Superintendent decided which schools would receive FT funding. A basic criterion was the availability of a large number of children (150 or more) with preschool experience. These were the children who went into the FT kindergarten classes. New kindergarten entrants went into the traditional kindergarten. However, these classes were also receiving federal assistance from a program called "Strengthening Early Childhood" which was supported by Title I funds. This program provided one aide for every classroom; the Follow Through funds provided a second aide for the classes in that program. Another difference between the regular and Follow Through kindergartens was that FT provided an additional one and one-half hour of instruction per day.

In the Spring of 1968, a group representing the designated schools, parents representing children scheduled to enter kindergarten in those schools, the city-wide PAC organization, and LEA administrators met at the Board of Education, where they were told about FT and the Planned Variation concept. They were then introduced to the eight Sponsors who were present. The models included the Bank Street College Approach, University of Kansas Behavior Analysis Model, High/Scope Cognitively Oriented Curriculum, Florida Parent Educator Model, Hampton Institute Non-Graded Model, University of Oregon Engelmann/Becker Model, Southern University Home-School Partnership, and New York University Interdependent Learning Model. It may be that other Sponsors such as Arizona, Pittsburgh, Far West, etc., were not at this meeting because they were already over-committed to other sites. Whatever the reasons for inclusion or exclusion, the reports from the FT Director's office and from the various Program Coordinators concur in identifying the group of Sponsors "showing their wares" at the meeting.

After all the Sponsors had presented their programs, materials, and educational philosophy, the representatives from the different schools were told to go back to their communities and discuss the various options. Then they were to come back to another meeting and final assignments would be made.

Just as in the business world, the law of supply and demand was operative. The constraint was the amount of money available; that is, each Sponsor was limited to one school. Thus once a Sponsor was chosen by one school it could not be selected by any other.

3.2.1 New York City: Bank Street College Approach.

The Bank Street model in New York City is in a large school in the Bedford-Stuyvesant section of Brooklyn. This is an extremely depressed area, and almost 100% Black. Of the 23 schools in that district in 1968-69, one was selected for FT by administrative personnel. Parents, however, joined in the Sponsor selection process.

According to the local staff who were present at the initial meeting, the Bank Street approach was not clearly presented. Another model appeared to the representatives of this school to be more attractive, and they made their choice accordingly. However, they were late in getting to the meeting and by the time they arrived their first choice had already been taken.

Their second choice was Bank Street. They were influenced partly by the fact that it was based in New York City, but also because many of the teachers already knew and liked the underlying rationale. It was an open model and stressed a language development approach. Experiments in early childhood had been going on in New York City for a long time before FT was introduced. One of these had been carried out at this school by the Center for Urban Education, using a language experience approach. Both the teachers and the children had enjoyed this method above all others, so the team felt that Bank Street could fit in with their own preferences. Also, they were delighted that with the Bank Street Approach they could use the Lotto and Matrix Games which were features they had liked in another model. However, they demanded that Bank Street select a person other than the one present at the initial meeting to present the program to them.

The school administration felt that one of the problems in adopting the Bank Street Approach was that it had been developed under the sponsorship of a privately-funded institution. A public school was quite a different context. In the first place, public school teachers were staunch union members and the union regulations often clashed with the kind of total dedication that Bank Street teachers typically demonstrate. Over the years there have been clashes with the union and, at the time of the interview, the principal said that the union was charging her with three "contract violations." But now, because of the excellent public relations work Bank Street had been doing, the principal has the support of the teaching staff, who are union members, behind her. The school is very proud that it was selected to present its program at the Education Fair in Texas last year and there is an air of excitement and satisfaction which is in direct contrast to the discouragement and apathy which characterizes the Sponsor's program in Philadelphia.

Physically the school occupies a typical, old-fashioned building in a slum neighborhood, but it has been modified throughout to accomodate the open classroom model. There are no fixed seats and the children move about freely. They go into the school upon arrival and do not have to stay on the playground waiting for the bell. As a matter of fact, bells are rung only to call the janitor and not to mark off rigid academic intervals. The one vestige of structure observed by the interviewer was the "Pledge of Allegiance" piped over the intercom the first thing in the morning, with everyone standing and reciting in unison.

A major external event which affects the free flow of the program is the construction of a housing project across the street from the school. All the classrooms facing that street have been under a constant bombardment of noise for a long time. The Program Coordinator ruefully remarked that whenever a class from the quiet side of the building goes on a trip, teachers move over to temporarily vacant classrooms. However, the open program of Bank Street has made it possible to reap some benefit from this otherwise difficult situation. An entire course of study involving Man and his Environment was based on this construction. Artifacts of a community of slaves who had lived in this area in the early 19th Century have been unearthed. The children have studied history, geology, and language in a dynamic and interesting context. They have learned a great deal about architecture and city planning and have developed research skills. Various vocations were presented first hand as workers at the site explained the various tasks they performed.

In talking with the Principal, the Vice Principal, and the Project Coordinator it was clear that while there have been many ups and downs as the Bank Street impact on this school district has progressed, the principals have been very supportive. Although the original principal was an older man who had no over-riding preference for this model, he was very open to new adventures in schooling, had been receptive to the earlier experiments, and was pleased to be part of the FT Planned Variation study. After he retired, the Bank Street Field Representative at the school was appointed principal in his place. This exemplifies the openness which has been engendered by the implementation of the Bank Street program at this school.

3.2.2 New York City: University of Oregon Engelmann/Becker Model. Almost within walking distance from the Bank Street School, but in a different district, another school selected a model which is almost the complete antithesis of the Bank Street Approach. This is the structured, curriculum-oriented model, University of Oregon Engelmann/Becker for Direct Instruction. Even though the communities are so close to one another, the parents here were as strongly disposed to a structured academic program as their neighbors were to an open non-structured approach. The teachers and other school personnel also preferred the Oregon model. They are reported to have insisted upon this approach in spite of the opposition expressed by the Central Office administrators, who are apparently critical of this teaching style.

In addition to the lack of enthusiasm of the FT Central Office administrators, this school has many other problems. There is insufficient room in the main building and part of the program is conducted in an annex which is an appreciable distance away. There is no easy bus connection and people have to go back and forth by car. Taking a taxi in this area is a hazard. The regular cab companies do not provide service and the "gypsy" cab drivers are not always licensed or reliable.

The annex,where the kindergarten classes are held,provides a space for the Project Coordinator in the storeroom where the program materials are kept. It is an old community house belonging to a church, which continues to use part of the space for offices. Maintaining security here, as well as at the main building, is almost impossible. The facility has been broken into over and over again and whatever was not worth taking was vandalized. Since the program is highly dependent on the Distar lessons, when texts are not available the students lose valuable instructional time.

The Oregon model also has a strong reinforcement component and in 1968-69 the services of a coordinator were shared on a half-time basis with the Behavior Analysis approach. A great deal of diffusion between the two programs resulted: the Behavior Analysis school used Distar materials and the Engelmann/Becker school used token reinforcers.

The Parent Program at this school is described by the local staff as very weak. The only parent support comes from a nucleus of approximately 20 parents who are employed as paid aides in the program. The Sponsor has been unable to develop a strong PAC group and there have been three different PAC chairmen this year. Originally the parent component was a strong feature of the model. There was money in the FT budget to hire parent trainees; the courses were set up, but so few parents applied a training program could not get under way.

Many of the problems at this school stem back to the long strike which disrupted the entire system in 1968. The school is in Ocean Hill-Brownsville, which was the stronghold of the decentralization movement. When this struggle failed, the entire community concept was undermined; the parents lost faith in their ability to effect any real changes in the system, and they became inactive in school affairs. The parents who were originally involved in selecting the Oregon model are no longer here. There is a high turnover of children in this school, and the area is very "rough." This is a neighborhood in flux; a neighborhood in which the dominant atmosphere is apathy combined with fear.

The political problems have also led to a different Superintendent, a different principal, and a different Coordinator each year. In 1972-73 the school staff finally stabilized, although the current principal was put on probation last year, probably for political reasons. The principal is described as supportive, and the vice-principal is an active advocate of the Oregon program. When there was a possibility of his being "excessed," along with a number of Sponsor-trained teachers, the parents went on strike and successfully opposed this Board of Education action. While this is taken as a demonstration that there is a nucleus of extremely partisan parents at the school, effective political actions are often carried out by a small minority of the people concerned.

The impact of political maneuvering goes on in all the districts of the city. Other district lines have been changed so that now there are two Sponsors in one district whereas the original plan was to have six Sponsors, each in a different district. However, the FT Director and Deputy were much more familiar with the political events which impinged on the Oregon school and thus they are reported here.

From the Project Coordinator's point of view, things are going along now better than ever. A nucleus of effective, dedicated teachers who really know how to implement the Oregon model is emerging. Many of the teachers prefer to remain with a class of children as they move through the primary grades, and are permitted to do so whenever possible. There is also more concerted action to resist Board decisions which could interfere with the program. For example, last September the school was asked to replace several Sponsor-trained parent aides with aides from different programs who had seniority but had been "excessed" because of reductions in population at their schools. It took two months, but the parents and FT staff succeeded in getting back the aides they wanted. In general the Project Coordinator presented a very favorable picture of the program at that school.

3.2.3 New York City: High/Scope Cognitively Oriented Curriculum. A large school, located on the West Side of Upper Manhattan, elected to utilize the High/Scope model. The principal has been in the New York City System for a long time. She was reported to have had many reservations about the High/Scope model, and still does. While in general most of the principals were described as entering the various programs with mixed feelings, this was particularly true here. The prinicpal perceived the model as not having either prescribed materials or specific methodology. Piagetian concepts are basic to this model; effective implementation places a high level of responsibility on the skill of the teachers.

It is customary for the principals in New York City to plan the program and materials for the academic year during the Spring planning period. But when the principals sat down with the various Sponsors, many of them could not provide any definite curriculum plan. Each year as FT has phased in a new grade level, materials for that grade have had to be developed and the Sponsors have not always had the opportunity to test them thoroughly in advance. Additionally, the Field Representatives for this Sponsor have changed several times. The Sponsor representative is scheduled to visit at least once a month, but this has not occurred on any consistent basis. Most of the staff training is now being conducted in Ypsilanti.

The curriculum at this school consists of the Language Experience in Reading, published by the Encyclopedia Britannica; the Miami Linguistic Series; the Cuisennaire rods; and the Bank Street readers. It is quite eclectic except that structured materials are avoided. The Program Coordinator, who has visited other High/Scope sites, says the New York City High/Scope program is considered the most successful example of this model. The staff here seems to have grasped the essence of the model and modified it to suit their needs, but there is not yet full agreement on the content of the model.

There are three curriculum assistants who also serve as staff trainers. The original plan was to train the local staff to be able eventually to take over full responsibility for the program without any outside assistance. However the people at the High/Scope school have not yet reached that level of maturity in the program.

The regular Coordinator for the High/Scope Model has taken a position with the State Materials Development Center and is on leave. The acting Coordinator at the present time is also serving as assistant principal of the school. This is an anomalous situation. The principal is about to retire and she has been taking her accumulated sick leave during the past year so that the assistant principal has been serving as principal. The money saved in this way has been used to pay an additional teacher.

The nature of the school population has changed considerably over the past four years. When the program began it had more than the maximum number of non-poverty children permitted perhaps as much as 25%; now the percentage is less than 10%. It is not so much that the middle-class population has moved out of the neighborhood but rather that their children have moved out of the school-age category.

3.2.4 New York City: University of Kansas Behavior Analysis Follow Through Model. The only Sponsor in New York City working with two schools is the University of Kansas. During the year prior to the Planned Variation study (1967-68), one of these schools received FT funds. When Sponsor options were offered in Spring of 1968, the parents of the Head Start children who were entering that school met and formed an interim PAC. This group met with the Early Childhood Supervisor in the school district, the District Superintendent, and a number of school representatives, including the principal and the present Coordinator. The Kansas model was not the principal's first choice. Although he liked the parent component and did not find behavior modification actively antithetical to his own educational philosophy, he preferred another model. The parents favored the Kansas model because it offered them paid work in the program. The present academic emphasis was not a major factor since the Behavior Analysis model is a process-oriented approach based on the use of behavior modification principals and at that time did not have a specific curriculum. The present curriculum materials were not selected until after the program had been in operation for almost the entire first year (1968-69) and did not become stabilized until Fall, 1969.

All the Sponsors in New York City were expected to begin with five kindergarten classes, and in 1968 there were five such classes in this school. The second year, although the area continued to be a poverty pocket not more than two kindergarten classes in which over 50% of the children had had either Head Start or other prechool experience could be formed. Also, because of the larger class size in the first grade, the original five kindergarten classes were combined to form only four first grade Follow Through classes. To maintain the requisite study population it was necessary to find another school in the same district. The second school in the Kansas model was selected with very little input from either parents or school personnel. During the first year, the same coordinator was responsible for both schools, and there was a joint PAC. This turned out to be an unworkable arrangement and in the second year each school had its own coordinator and PAC committee.

Even with the two schools, the population of eligible entering children was very limited because of the scarcity of preschool programs in this neighborhood. In a sense these children are doubly disadvantaged; not only do they not have access to the Head Start experience, but because they have not had Head Start they are not eligible for Follow Through. The Head Start Center which feeds into the second school has a maximum enrollment of 75 children. There is a great deal of competition for this population, especially from experimental, parochial, and community schools.

The area here is about 50% Black and 50% Puerto Rican. However, there are very few Black and almost no Puerto Rican teachers in any of the schools in the District. There is one Black FT teacher and there had been one Spanish-speaking teacher in 1971-72, but she was transferred to the Bilingual program. Both Project Coordinators (one of whom is a Black woman, the other a Caucasian man) have often suggested to the Black teachers that they volunteer for the FT classes, but with limited success. Since the schools have as many as 13 classes at each grade level, teachers with seniority have many options and the FT volunteers are usually the younger teachers. In the first year at the second school, for example, a third FT kindergarten class was established in December and the most recently employed teacher was arbitrarily assigned to this class.

The usual procedure for filling vacancies in FT is to advertise the position in the Spring by sending out flyers to all the teachers, describing the program and asking for volunteers. The ones who apply are then reviewed by the PAC Personnel Committee. Although the Sponsor's representative is on the school committee and can make recommendations, it is the school administration which makes the final decision. If there are "excessed" teachers available from other grades or other schools in the District, they are given preference.

This is also true in the selection of educational assistants. Theoretically, these paraprofessional appointments are made from among the parents of the children in the FT classes, and represent the minority populations. At first many of these positions had to be filled by "excessed" paraprofessionals from other programs, whether or not they had received the special Behavior Analysis training. However, at this time most of the positions are held by parents of FT children.

In addition to the regular paid positions, the Kansas model provides for two "parent scholars" who serve for six to eight weeks on a rotating basis. There is usually one Black and one Puerto Rican parent in the classroom, but parents do not work in the room where their own children are enrolled. So far there has been a minimum of interracial conflict and in most cases the teachers seem to work well with the other adults in the classroom.

When the model first got under way, the teachers received a week of training at the Eastern Region Behavior Analysis Training Center in Philadelphia, but that program is no longer operating. Now there are demonstration classes in the New York City schools. There is a full time staff trainer in each school and a local professor, versed in the principles of the model, is available on a regular consultant basis.

A number of teachers (described as excellent) volunteered for the FT classes, but not all of these found the Behavior Analysis model compatible with their teaching style or philosophy. Several have asked to return to their regular classrooms. The Coordinator felt that in many cases it was because of a lack of understanding of the demands of the program. The model, it is said, requires a "super teacher," not only because of the need to learn new behavior modification techniques but also because of the strong parent component. There is a great emphasis on teaching behavior modification procedures to parents so that they can continue to reinforce the desired behaviors at home even after they have completed their stint as "parent scholars." One of the most difficult aspects to learn is the effective use of the token reinforcers, a critical component of the model. Teachers vary greatly in their rates of token delivery.

An important feature of any model implementation is the maintenance of a Sponsor liaison person to make sure that the local site is staying on target. In 1968-69, as mentioned above, the model liaison person for the Kansas Behavior Analysis FT was employed on a half-time basis; for the other half of her time she was employed as the model liaison person for the Engelmann/Becker model: a great deal of diffusion across these two models occurred. Since the Behavior Analysis approach had no specific curriculum at the outset, those Engelmann/Becker materials which were consonant with the Behavior Analysis principles were adopted and remained part of the program even after the two Sponsors obtained their own liaison persons.

Although it had not been his first choice, the principal at the first school in the Kansas model has given his full cooperation to the implementation of the model. He attended the workshop for administrators and has succeeded in establishing a positive general attitude toward the program in his building. This is an important factor since in New York City the principal has a great deal of authority in day-to-day administration. The FT Project Coordinators also have a great deal of responsibility, not only for the educational program, teacher training, and parent components, but for the disbursement of large amounts of cash funds. However, their status and salary continue at the same rate as a classroom teacher, and they receive no compensation for their extra burdens. This has created some dissatisfaction.

During the third year of the program (1970-71) a number of teachers took courses in behavior modification principles and techniques at the University where the local program consultant taught. This was in preparation for the expansion of the FT program into successive grade levels. The teachers had been interviewed by the PAC and the principal, and everyone was hopeful that the program would really be given an optimum chance for success. Unfortunately, at that point the school budget was cut and the teachers with provisional certification were "excessed." In 1971-72, five of these teachers were replaced with "excessed" teachers who chose to teach in FT rather than take non-teaching assignments. They were not trained in the model, but were described as having made strong efforts to implement the program. Only two of the teachers then in the FT program had regular licenses; one of these was the bilingual teacher who later left to teach in the SEDL program.

4.0 DISCUSSION

The two Big Cities sites studied in this preliminary look at implementation were selected for their basic similarities. Both Philadelphia and New York are large urban municipalities located in the Northeast. They both have a high percentage of Black students and a somewhat similar group of Spanish-speaking Puerto Rican families, yet both have a preponderance of Caucasian teachers. In both cities there has been a noticeable and persistent movement away from inner city schools, with a consequent reduction in school populations resulting in "excessing" of teachers. The structure of the school systems in both cities consists of a Superintendent and several District Superintendents who enjoy a large measure of local autonomy. In both cities there have been disruptive teacher strikes, although the problems in Philadelphia emerged several years after the widely publicized troubles in New York. Both cities have financial difficulties and racial tensions; both have demonstrated a willingness to try a variety of educational innovations which promise solutions to these problems.

Within the Board of Education there is an Early Childhood department and the administration of FT is under a FT Director who reports to the head of the Early Childhood division. The FT Director is in charge of all the FT programs, including those under national sponsorship as well as those which are local or "self sponsored."

Various systemic and situational variables have demonstrated important impacts on the course of institutional change. Where the range of these variables is restricted, as in the Big City sites, there should be a higher probability of identifying more precisely the amount of the variance which can be attributed to other features of program implementation. In particular, teacher and program characteristics, and the manner in which they interact in terms of style and technique, are the most critical factors in the delivery of an educational model. It should be possible to estimate these effects with far less confounding when there are so many background similarities which are held constant.

There are, however, a number of crucial differences between the Philadelphia and New York systems in terms of the procedure used for model selection. While it was not determined whether the options presented at the initial meeting in New York City had been preselected by some ruling or governing board, there was no compulsion to see that each of the models presented was adopted by at least one school. In Philadelphia, the options were listed in a formal ruling by the Board of Education, and an experimental design was superimposed on District Superintendents and schools alike. The requirement that each Sponsor be represented by three schools in the same district turned out to be impractical, but the attempt to implement this experimental design in many instances overrode the need to provide the most sympathetic match between school personnel and Sponsor ideology. There is thus an important basis for differences in the effectiveness demonstrated by models as a function of the degree of choice exercised in their selection.

The information provided by this implementation study is obviously anecdotal and requires replication and validation to have any usefulness for inclusion in the analyses of outcomes. However, the events reported have raised some intriguing questions. Will any of the idiosyncratic and "unplanned" variations which have been documented here actually have sufficient impact to affect differentially the outcomes of the "planned" variations? Do these anecdotal data provide some insights as to what types of programs can be expected to produce changes in children with the least degree of resistance from the community? Or, to put it in another way, what educational approaches are sufficiently robust to have an effect on the face of accidental or intentional impediments? No attempt should be made to relate specific anomalies as they turn up in the data analyses on a one-to-one basis with the material revealed in the interviews. However, the "real life stories" do offer some clues for deeper insights into the human variables in program delivery than can be obtained from the most sophisticated quantitative analyses.

MONOGRAPH IV

METHODOLOGICAL ISSUES

INTRODUCTION

The research questions which motivate these analyses are framed in the language of the analysis of covariance. Typically, they take the form, "Within Sponsor X, what effect did Follow Through have upon pupils' scores on an outcome measure as administered in the spring of 1972, taking account of the fact that Follow Through and non-Follow Through groups may have differed systematically in initial achievement status and preschool experience?" Or, equivalently, "Controlling for initial achievement and preschool experience, what Follow Through effects, Sponsor effects, and interaction effects can we document?" In this illustrative sample, the evaluation design is said to be nested within Sponsors; the score of an individual pupil on an outcome measure is used as a criterion variable; his initial achievement level and preschool experience are the covariates of the criterion variable; and the administration (or lack) of the Follow Through program is the "treatment". In this particular case, the interest centers around estimating the effect on the criterion variable of administering the treatment. Ideally, one would select a set of "otherwise equal" pupils; administer Follow Through to randomly chosen subsets of these; not administer Follow Through to the remaining subsets; and then measure the differences in some prespecified score, thus arriving at <u>a direct measure</u> of the Follow Through effect. This is the ideal case of an experimental design. In reality, it is <u>practically impossible</u> to define a set of "otherwise equal" pupils: there are differences in the socio-economic status of their parents; their ethnicity; learning potential; pre-formal-school knowledge; and the prejudices gained through relatives, friends, neighbors, etc. The analysis of covariance is a statistical technique designed to compensate (at least partially) for the effects of these differences on the observed values of the criterion variable and thus to isolate the effects of deliberate design variations. Before describing the analysis of covariance as a technique for evaluating the Follow Through effects, we will summarize the underlying multiple linear relationship model and its implications.

1.0 THE GENERAL LINEAR RELATIONSHIP MODEL

In mathematical terms, the covariance technique is a particular case of the general linear model wherein the covariates, treatments, etc., together form the set of "predictors", alternately called "right-hand-side variables", "regressors" and "independent variables". The values of the criterion variable (i.e., the dependent variable) are expressed as a linear function of these predictors, together with a "normally distributed" error term. A brief review of the linear model, therefore, precedes the discussion of the analysis of covariance.

1.1 Linearity Assumptions

Formally, the general linear model is described by the joint set of equations:

$$(1) \qquad Y_j = B_0 + B_1X_{1j} + \ldots + B_kX_{kj} + E_j \qquad (j = 1, 2, \ldots, n)$$

where Y_j is the j^{th} observation on the dependent variable Y; X_{ij} ($i = 1, 2, \ldots, k$) is the concomittant observation on the i^{th} predictor variable X_i; and E_j is the error of prediction in the j^{th} observation on Y. The classical statistical theory assumes that these errors are normally and independently distributed with mean zero and variance σ_E^2.

This innocuous-looking statement embodies the main assumptions underlying the use of a linear model, some of which are discussed below.[1]

1. The dependent variable, Y, is continuously measurable even though, by necessity, the observed values of Y are discontinuous.
2. Y can assume values over the entire range of real numbers, i.e., from negative infinity to positive infinity. While studying social systems, this assumption is often violated (Y varies over some limited range), apparently without much serious consequence. In the most severe instances, e.g., when Y denotes probability of success (and thus cannot assume values outside of the [0, 1] interval), certain "tail-stretching" transformations are customarily employed (such as arctan, probit, logit).

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[1] These assumptions are not unknown. It is, however, very easy to be intrigued by the fancy formulae and lose sight of the underlying assumptions

3. The effects of the right-hand-side variables are additive, as implied by the functional form of equation 1. In some special cases, this assumption is met by transforming the variables defining equation 1. For example, in some biological processes, the effects are multiplicative rather than additive--population growth being a prime example. The additivity of the effects is achieved by employing a logarithmic transformation. For example, the relationship $Y_j = B_0 \cdot X_{1j}^{B_1} \cdot X_{2j}^{B_2} \cdot \ldots X_{Kj}^{B_k} \cdot f_j$ is expressed as: $\log Y_j = \log B_0 + B_1 \log X_{1j} + \ldots + B_k \log X_{kj} + E_j$. Similarly, the relationship: $Y_j = B_0 + B_1 X_j + \ldots + B_k X_j^k + E_j$ is expressed by the equation: $Y_j = B_0 + B_1 X_{1j} + \ldots + B_k X_{kj} + E_j$ where $X_{ij} = X_j^i$.

   It must be emphasized that the additive effects are postulated only on these transformed variables, and not on the initial variable set.

4. The "normality" assumption is the most difficult assumption to either justify on theoretical grounds or verify in practical situations; general recourse is to assume the appropriateness of the "central limit theorem", particularly when the Y values represent some kind of averaging.

5. The assumption that the "error terms are independent of each other" is tantamount to stating that the observations are statistically pure. The theory of statistical inferences, and the possibility of generalizing the research findings, rests squarely on this assumption. If this assumption fails, no transformation or other statistical gimmicks can alter the fact of nonrandomness.

1.2 Correlations: Partial, Multiple, and Semi-partial

Provided that those statistical assumptions are met, the classical multivariate analysis techniques are applicable. Summarized below are some of the main results and formulae which are used while evaluating the Follow Through effects.

1. Let r_{uv} denote the zero-order correlation between two variables u and v. Then the partial correlation $r_{uv\cdot w}$, i.e., the correlation between u and v when the variations due to w have been accounted for is computed by the recursive formula:

(2) $$r_{uv.w} = \frac{r_{uv} - r_{uw} \cdot r_{wv}}{\sqrt{1 - r^2_{uw}} \cdot \sqrt{1 - r^2_{wv}}}$$

Consequently, if any two of these three variables are perfectly correlated, all but one of the resultant partial correlations are meaningless. For example, $r_{uv} = 1$ implies that $r_{uw} = r_{wv}$ so that $r_{uv.w} = 1$. On the other hand, the denominators appearing in the formulae for computing $r_{uw.v}$ or $r_{vw.u}$ are zero. Similar remarks are true when $r_{uv} = - 1$.

The recursive formula 2 generalizes when there are four or more variables. For example,

(3) $$r_{uv.wz} = \frac{r_{uv.w} - r_{uz.w}\, r_{vz.w}}{\sqrt{1 - r^2_{uz.w}}\ \sqrt{1 - r^2_{vz.w}}}.$$

The comments regarding perfect correlations continue to hold with an added feature: perfect correlations of first order are generally harder to anticipate than those of the zero order. Consequently, while trying to "fit Y on X_1, ..., X_k" by employing computer-based statistical packages, the analyst is often surprised to see computer messages of the type, "Partial correlation equals unity, cannot proceed." Whenever this happens, all but one of the perfectly correlated predictors must be deleted from further analyses.

2. The maximum correlation between the dependent variable, Y, and the linear construct of predictors, $B_0 + B_1 X_1 + \dots + B_k X_k$, is the multiple correlation coefficient, $R_{y.12...k}$ where:

(4) $$R^2_{Y.12...k} = \begin{bmatrix} r_{y1} & \cdots & r_{yk} \end{bmatrix} \begin{bmatrix} 1 & r_{12} & \cdots & r_{1k} \\ \vdots & & & \\ r_{21} & 1 & \cdots & r_{2k} \\ \vdots & & & \\ r_{k1} & r_{k2} & \cdots & 1 \end{bmatrix}^{-1} \begin{bmatrix} r_{y1} \\ \vdots \\ r_{yk} \end{bmatrix}$$

If, for some pair of distinct indices i1 and i2, $r_{i1,i2} = 1$, then the central matrix on the right-hand side of Equation 4 is singular, R^2 of some predictor on other predictors is 1, and $R^2_{Y \cdot 12 \ldots k}$ is meaningless. Similar remarks hold if the partial correlation coefficient between a pair of predictors equals one. Conversely, if R^2 of some predictor on other predictors equals one, then at least one of the partial correlations or zero-order correlations is likely to be unity, thus resulting in a meaningless $R^2_{Y.12 \ldots k}$.

It can be shown that, when the population value of R^2 is zero, its sample counterpart, $\hat{R}^2$ is such that $E(\hat{R}^2) = \frac{k}{n-1}$ and that $\mathrm{Var}(\hat{R}^2) = \frac{2(n-k)(k-1)}{(n^2-1)(n-1)}$.

Thus, when the number of predictors, k, approaches the number of cases, n, $\hat{R}^2$ may become spuriously large, and the conclusions drawn from the sample can be rather unstable. This difficulty is minimized if k is sufficiently small relative to n. The threshold value for the upper limit on the spurious $\hat{R}^2$ is subjective; k/n = .05 may be safe, k/n = .10 might be more achievable in some studies. Yet another alternative, for generalization of results after drawing statistical inferences on the basis of the sample, is to employ the more conservative estimate of $R^2_{Y.12 \ldots k}$ (the "shrunk" R^2, symbolically sR^2). This is computed by the formula:

$$sR^2_{Y.12 \ldots k} = 1 - (1 - \hat{R}^2_{Y.12 \ldots k}) \frac{n-1}{n-k-1} . \tag{5}$$

That the equation 5 provides adequate protection against spurious correlations may be seen as follows. When true $R^2_{Y.12 \ldots k}$ equals zero, the expected value of its sample estimate, $E(\hat{R}^2_{Y.12 \ldots k})$, is given by:

$$E(\hat{R}^2_{Y.12 \ldots k}) = \frac{k}{n-1} . \tag{6}$$

It follows from (5) and (6) that when $R^2_{Y.12...k} = 0$, $E(sR^2_{Y.12...k}) =$

Thus, after drawing statistical inferences about the strength of relationship, it is always preferable to use $sR^2_{Y.12...k}$ instead of $\hat{R}^2_{Y.12...k}$ for purposes of generalizing the findings.

3. The B-weights, $B_0, B_1, \ldots, B_k$ are estimated by the formula:

(7) $$\hat{B}_i = \hat{r}_{yi.c} \frac{s_{y.c}}{s_{i.c}}$$

where c denotes that subset of subscripts 1, 2, ..., k from which i has been excluded; $s_{y.c}$ and $s_{i.c}$ are partial standard deviations of Y and X_i, respectively. Furthermore, $s^2_{i.c} = s^2_i (1 - R^2_{i.c})$ and $s^2_{y.c} = s^2_y (1 - R^2_{Y.c})$ are partial variances. Finally, the estimate of the additive constant, $\hat{B}_0$, equals:

$$\hat{B}_0 = \bar{Y} - \hat{B}_1\bar{X}_1 - \ldots - \hat{B}_k\bar{X}_k.$$

4. The null hypothesis

$$H_0: B_1 = B_2 = \ldots = B_k = 0$$

is equivalent to the null hypothesis that Y values are unrelated to the predictors $X_1, \ldots, X_k$, i.e., the null hypothesis:

$$H_0: R^2_{Y.12...k} = 0.$$

The latter hypothesis is tested by the F-ratio:

(8) $$F = \frac{n-k-1}{k} \frac{\hat{R}^2_{Y.12...k}}{1 - \hat{R}^2_{Y.12...k}}$$

which has k and n-k-1 degrees of freedom.

5. The hypothesis that the i^{th} B-weight, B_i, has a prespecified value B^0_i is tested by the t-ratio:

(9) $$t = \sqrt{n-k-1} \cdot \frac{s_{i.c}}{s_{y.i,c}} \left[B_i - B^0_i\right]$$

In this formula, $s^2_{i.c} = s^2_i (1 - R^2_{i.c})$ and $s^2_{y.i,c} = s^2_{y.12...k} = s^2_y (1 - \hat{R}^2_{Y.12...k})$. The important point to remember is that the hypothetical value, B^0_i, must always be chosen for reasons external to the sample at hand or prior to an inspection of its estimated value.

1.3 Three Variations of the Linear Model

There are three distinct variations of the general linear model: the analysis of regression, the analysis of variance, and the analysis of covariance. The first two are discussed below, and the analysis of covariance is discussed in a separate section.

1. Analysis of Regression. The interest lies in predicting the values of the dependent variable Y as a function of the independent variable set $X_1, X_2, \ldots, X_k$. In this situation, the linear model is referred by the name "linear regression model," and the b-weights are called the "regression coefficients." Traditionally, the regression model has assumed that not only Y but $X_1, \ldots, X_k$ are also continuous, and that in fact, $(Y, X_1, \ldots, X_k)$ follow a multivariate normal distribution. This model has not been used while evaluating the Follow Through effects; instead, we have coded the predictors in a manner analogous to the fixed effects analysis of variance.
2. Analysis of Variance. The interest lies in predicting Y as a linear function of $X_1, \ldots, X_k$, but the predictor variables are finite-valued and represent experimental treatments administered to "otherwise equal" subjects, i.e., deliberate design variations. Some of the predictors represent the main factors, others are called the interactions among the main factors. In the 2^m factorial design, the predictors are usually chosen so that their coefficients constitute an orthogonal set, the number of predictors being equal to the total degrees of freedom in the associated experimental design. For example, a 2 x 2 factorial design

incorporating two levels (A_1, A_2) of factor A and two levels (B_1, B_2) of factor B has three degrees of freedom, one for each of the main factors and one for the interaction. The treatment combinations and the corresponding "effects coding scheme" is represented below.

Treatments	Predictors			Frequency
	X_1	X_2	X_3	
A_1 B_1	1/2	1/2	1/4	n_{11}
A_1 B_2	1/2	-1/2	-1/4	n_{12}
A_2 B_1	-1/2	1/2	-1/4	n_{21}
A_2 B_2	-1/2	-1/2	1/4	n_{22}

In this scheme, X_1 represents treatment A effects; X_2 represents treatment B effects and X_3 represents interaction A x B effects.

If $n_{11} = n_{12} = n_{21} = n_{22}$, or if $\frac{n_{11}}{n_{11} + n_{12}} = \frac{n_{21}}{n_{21} + n_{22}}$, then (and only then) X_1, X_2 and X_3 are uncorrelated, and thus the factor effects are not confounded. In the traditional analysis of variance schemes, confounding of the factors is a nuisance; the multiple regression framework employed while evaluating the Follow Through effects provides an efficient method of dealing with correlated factors.

Since the "regression coefficients," B_1, B_2 and B_3 equal the factor A effect, factor B effect, and the interaction A x B effect, respectively, corresponding analysis of variance null hypotheses are equivalent to $B_1 = 0$, $B_2 = 0$ and $B_3 = 0$, respectively. These latter hypotheses are tested as follows. Let $sr_i^2 = R^2_{Y.i,c} - R^2_{Y.c}$, where c is that subset of subscripts 1, 2, ..., k from which i has been excluded. Then sr_i^2 represents the unique contribution of X_i towards the reduction in the Y variance. If the null hypothesis, $B_i = 0$, is true, then the F-ratio:

(10) $$F_{1,n-k-1} = (n-k-1) \cdot \frac{sr_i^2}{1 - \hat{R}^2_{y.1...k}} ,$$

has Snedecor's F-distribution with 1 and n-k-1 degrees of freedom and is free of the confounding effects. An additional advantage of this coding scheme is that it encourages us to draw statistical inferences about the "overall strength of relationship," the sample estimate of this parameter being

(11) $$sR^2_{Y.12...k} = 1 - (1 - \hat{R}^2_{y.12...k}) \frac{n-1}{n-k-1} .$$

Equation 11 is seldom, if ever, used in the traditional analysis of variance.

These results can be generalized to a 2 x m factorial design (as required for evaluating the Follow Through effects); we will address the related issues in the next section.

2.0 THE ANALYSIS OF COVARIANCE

This technique is similar to the analysis of variance in that some of the predictor variables $X_1, \ldots, X_k$ represent main factors and interactions, and it is a particular case of the general linear model in that the interest lies in predicting Y as a linear function of these predictors. However, in the analysis of covariance, we do not assume the experimental subjects to be "otherwise equal". For example, the effects of administering Follow Through are measured by the differences in the values of the criterion variables such as the pupil's score on Spring WRAT, MAT, Gumpgookies, Locus of Control, and Absence Rate. But the pupils participating in the study were not chosen to be otherwise equal, nor can this be practically achieved "after the fact". Consequently, the observed differences among the pupils' scores are attributable not only to the differences in treatments and their interactions, but also to the intrinsic differences among pupils: there are differences in factors such as socio-economic status of their parents; their learning potential; pre-formal-school knowledge (as measured, for example, by their scores on Fall WRAT); and the prejudices gained through relatives, friends, neighbors, etc. (as measured partly by variables such as the size of their residential town and geographical region of the country). The analysis of covariance is a statistical technique for isolating the treatment effects from the effects of these intrinsic differences. The analysis of covariance is thus the most suitable, and in fact the only method, used while evaluating the Follow Through effects.

2.1 The Noise and the Signals

The basic linear model, as represented by equation 1, treats all of the predictors equally. As long as the predictor set $X_1, \ldots, X_k$ contains non-redundant predictors only (that is, so long as no pair of predictors is perfectly linearly correlated), the proportion of Y-variance accounted for by the linear model is $R^2_{y.12\ldots k}$ and the proportion of Y-variance not explained by the model is $1 - R^2_{y.12\ldots k}$. The latter term is interpreted as the "noise" in the model. Since the

$k + 1$ parameters, B_0, B_1, ..., B_k, are estimated on the basis of n observations: $(Y_1, X_{11}, \ldots, X_{k1})$, $(Y_2, X_{12}, \ldots, X_{k2})$, ... $(Y_n, X_{1n}, \ldots, X_{kn})$, the noise in the data is generated by $(n - k - 1)$ degrees of freedom; these degrees of freedom are used to estimate the error variance, σ_E^2. Consequently, the ratio $(1 - \hat{R}^2_{y.12\ldots k})/(n - k - 1)$ can be interpreted as the noise in the data per error degree of freedom. This ratio is the one invariant in the linear model: regardless of any interpretation imposed on any individual predictor or on a group of predictors, the ratio $(1 - \hat{R}^2_{y.12\ldots k})/(n - k - 1)$ is always an unbiased estimate of a multiple of σ_E^2. Any "signal," generated by one or more predictors is, therefore, always compared with this "unit noise."

The "total signal" coming out of the model is $R^2_{y.12\ldots k}$. Since this total is based on the k predictors comprising the model, the ratio: $\hat{R}^2_{y.12\ldots k} / k$ is interpreted as the average signal per predictor in the data. The model is said to be a "significant" explanation of the Y-variance if the signal-to-noise ratio in the data exceeds a predefined constant, i.e., if:

$$(12) \qquad F = \frac{\text{Average Signal}}{\text{Unit Noise}} = \frac{n - k - 1}{k} \cdot \frac{\hat{R}^2_{y.12\ldots k}}{1 - \hat{R}^2_{y.12\ldots k}} > F_0 \; .$$

The Critical Level of Signal. Traditionally, the predefined value of the constant, F_0, is obtained from the statistical tables of Snedecor's F distribution with k and $n - k - 1$ degrees of freedom and is such that:

$$(13) \qquad \text{Prob.} \left\{ F > F_0 \text{ when } R^2_{y.12\ldots k} = 0 \right\} = \alpha \; .$$

The "significance level," α, is generally chosen to be either .05 or .01. It must be emphasized that, apart from the applied sciences' tradition, there is no particular reason to choose $\alpha = .05$ or $\alpha = .01$. Ideally, the "critical" value, F_0, should be set only after considering both the sensitivity and the selectivity of the particular model. In other words, one should resort to the decision-theoretic approach for assessing the importance of the observed signal-to-noise ratio. Even the weakest and operationally meaningless signal will rise above the unit noise if the linear model is based on a sufficiently large number of observations. If the inequality as defined by (12) is satisfied, the only reasonable conclusion in such a case would be that "something is there." One must then compute $sR^2_{y.12...k}$ of equation 5 to determine the strength of the signal and thus the usefulness of the model. This issue becomes very critical while deciding on the heterogeneity of the covariates, and we will continue this discussion in that section.

Individual Signals. The semi-partial correlation, sr_i, is defined as the correlation of X_i from which all other predictors have been partialled out (literally, $X_{i.c}$) with an unpartialled Y. In other words, sr^2_i is the amount by which $\hat{R}^2_{y.12...k}$ would be reduced in the data if X_i were not in the linear model:

$$(14) \quad sr^2_i = \hat{R}^2_{y.i,c} - \hat{R}^2_{y.c} \quad .$$

Analogous to the definition of total signal, sr^2_i can be interpreted as the signal associated with the predictor X_i; this signal does not depend on the values of the other predictors, and thus is the unique signal associated with X_i given the presence of the other predictors. (Note that the total signal, $R^2_{y.12...k}$, is not the sum of these individual signals, $sr^2_1 + ... + sr^2_k$, unless the predictors, X_1, ..., X_k, are uncorrelated.) The signal-to-noise ratio defined in equation 10 can be used to test the strength of this signal. If this ratio is found to be significant, one can use the difference: $sR^2_{Y\cdot i,c} - sR^2_{Y\cdot c}$ for generalizing the results.

2.2 The Covariate Set

Yet another interpretation of sr_i^2 is possible. Consider the linear model in which there is <u>only one treatment</u>, and where this treatment is administered at one of the two levels (for example, Follow Through and non-Follow Through). Let X_i denote the effects-coded representation of this treatment. <u>Then sr_i^2 is the signal associated with this treatment when all other explanatory variables have been partialled out of X_i</u>. The set c, in this case, denotes the set of indices representing <u>other</u> variables which also contribute to the explanation of Y-variance but which are not deliberate design variations. In other words, the set of variables, $X_1, X_2, \ldots, X_{i-1}, X_{i+1}, \ldots, X_k$ together form a <u>covariate set</u>, and sr_i^2 is the effect of the treatment after adjusting for other (and unintended) variations. The basic strategy in the analysis of covariance is to compare this signal with the unit noise as defined earlier. The associated signal-to-noise ratio is given by equation 10, and is rephrased below.

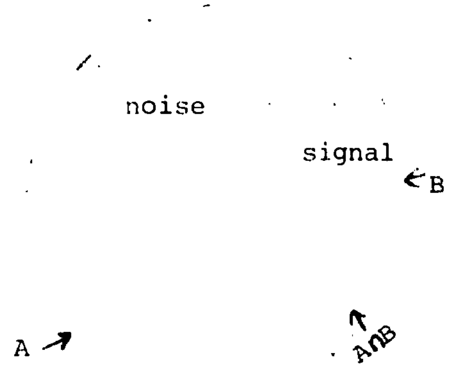
$$(15) \qquad F = \frac{(n-k-1)sr_i^2}{1 - \hat{R}^2_{y.i,c}} = \frac{n-k-1}{1} \cdot \frac{\hat{R}^2_{y.i,c} - \hat{R}^2_{y.c}}{1 - \hat{R}^2_{y.i,c}}$$

This strategy of accounting for "other variations" generalizes when there is more than one factor and/or when the factors appear at more than two levels.

Suppose that the predictor set $X_1, \ldots, X_k$ is divided into two mutually exclusive and exhaustive subsets A and B. Then, depending on one's purpose and the coding scheme, either A or B may represent the "treatment" set and the other will be called the covariate set. Equation 15 generalizes as follows. Let $\hat{R}^2_{y.AB}$ denote the total signal when both sets A and B are in the linear model and let $\hat{R}^2_{y.A}$ denote the signal when only the set A is in the model. Then the effect of B, after adjusting for the effects of A, is tested by the ratio:

$$F = \frac{\hat{R}^2_{y.AB} - \hat{R}^2_{y.A}}{1 - \hat{R}^2_{y.AB}} \cdot \frac{n-a-b-1}{b} \tag{16}$$

where a = number of predictors in set A and b = number of predictors in set B. The sets A and B in equation 16 can be exchanged if their roles are reversed. Using the Venn-diagram of Y-variance, one may represent the signal-to-noise ratio as follows. The totality of the Y-variance is represented by the circle. The proportion, $\hat{R}^2_{y.B}$, of this variance is explained by the treatment set B (represented by the horizontal lines). This explanation, however, is contaminated by the joint effects of A and B, as indicated by the cross-hatched portion of that figure. Together, the treatment set (B) and the covariate set (A), explain a proportion, $\hat{R}^2_{y \cdot AB}$, of the Y-variance--the most that can be explained with only A and B predictor sets in the model. Thus, the dotted area represents total noise, $1 - \hat{R}^2_{y.AB}$, and the horizontally shaded (but not cross-hatched) area represents the uncontaminated signal associated with set B. When adjusted for the appropriate degrees of freedom, the F of equation 16 represents the ratio of this signal to noise.



2.3 The Desirability of a Covariate Set

The reason for employing covariate(s) while assessing the effects of a treatment is that the covariates act as "statistical equalizers," and thus allow us to estimate the true effect of a treatment in spite of the necessarily unavoidable pre-treatment differences between the subjects receiving different levels of that treatment. Thus, to be useful in this regard, a covariate (or each covariate in a set) should possess the following properties:

1. It should account for an operationally meaningful[2] proportion of the criterion variance. We have refrained from using the language associated with probabilistic sampling. For example, we do not wish to say that "the explanation offered by the covariate (set) should be statistically significant," although the computations are similar. The language incorporating words such as "significant" is also avoided because it tends to give the illusion that there is something sacrosanct about $\alpha = .05$ or $\alpha = .01$.
2. It should be homogeneous with respect to treatment(s). It should treat each level of (each) treatment alike, i.e., there should not be excessive interaction between a covariate and treatment(s). This is important, since an interaction implies that the mean of the observed Y-values depends jointly on the covariate level and the treatment level, i.e., the covariate is not acting as an equalizer.

For each potential covariate, the first condition can be tested by computing the signal-to-noise ratio in the data:

$$F = \frac{\hat{R}^2_{y.A}}{1 - \hat{R}^2_{y.A}} \cdot \frac{n-a-1}{a}, \tag{17}$$

and then deciding whether it is sufficiently large.

---

[2] Due to the lack of a well-developed decision theoretic model, we will continue to use $F_{nd,dd;\alpha}$ as the surrogate for the threshold value of the signal-to-noise ratio (nd = numerator degrees of freedom, dd = denominator degrees of freedom and α = .05, or .01). The need for such a model is ever more apparent.

If a covariate set does not contribute to the explanation of the criteria-variance, it is hardly worth keeping in the later analyses.

The second requirement can be tested by the ratio:

$$(18)\quad F = \frac{\hat{R}^2_{y\cdot A,B,AxB} - \hat{R}^2_{y\cdot A,B}}{1 - \hat{R}^2_{y\cdot A,B,AxB}} \cdot \frac{n - a - b - ab - 1}{ab}$$

It is more difficult to determine the proper action to be taken, if a covariate is inhomogeneous (i.e., if the ratio in (18) is excessive).

1. One may decide not to use such a covariate since its action is non-uniform across treatment levels, i.e., it is not doing its job. This is perhaps the safest, though not necessarily the most useful, solution. The covariate in question might have been extremely useful for explaining the Y-variance, and deleting it from further analyses may be a serious loss.

2. One may experiment with several non-linear transformations of the offending covariate in the hopes of finding one that 1) continues to correlate with the criterion variable, and 2) is less heterogeneous than the current covariate. The analyst's judgement and good fortune play an important role.

3. Use the fact that the covariate set is defined by exclusion ("that which is not a treatment set"). For example, let A denote the offending covariate, B denote the treatment set of the analyst's interest and let A x B denote the covariate x treatment interaction set. Then the joint set (A, A x B) can be viewed as the new covariate set. Consequently, the treatment effects can be tested by the ratio:

$$(19)\quad F = \frac{\hat{R}^2_{y.A,AxB,B} - \hat{R}^2_{y.A,AxB}}{1 - \hat{R}^2_{y.A,AxB,B}} \cdot \frac{n-a-b-ab-1}{b} .$$

Even though statistically appropriate, this procedure has many impractical features. These are 1) reduction in the error degrees of freedom, and corresponding danger of increased instability (see, for example, equation 8); 2) increase in computer operations costs--if the covariate is represented by $\underline{a}$ predictors and the treatment set by $\underline{b}$ predictors, the new predictor set (jointly) contains (a + b) + a · b predictors, and corresponding correlation matrix contains at least 2(a + b)ab extra terms; 3) increase in the lack of precision of the computer routine; and 4) increase in the difficulty of interpreting results. Furthermore, there is no assurance that the new covariate, viz. A x B, will not be found heterogeneous.

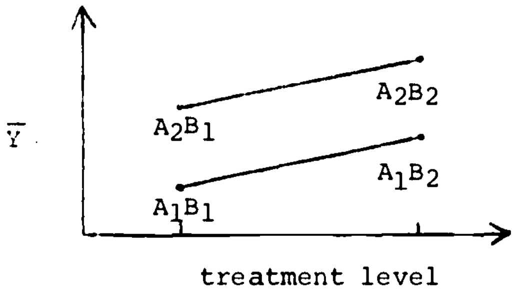
2.4 Comparison of Means

An alternative way of dealing with the covariate x treatment interaction is to examine the appropriate group means, and thus document the judgmental issues. If the covariate, A, is represented by a two-valued predictor and the treatment, B, is also represented by a two-valued predictor, there are four groups of interest, symbolically: A_1B_1, A_1B_2, A_2B_1, and A_2B_2. The <u>observed</u> interaction is computed to be:

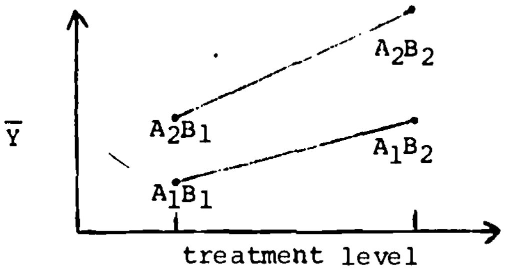
$$\widehat{A \times B} = \sum_{i,j} (\bar{Y}_{ij} - \bar{Y}_{i.} - \bar{Y}_{.j} + \bar{Y}_{..})^2, \tag{20}$$

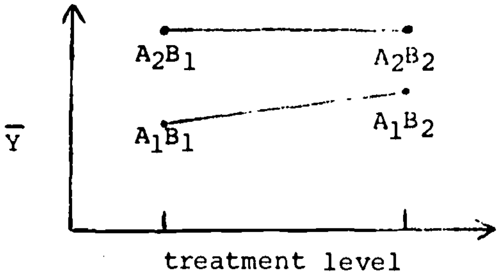
where $\bar{Y}_{ij}$ are the group means, $\bar{Y}_{i.}$ is the mean at the i^{th} level (i = 1, 2) of the covariate, $\bar{Y}_{.j}$ is the mean at the j^{th} level (j = 1, 2) of the treatment, and $\bar{Y}_{..}$ is the grand mean. The following possibilities arise.

1. <u>The slopes of the lines joining the treatment means are parallel.</u>



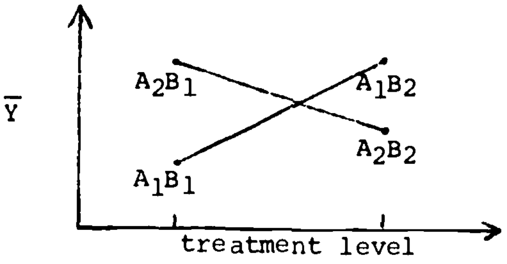
This is the case when the covariate, A, is working as desired; the difference between the treatment-level means is constant across the covariate levels. Either of the two quantities: $(\bar{Y}_{A_1B_2} - \bar{Y}_{A_1B_1})$ or $(\bar{Y}_{A_2B_2} - \bar{Y}_{A_2B_1})$ can be used to estimate the treatment effect.





2. <u>The slopes of the lines joining the treatment means are moderately non-parallel</u>. In this case, the "treatment effect" differs as a function of the covariate level, i.e, these two effects are correlated, positively or negatively, depending on the slope. However, in either case, the covariate lines <u>do not meet within the feasible range of treatments</u>. The covariate A can be used in the analysis, though its impact is to somewhat bias the treatment effects.

3. <u>The slopes are excessively non-parallel</u>. The lines of Y-means meet or cross within the feasibility range of treatment. This covariate cannot be used for any further analysis; <u>however, this fact can be documented</u> as an interesting research finding.



When the covariate and/or treatment is more than two-valued, similar analyses can be carried out, though with greater difficulty.

2.5 <u>Study of Interactions</u>

Fortunately, one does not need to discard an investigation just because a covariate happens to interact with some of the evaluation factors. In fact, even though the non-trivial interaction of a variable with an evaluation factor invalidates the former's claim to be a covariate in the study, the existence of an interaction can be a legitimate research finding. In section 2.4, we have illustrated how such an interaction can be interpreted and presented for a two-valued (potential) covariate. For the sake of generality, assume that the covariate is a quantitative variable, and that the research factor has only two levels, e.g., Follow Through and non-Follow Through. Let w denote the potential covariate, x (1 for Follow Through and 0 for non-Follow Through) denote the research factor and let z = w · x represent the interaction. Then the full model has the form:

$$\begin{aligned}\hat{Y} &= B_0 + B_w \cdot w + B_x \cdot x + B_z \cdot z \\ &= B_0 + B_w \cdot w + B_x \cdot x + B_z \cdot wx.\end{aligned}$$

This model uses three independent variables, and thus defines a three-dimensional hyperplane. If the signal associated with z is significant, i.e., if the F ratio:

$$F = \frac{n-4}{1} \cdot \frac{\hat{R}^2_{Y \cdot w,x,z} - \hat{R}^2_{Y \cdot w,x}}{1 - \hat{R}^2_{Y \cdot w,x,z}}$$

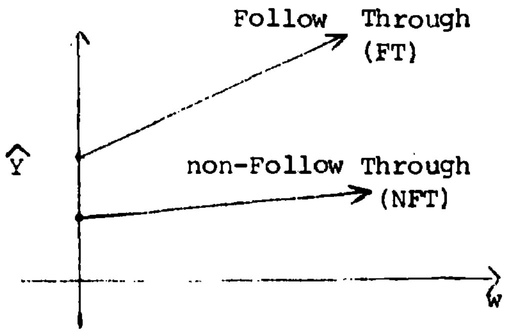
exceeds a predefined constant F_0, then w cannot serve as a covariate for this study. However, this research finding can be presented as follows. Note that the estimated values of the outcome measure, $\hat{Y}$, are given by:

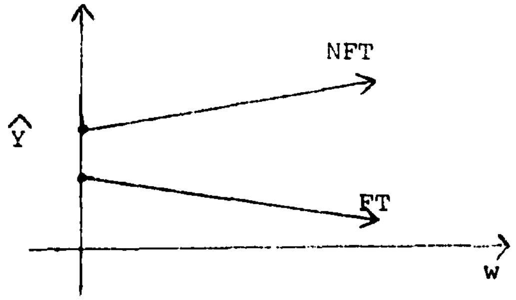
$$(21) \qquad \hat{Y} = (B_0 + B_x \cdot x) + (B_w + B_z \cdot x)w.$$

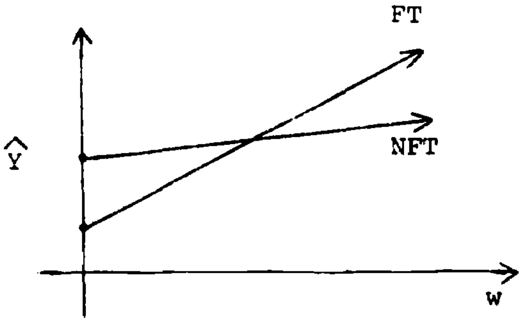
Let $\hat{Y}(1)$ denote the estimated value of Y when x = 1, i.e., for the group receiving Follow Through, and let $\hat{Y}(0)$ denote the corresponding values when x = 0, i.e. for the non-Follow Through group. From equation 21, one obtains:

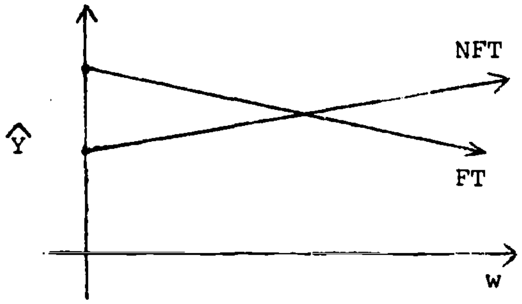
$$(22) \quad \begin{cases} \hat{Y}(0) = B_0 + B_w \cdot w & \text{and} \\ \hat{Y}(1) = (B_0 + B_x) + (B_w + B_z)w. \end{cases}$$

Notice that the interaction term, B_z, estimates the difference between the slopes of the predictor equations: this can be represented graphically as a pair of non-parallel straight lines, the actual slopes being determined by the data. As before, there are four possibilities: the Y-intercept of the Follow Through group can be above or below that of the non-Follow Through group, and B_z can be positive or negative. Though not a legitimate covariate, w provides valuable information about variations









in Y. This method of interpreting the interactions can be extended when there are more covariates and/or more research factors and/or more than two levels of each of the research factors. The method also applies when the covariate has non-linear as well as linear aspects.

3.0 THE ANALYTICAL DESIGN

Evaluation of the Follow Through effects is a long and complex undertaking, and involves both theoretical and practical problems. The evaluation process is presented here as a sequence of orderly steps, though many of these steps are in fact carried out in a cyclical manner. This section should, therefore, be viewed not as a documentation of the actual process but rather as a set of analytical guidelines. Ideally, each study reported in this document (the studies carried out at the sponsor level, school level, class level and pupil level; the studies related to teachers' responses and parents' responses; and the special studies such as the effect of Follow Through on big city children) has gone through the following stages:

1. Analytical design
2. Variables coding
3. Covariates' relevance and transformations
4. Study of interactions
5. F-test filter
6. Strength of relationship
7. Presentation of effects and research findings.

In sections 2.3--2.5, we have discussed the desirability of using a particular covariate and the interpretations of the interactions between a covariate and a research factor. From now on, we will assume that each covariate used in the evaluation of Follow Through effects has gone through such a scrutiny and that only the legitimate covariates, i.e., those with negligible interactions with the research factors, constitute the covariate set of a particular study. Henceforth, we can concentrate our attention on the effects of main research factors and interactions among these. Before initiating the formal process of analyzing the results, however, one should take a close look at the design of the analysis. The need for doing this might not be apparent at first since there is a core of commonality among all studies: the "treatment" consists of administering Follow Through in a classroom or not administering it, and thus can be represented by a two-valued predictor; the "sponsorship" is another factor of the planned variations, and in a study comprised of m Sponsors, the sponsorship is represented jointly by m - 1 non-redundant predictors; whenever an evaluation model uses a "crossed" design, one is also interested in Sponsor x treatment interactions. Furthermore, there is a set of criterion variables and corresponding covariates. Finally the analysis of covariance is a technique employed for carrying out the evaluations. Each evaluation report includes a study of appropriate R^2-contributions followed by a study of operationally meaningful B-weights. In this sense, the analytical design of all studies is predetermined, and each separate study is only a variation of this main theme. However, the focus of each study is different enough to merit a separate design in each case. Specifically, at the beginning of each study, one must examine questions such as: what the outcome measures of interest are; what is known (or can be determined) about the reliability of these measures; what the useful and legitimate covariates are; what is the proper design to use--crossed, nested, or mixed; which sequence should be employed to enter the variables in the model; and how the research factors should be coded.

This individualistic design effort begins by listing the outcome categories of interest and the corresponding outcome measures, i.e., the criteria variables. The next step is the preparation of an exhaustive list of plausible covariates and the examination of issues such as the nature of each covariate (is it quantitative or nominal; if quantitative, the range of possible values; if nominal, the coding scheme to be employed), and the logical relevance of each covariate to the criteria of interest. For example, the covariate (such as the Wide Range Achievement Test administered in the fall [Fall WRAT]), may be plausible because it represents the pretreatment score of some criterion variable (in this case, Spring WRAT); or it may be plausible because previous studies have shown (at least statistically) its relevancy. Finally, the analyst may have constructed a plausible cause-effect chain between a covariate and a criterion variable. For example, the analyst may argue that the larger the city size, the greater the crowding conditions in the core of the city, the more likely the existence of low-income/low-social-status population, hence the possibility of low scores on any achievement measure. Thus he may select the size of the city as a covariate of some achievement measure.

Such a scrutiny of the potential covariates reduces the likelihood of introducing "non-sense correlations" in the resulting linear model.

3.1 The Crossed and the Nested Designs

There are two questions about the experimental factors: 1) are these factors to be regarded as being completely crossed, partly nested or completely nested? and 2) how many levels of each factor are to be represented in the evaluation design? For example, in the school level studies of the January report, Follow Through as a factor is nested within sponsors (hence the question posed at the beginning of the Analytical Design section reads, "Within Sponsor X ..."). In the class level and child level studies, on the other hand, these two factors (as well as sex and pre-Follow-Through experience) are assumed to be completely crossed. The nested design does not allow the estimation of some main factors (for example, the overall effect of Follow Through in the January report school level studies); the completely crossed design allows the estimation of all main factors and interactions.

At the risk of being redundant, some of the implications of using a crossed or a nested design are listed below. A crossed design of analysis is used whenever all of the following conditions are satisfied.

1. The analyst is both interested in and statistically able to isolate the main effects of each factor, and the interactions between these. For example, in a study involving two factors, say A and B, one may wish to examine the effects of applying A, the effects of administering B, as well as their joint effect, i.e., the interaction A x B.
2. Every level of each factor appears with every level of other factors. This implies, in the above example, that there are a fixed number of levels of B; these levels are uniquely defined and each level of B is administered at every level of A.

3. There are enough observations in each group (defined by the combination of factor levels) to estimate the group mean and variance in the data. Let n_{ij} denote the number of observations at the i^{th} level of A and j^{th} level of B. Then n_{ij} must be sufficiently large.

If any of these conditions are not met, one uses a nested-factors design or eliminates some of these research factors from further analysis (see section 3.3). For example, it is conceivable that the Follow Through programs as administered by each Sponsor are so different that except for the designation "Follow Through," these have nothing in common. In that case, the dichotomy: Follow Through/non-Follow Through (FT/NFT for short) is meaningful only within a Sponsor. This is a rationale, as was used in our January report, for employing the nested design to analyze the Follow Through effects at school level. In such a design, only the main effects of sponsorship and the effects of Follow Through within a specified Sponsor are measurable.

When there are three (or more) factors, the "nesting" can be either partial or complete. For example, for three factors A, B, and C, the nested and crossed factors can occur in the following combinations.

1. C is nested in B which, in turn, is nested in A. This model has not been used in the evaluation of Follow Through effects. If it were employed, only the main effects of A, the effects of B within a level of A, and the effects of C within B would have been measureable.
2. C is nested within A x B. For example, consider C = FT/NFT, A = sponsorship, B = geographic regions. The effects of A, B, joint effects of A and B, and the effects of C within a joint level of A and B are measurable.
3. B x C is nested within A. For example, consider C = FT/NFT, B = sex and A = sponsorship. Only the main effects of A, the effects of B within A, C within A, and the joint effects of B and C within A are measurable.
4. A, B, and C are completely crossed. Table MIV-1 provides an illustration of this design (see section 3.3). This design permits the

estimation of the main effects of A, B and C; the joint effects of A and B, A and C, B and C; and the joint effects of A, B, and C.

3.2 The Analysis of Residuals

What does an analyst measure when he conducts an analysis of covariance study? Let us respond to this question by way of an illustration. Consider a research design in which there is only one covariate (represented by a single quantitative predictor, Z) and two completely crossed research factors, A and B, each at two levels only. Let X_A and X_B denote the nominally coded predictors[3] for representing A and B, and let $X_{AB} = X_A \cdot X_B$ denote the predictor for the A x B interaction (i.e., the joint effects of A and B). Then, assuming Z to be a legitimate covariate (i.e., assuming that Z has negligible interactions with the research factors), the full linear model has the form:

$$(23) \qquad \hat{Y} = b_0 + b_Z \cdot Z + b_A \cdot X_A + b_B \cdot X_B + b_{AB} \cdot X_{AB}$$

In this form, the b-weights of the individual predictors are the "partial regression coefficients." For example, in the completely spelled out version, the b-weight associated with X_A would read: $b_{A \cdot Z,B,AB}$, i.e., the slope of $\hat{Y}$ on X_A after accounting for the differences due to Z, B, and AB contributions. The covariate predictor, Z, is always partialled out before computing the b-weights of the research factor predictors. This is the reasoning behind the customary definition: analysis of covariance (ACV) is the analysis of variance (AV) after accounting for the covariate differences. Note that we can also represent the full model by the equation:

$$(24) \qquad \widehat{dY} = \hat{Y} - b_Z \cdot Z = b_0 + b_A X_A + b_B X_B + b_{AB} X_{AB}.$$

In this form, $\widehat{dY}$ is the difference between two estimates of Y: one based on the full model, another also based on the full model but utilizing only

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[3] Section 4.0 contains a detailed discussion of the nominal coding schemes. Knowledge of a specific coding scheme is irrelevant to the discussion at hand.

the covariate information. It is this residual which is then subjected to the analysis of variance techniques. Symbolically, one may state that

$$(25)\qquad ACV(Y) = AV(dY).$$

It is for this reason that in the remainder of this chapter we have completely ignored the covariance aspect and concentrated on the analysis of variance-related issues such as: what are the research factors? which interactions should be examined? what should be the sequence of introducing the various predictors in the model (i.e., what is the hierarchical structure of the analysis scheme)? and how does the b-weights interpretation vary with the coding scheme?

3.3 The Number of Research Factors and Levels

The method employed for determining the research factors to be examined in a study, the number of levels at which each factor may appear in the model, and the interactions chosen for inclusion in the model illustrates the difference between an experiment designer and an evaluation study designer. The former chooses the factors, factor levels and interactions of interest, and then decides on the number of observations at each level, whereas the latter is often required to combine some levels (or altogether drop certain factors) so as to maintain the reliability of his conclusions. For example, while evaluating the joint effects of Follow Through, sponsorship, race, sex and pre-formal-school experience ("Head Start," "other preschool," and "none") on Big City children's achievement scores, we were planning to employ a completely crossed design (2 x 10 x 2 x 2 x 3). Since very few observations were available on non-Black children, however, race had to be dropped as a factor and similarly sponsorship had to be included at four levels only. Follow Through could not be "crossed" with sponsorship and pre-formal-school experience had to be examined at two levels only ("some" and "none"). Thus, instead of a 2 x 10 x 2 x 2 x 3 factorial design as initially planned, the evaluation design had to be restricted to a 5 x 2 x 2 design represented in Table MIV-1. The Sponsor categories 5 FT, 8 FT, 9 FT, and 11 FT stand for "the Follow Through children for Sponsors 5, 8, 9, and 11" and the category "all NFT"

TABLE MIV-1: A 5 x 2 x 2 Child Level Study and Frequencies

Sponsor	Sex	Preschool	
		Some	None
5 FT	M	33	12
	F	11	30
8 FT	M	38	19
	F	32	19
9 FT	M	29	5
	F	31	8
11 FT	M	35	6
	F	29	12
all NFT	M	17	20
	F	21	8

is comprised of the non-Follow Through children for all of these four Sponsors. A preplanned experiment might not have suffered from as many resultant difficulties of interpretation and generalizability of the results.

3.4 The Hierarchical Structure of Analysis

One other question needs to be settled during the design phase of the study even though the data analyst often may not realize its implications until the end of the analysis phase. This has to do with the hierarchical structure of the data analysis. If all of the predictors (representing covariates, main factors, interactions, etc.) were uncorrelated in the data, one could simultaneously introduce these in the linear model: $\hat{Y} = b_0 + b_1X_1 + \ldots + b_kX_k$, and compute the corresponding semi-partial correlation coefficients, sr_i, by the formula: $sr_i = \hat{r}_{yi}$, i.e., as the zero-order sample correlations between Y and X_i. In such an ideal situation, the multiple correlation in the data between Y and $X_1, \ldots, X_k$, namely, $\hat{R}_{Y\cdot 12\ldots k}$ can be computed by the formula: $\hat{R}^2_{Y\cdot 12\ldots k} = sr_1^2 + \ldots + sr_k^2$. Furthermore, such a decomposition of $\hat{R}^2_{Y\cdot 12\ldots k}$ could be carried on between any two subsets of variables. Contributions of a specific predictor (and hence that of a predictor set) towards the explanation of Y-variance could then be determined unambiguously.

In the evaluation of the Follow Through effects, however, such is not the case. The correlations between any two covariates, each of which explains a substantial amount of Y-variance, is very likely to be non-negligible. Furthermore, the fact that there is an unequal number of observations in various research factor combinations (see for example the frequencies in Table MIV-1) introduces correlations amongst the otherwise (i.e., logically) uncorrelated main factor effects. Finally, some coding schemes tend to produce correlated predictors. In other words, it is very unlikely that $\hat{r}_{yi} = sr_i$. Unfortunately, there is no equitable method of sorting out the contributions of various predictors towards the explaination of Y-variance. We are left to introducing one predictor (or one predictor set) at a time and then studying the additional contribution of the newly introduced predictor (set). This is the rationale for using the hierarchical structure of analysis. Depending on the nature of the predictors involved, one must plan on the sequence of introducing the predictors in the model. Some guidelines are indicated below.

1. The predictors identified as covariates should be introduced prior to any research factors.
2. A research factor which acts as a "block" should be introduced prior to the factor identified to be a "treatment." For example, in the evaluation of the Follow Through effects, the contrast, Follow Through/non-Follow Through is identified to be a "treatment"; Sponsors are not so identified. Hence, the predictors representing sponsorship are introduced before the Follow Through/non-Follow Through predictor. Similarly the predictors representing race or sex should be introduced prior to Follow Through/non-Follow Through predictor whenever one wishes to study the Follow Through/non-Follow Through effect <u>over and above the race effect or sex effect</u>. In fact, in such a case, one should introduce the race x sex interaction predictor prior to the Follow Through/non-Follow Through predictor.
3. If one of the factors is nested within another, the predictor(s) for the nested factor should follow those for the other factor.
4. Generally, the interaction predictors are introduced after those of the corresponding main factors.
5. If a variable has linear and nonlinear aspects, the linear aspect predictor is (generally) introduced prior to that for the nonlinear aspect. <u>This is done for esthetic reasons</u> and for simplifying the explanation of observed effects.
6. If no such natural precedence can be found, the predictors can be entered in either (or both) order, remembering that those entered later are "robbed" by those preceding.

4.0 THE NOMINAL CODING SCHEMES

As we have discussed in section 3.2, the analysis of covariance can be characterized as the analysis of variance applied to the residuals, i.e., to the difference, dY, between two estimates of the outcome measure Y: one utilizing the full model, another also based on the full model but utilizing only the covariate information. Symbolically, ACV(Y) = AV (dY). Thus, from now on, we will drop any reference to the covariate and concentrate on the dY values. At this point, the coding scheme becomes important.

In the classical linear "regression" models, both the dependent and the independent variables are usually continuous, and hence the issue of coding the variables is not of great theoretical importance--coding usually implies a shift in location and/or the scale parameters and is undertaken only to satisfy the Electronic Deity (the computer). In an evaluation design based on the analysis of variance, however, the factor levels do not have any implicit meaning in a quantitative sense. Thus, any predictor representing an evaluation factor is necessarily a "nominal" predictor, i.e., a predictor whose values are used only as labels. For example, if a factor appears at two levels only, and thus has only one "degree of freedom," then <u>this information</u> can be represented by one nominal predictor which takes on the values 1 and 0, or 1 and -1, or 1/2 and -1/2, or 15 and 47, or in fact <u>any two</u> numbers whatsoever. This is, in fact, the meaning of the adjective "nominal". The correlation between dY and such a predictor is independent of the coding scheme (Cohen,1968). Thus, if the traditional analysis of variance finds this factor to be significant, so will <u>any</u> of these nominal schemes. The converse is also true. Thus, <u>if one is interested in a significance test only, all coding schemes are equally good</u>. This statement generalizes when there are more factors or more levels. It also holds when some of the predictors represent interactions.

4.1 Traditional Analysis of Variance Estimates

Consider the case when the design calls for dividing the data into k groups. Let M_i (i = 1, 2, ..., k) denote the mean in the population for the i^{th} group, and n_i denote the number of observations in the data on this group. Then one can formulate the model:

$$(26) \qquad dY_{ij} = M_i + E_{ij} .$$

The left-hand side variable, dY_{ij}, denotes the value of the difference in the i^{th} group for the j^{th} observation ($j = 1, 2, \ldots, n_i$); E_{ij} denotes the corresponding error. The least squares method is based on reducing the sum of squares of the error terms in the data, i.e., it provides the estimates, $\hat{M}_i$, to be such that one obtains the least possible values for S, where:

$$(27) \qquad S = \sum_{i=1}^{k} \sum_{j=1}^{n_i} (dY_{ij} - \hat{M}_i)^2 .$$

By employing the standard methods of calculus, it can be seen that minimum value of S is obtained when $\hat{M}_i = \overline{dY}_i$. This implies that each group mean is the best estimate of the corresponding dY_{ij} values. Symbolically, for each group, g, in the data:

$$(28) \qquad \widehat{dY}\ (g) = \overline{dY}\ (g) .$$

Note that equation 28 is independent of the coding scheme used, and the interpretation imposed on the group membership. For example, if the different groups represent specific levels of a research factor, one could interpret M_i to be $M + A_i$, where M is the population mean at all levels of the factor (a statistical "bogeyman"), and A_i is the "effect" associated with the particular level of the factor. Equation 27 then contains k + 1 parameters, and equation 28 provides only k constraints. To obtain a unique set of parameter values, statisticians traditionally impose the condition: $A_1 + A_2 + \ldots + A_k = 0$. This implies that the specific level effects, A_i, cancel each other; thus only k - 1 of these can be chosen arbitrarily, i.e., the k levels of a factor provide for k - 1 degrees of freedom. Both the relationship defined by equation 28, and the number of degrees of freedom are independent of the nominal coding scheme employed to represent the group membership. Thus, any set of k - 1 non-redundant predictors can be used to define the group membership. The choice of a specific scheme should be determined by the ease of drawing inferences.

Using the equation: $\hat{M}_i = \hat{M} + \hat{A}_i = \overline{dY}_i$, or equivalently, $\hat{A}_i = \overline{dY}_i - \hat{M}$; and the condition: $A_1 + \ldots + A_k = 0$; one obtains $0 = \sum_{i=1}^{k} \overline{dY}_i - k\hat{M}$, i.e.,

$$(29) \quad \begin{cases} \hat{M} = \overline{\overline{dY}} = \frac{1}{k} \sum_{i=1}^{k} \overline{dY}_i, \text{ and} \\ \hat{A}_i = \overline{dY}_i - \frac{1}{k} \sum_{i=1}^{k} \overline{dY}_i \,. \end{cases}$$

We now show how these values can be obtained as appropriate b-weights of a suitable nominal coding scheme.

4.2 The Effects Coding Scheme

Assume that there are k groups in the model, each representing one level of the research factor. Since there are only k - 1 degrees of freedom, the group membership can be uniquely defined by k - 1 non-redundant nominal predictors $X_1, \ldots, X_{k-1}$. Consider the linear model,

$$(30) \qquad \hat{dY} = b_0 + b_1 X_1 + \ldots + b_{k-1} X_{k-1} \,,$$

where the predictors $X_1, \ldots, X_{k-1}$ are defined as follows.

$$X_i = \begin{cases} 1 & \text{if Y-observation is at the } i^{th} \text{ level } (i = 1, 2, \ldots, k-1) \\ -1 & \text{if Y-observation is at the } k^{th} \text{ level} \\ 0 & \text{if Y-observation is at any other level.} \end{cases}$$

Note that for the observations at level i ($\neq$ k), $X_i = 1$ and all other X's are zero. For observations at level k, $X_1 = X_2 = \ldots = X_{k-1} = -1$. Thus, each level is uniquely defined by this coding scheme. Using equation 28, we find that for the observations at level i, the estimate of the dY values, $\hat{dY}_i$, is given by:

$$(31) \qquad \widehat{dY}_i = \overline{dY}_i = \begin{cases} b_0 + b_i, & \text{if } i \neq k \\ b_0 - b_1 - \ldots - b_{k-1}, & \text{if } i = k. \end{cases}$$

Taking the mean of all $\overline{dY}_i$ values, one obtains $b_0 = \frac{1}{k}\sum_{i=1}^{k} \overline{dY}_i$ = say $\overline{\overline{dY}}.$, and then $b_i = \overline{dY}_i - \overline{\overline{dY}}$. Note that following Scheffé (1959) whenever a subscript is replaced by a period (.), all levels of the corresponding factor are represented in that term. The placing of two bars (=) implies taking the mean of means. Comparing these results with those in equation 29, we find that

$$(32) \qquad \hat{A}_i = \begin{cases} b_i & \text{when } i \neq k \\ -(b_1 + \ldots + b_{k-1}) & \text{when } i = k. \end{cases}$$

Thus, the main effects associated with the traditional analysis of variance design can be read off as the coefficients (b-weights) of the appropriate predictors. Thus, if all of the factor levels are to be treated alike, then the effects coding scheme is the most suitable scheme. These results can be generalized when there are more factors and when one wishes to estimate the traditional interaction terms. This scheme is better than the traditional methods in that 1) one can use it whether or not the covariates are present in the model, and 2) one can estimate not only the significance of each predictor set but also its R^2-contribution (by employing the hierarchical structure). As an example of the case when the there are more factors and when one is interested in the traditional interactions, consider the design presented in Table MIV-1. See Table MIV-2 for the corresponding detailed coding scheme. The sponsorship variable appears at five levels (0, 1, ..., 4) and S_0 is the reference level for sponsorship. For i = 1, ..., 4 the predictor X_i represents the contrast between S_i and S_0, ignoring the remaining levels. In other words,

$$(33) \qquad X_i = \begin{cases} 1 \text{ for those with Sponsor } S_i \ (i = 1, 2, 3, 4) \\ 0 \text{ for those with other Sponsors} \\ -1 \text{ for those with Sponsor } S_0. \end{cases}$$

TABLE MIV-2: Effects-Coded Predictors for Table MIV-1 Data

PREDICTORS / GROUPS	Single Factors						2-Way Products									3-Way Products			
	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}	X_{16}	X_{17}	X_{18}	X_{19}
S_1MP	1	0	0	0	½	½	½	0	0	0	½	0	0	0	¼	¼	0	0	0
S_1MN	1	0	0	0	-½	½	-½	0	0	0	½	0	0	0	-¼	-¼	0	0	0
S_1FP	1	0	0	0	½	-½	½	0	0	0	-½	0	0	0	-¼	-¼	0	0	0
S_1FN	1	0	0	0	-½	-½	-½	0	0	0	-½	0	0	0	¼	¼	0	0	0
S_2MP	0	1	0	0	½	½	0	½	0	0	0	½	0	0	¼	0	¼	0	0
S_2MN	0	1	0	0	-½	½	0	-½	0	0	0	½	0	0	-¼	0	-¼	0	0
S_2FP	0	1	0	0	½	-½	0	½	0	0	0	-½	0	0	-¼	0	-¼	0	0
S_2FN	0	1	0	0	-½	-½	0	-½	0	0	0	-½	0	0	¼	0	-¼	0	0
S_3MP	0	0	1	0	½	½	0	0	½	0	0	0	½	0	¼	0	0	¼	0
S_3MN	0	0	1	0	-½	½	0	0	-½	0	0	0	½	0	-¼	0	0	-¼	0
S_3FP	0	0	1	0	½	-½	0	0	½	0	0	0	-½	0	-¼	0	0	-¼	0
S_3FN	0	0	1	0	-½	-½	0	0	-½	0	0	0	-½	0	¼	0	0	¼	0
S_4MP	0	0	0	1	½	½	0	0	0	½	0	0	0	½	¼	0	0	0	¼
S_4MN	0	0	0	1	-½	½	0	0	0	-½	0	0	0	½	-¼	0	0	0	-¼
S_4FP	0	0	0	1	½	-½	0	0	0	½	0	0	0	-½	-¼	0	0	0	-¼
S_4FN	0	0	0	1	-½	-½	0	0	0	-½	0	0	0	-½	¼	0	0	0	¼
S_0MP	-1	-1	-1	-1	½	½	-½	-½	-½	-½	-½	-½	-½	-½	¼	-¼	-¼	-¼	-¼
S_0MN	-1	-1	-1	-1	-½	½	½	½	½	½	-½	-½	-½	-½	-¼	¼	¼	¼	¼
S_0FP	-1	-1	-1	-1	½	-½	-½	-½	-½	-½	½	½	½	½	-¼	¼	¼	¼	¼
S_0FN	-1	-1	-1	-1	-½	-½	½	½	½	½	½	½	½	½	-¼	-¼	-¼	-¼	-¼

Preschool experience is at two levels only (some and none) and is therefore represented by the binary contrast, X_5, where:

$$(34) \qquad X_5 = \begin{cases} 1/2 & \text{for those with some experience,} \\ -1/2 & \text{for others.} \end{cases}$$

Since there are only two levels of this factor, X_5 is never zero. The third factor, sex, is coded at two levels with male = 1/2 and female = -1/2. In other words:

$$(35) \qquad X_6 = \begin{cases} 1/2 & \text{if male,} \\ -1/2 & \text{if female.} \end{cases}$$

The joint representation of any two factors is obtained by coding these as products of the corresponding main factor predictors. Thus, for i = 1, 2, 3, and 4, one obtains:

$$(36) \qquad \begin{cases} X_{i+6} = X_i \cdot X_5 & \text{(Sponsor x preschool),} \\ X_{i+10} = X_i \cdot X_6 & \text{(Sponsor x sex), and} \\ X_{15} = X_5 \cdot X_6 & \text{(preschool x sex).} \end{cases}$$

Finally, the joint representation of all three factors is achieved as products of corresponding main factor predictors. Thus, for i = 1, 2, 3, and 4, one has:

$$(37) \qquad X_{i+15} = X_i \cdot X_5 \cdot X_6 = X_{i+6} \cdot X_6 = X_{i+10} \cdot X_5.$$

The resultant coding scheme is shown in Table 2.

Orthogonal Nature of Effects-Coding. Note that the effects-coding has the following properties:

i. For any predictor, X_i (i = 1, 2, ..., 19), the sum of the coefficients across all groups (i.e., the numbers in any column of Table MIV-2) is always zero. Thus, if Table MIV-2 were to represent a balanced design, implying that the group frequencies were equal, then the mean value for each predictor, $\bar{X}_i$, would have been zero.

2. Consider the inner products between the effects-coded predictors. That is, for any pair of predictors X_i and X_j ($1 \leq i \neq j \leq 19$), examine the "sum-of-products term,"

$$X_i \odot X_j = \sum_{g=1}^{20} X_{ig} X_{jg} . \tag{38}$$

It follows from the structure of Table MIV-4 that whenever $1 \leq \neq j \leq 4$)

$$\begin{cases} X_i \odot X_j = n_{0..}, \\ X_{i+6} \odot X_{j+6} = X_{i+10} \odot X_{j+10} = n_{0..}/4, \text{ and} \\ X_{i+15} \odot X_{j+15} = n_{0..}/16, \end{cases} \tag{39}$$

$n_{0..}$ being the number of observations in the sponsorship reference group (the observations for Sponsor S_0). All other inner products are zero. In a balanced design, this would mean that the sponsorship levels are correlated, but all other predictors are uncorrelated. One can, for example, estimate the traditional preschool effect independent of the sponsorship level, sex effect, preschool-sex interaction, preschool-Sponsor interaction, sex-Sponsor interaction, or sex-preschool-Sponsor interaction. Since the frequencies in Table 1 are not balanced, such will not be the case while evaluating the Follow Through effects in the corresponding study of Big City children. For that study, one must resort to the semi-partial correlations, as implied by the hierarchical structure of analysis.

Interpretation of b-weights. We can interpret the b-weights by considering each of the twenty (5 x 2 x 2) group mean equations: $\widehat{dY}$ (group) = $\overline{dY}$ (group). The following notation is being used: $\overline{Y}_{ijk}$ denotes the mean of the group of observations for which the Sponsor is S_i, sex is at level j, and preschool experience is at level k. An unweighted mean of these group means is denoted by placing two bars (=) on top of Y. When a subscript is replaced by a period (.), contribution of the corresponding factor has been averaged out. Using this notation, one can interpret the b-weights as follows:

$$
(40)\quad \left\{
\begin{array}{lcl}
b_0 & = & \overline{\overline{dY}}_{...} \\
b_i & = & \overline{\overline{dY}}_{i..} - \overline{\overline{dY}}_{...} \qquad (i = 1, 2, 3, 4) \\
b_5 & = & \overline{\overline{dY}}_{..1} - \overline{\overline{dY}}_{..0} \\
b_6 & = & \overline{\overline{dY}}_{.1.} - \overline{\overline{dY}}_{.0.} \\
b_{i+6} & = & \overline{\overline{dY}}_{i.1} - \overline{\overline{dY}}_{i.0} - (\overline{\overline{dY}}_{..1} - \overline{\overline{dY}}_{..0}) \\
b_{i+10} & = & \overline{\overline{dY}}_{i1.} - \overline{\overline{dY}}_{i0.} - (\overline{\overline{dY}}_{.1.} - \overline{\overline{dY}}_{.0.}) \\
b_{15} & = & \overline{\overline{dY}}_{.1,1} - \overline{\overline{dY}}_{.1,0} - (\overline{\overline{dY}}_{.0,1} - \overline{\overline{dY}}_{.0,0}) \\
b_{i+15} & = & \overline{dY}_{i,1,1} - \overline{dY}_{i,1,0} - (\overline{dY}_{i,0,1} - \overline{dY}_{i,0,0}) \\
 & & - [\, \overline{\overline{dY}}_{.1,1} - \overline{\overline{dY}}_{.1,0} - (\overline{\overline{dY}}_{.0,1} - \overline{\overline{dY}}_{.0,0}) \,] .
\end{array}
\right.
$$

Comments on the Effects-Coding. The effects-coding is somewhat more difficult to design, but the results are well worth the additional effort if one is interested in obtaining traditional analysis of variance effects as appropriate b-weights.

1. Since the coefficients which define an effects-coded predictor add to zero, each such predictor represents a contrast.
2. If the group frequencies are equal, these contrasts are (with the exceptions noted earlier) mutually orthogonal. The conclusions regarding the effects of a contrast are therefore independent of other contrasts.

4.3 The Dummy Coding Scheme

As with the effects coding, assume that there are k groups, each representing a level of an evaluation factor. However, imagine that one of the groups is a "control," and that the others define k - 1 variations on a "treatment." A plausible alternative to the null hypothesis, "Each of the k groups has the same Y-mean in the population," is to assume that "Any treatment is better (worse) than no treatment." In other words, the comparisons are to be carried out between any treatment group and the control group. One can explore this asymmetric alternative most conveniently by employing the dummy coding scheme. The linear model is given by:

$$(41) \qquad \hat{dY} = b_0 + b_1X_1 + \ldots + b_{k-1} X_{k-1},$$

where the dummy coded predictors, $X_1, \ldots, X_{k-1}$ are defined by:

$$X_i = \begin{cases} 1 \text{ if the Y-observation is on the } i^{th} \text{ group,} \\ 0 \text{ otherwise.} \end{cases}$$

Note that for $i = 1, \ldots, k - 1$, each predictor X_i represents the i^{th} group; the k^{th} group does not need an additional predictor--it is defined by being coded 0 on X_1 through X_{k-1}. The control group is identified to be the k^{th} group in this scheme. The estimate of the dY values for the i^{th} group, $\hat{dY}_i$, is given by:

$$(42) \qquad \hat{dY}_i = \overline{dY}_i = \begin{cases} b_0 + b_i & \text{when } i \neq k \\ b_0 & \text{when } i = k. \end{cases}$$

This equation clearly brings out the contrast one is looking for: b_0, the constant term (the Y-intercept) equals the estimate of the dY values for the control group; the b-weight associated with each of the $k - 1$ dummy predictors equals the extent to which the corresponding treatment group is better (worse) off than the control group.

Note, of course, that this coding scheme does not produce the traditional (AV) main effects as b-weights. These can, however, be obtained by combining the appropriate b-values. For example, M, the mean of all means is estimated to be $b_0 + \frac{1}{k}\sum_{i=1}^{k-1} b_i$. Similarly, the AV main effect for the i^{th} group $(i = 1, \ldots, k - 1)$ is estimated to be: $\frac{1}{k}\left\{(k - 1)b_i - \sum_{j \neq i} b_j\right\}$.

These expressions are computable with some difficulty from the data produced by the computer packages--however, if one were looking for AV main effects, it would have been much more convenient to use the effects coding scheme.

As an example of the case when there are more factors and when one is interested in studying interactions, consider once more the evaluation design of Table MIV-1 with Sponsor levels renamed to be: $S_1 = 5$ FT, $S_2 =$ 8 FT, $S_3 = 9$ FT, $S_4 = 11$ FT and $S_0 =$ all NFT (the control group). The sponsorship information is coded by 4 (= 5 - 1) dummy predictors X_1 through X_4, i.e.,

$$(43) \qquad X_i = \begin{cases} 1 & \text{for observations in } S_i \\ 0 & \text{otherwise.} \end{cases}$$

Similarly, the preschool learning experience is at two levels (none or some), and can be dummy-coded by X_5.

$$(44) \qquad X_5 = \begin{cases} 1 & \text{if the pupil has some preschool experience} \\ 0 & \text{otherwise.} \end{cases}$$

Finally, the sex of a pupil is a dichotomy and can be represented by one dummy predictor, X_6.

$$(45) \qquad X_6 = \begin{cases} 1 & \text{if the pupil is male} \\ 0 & \text{otherwise.} \end{cases}$$

Thus far, each factor (sponsorship, preschool, and sex) was considered one at a time. Representing two-factors at a time yields <u>nine</u> more predictors defined as follows. For i = 1, 2, 3, and 4:

$$(46) \qquad S_{i+6} = \begin{cases} 1 & \text{if } X_i = 1 \underline{\text{ and }} X_5 = 1 \text{ simultaneously} \\ 0 & \text{otherwise} \end{cases}$$

$$(47) \qquad X_{i+10} = \begin{cases} 1 & \text{if } X_i = 1 \underline{\text{ and }} X_6 = 1 \text{ simultaneously} \\ 0 & \text{otherwise} \end{cases}$$

$$(48) \qquad X_{15} = \begin{cases} 1 & \text{if } X_5 = 1 \underline{\text{ and }} X_6 = 1 \text{ simultaneously} \\ 0 & \text{otherwise.} \end{cases}$$

Finally, simultaneous consideration of the three factors is represented as follows. For i = 1, 2, 3, and 4:

$$(49) \qquad X_{i+15} = \begin{cases} 1 & \text{if } X_i = 1,\ X_5 = 1 \ \underline{\text{and}}\ X_6 = 1 \\ 0 & \text{otherwise.} \end{cases}$$

The coefficients of X_7 through X_{19} are obtained by multiplying the values of the appropriate single-factor predictors. Regardless of the coding scheme used for representing the main factors, the interaction is always carried by such products. Table MIV-3 summarizes the resultant coding scheme Note that the reference group for the full model is defined as being that group of observations which acts as a control for each of the factors. By extension of the earlier logic, one would conclude that b_0, the Y-intercept for this coding scheme, equals the mean of S_0FN (the reference group). Other b-weights are interpreted in a similar fashion. For example, the mean of the S_1FN group is: $\bar{Y}(S_1FN) = b_0 + b_1$ so that $b_1 = \bar{Y}(S_1FN) - \bar{Y}(S_0FN)$. Thus, b_1 estimates the extent to which the first Sponsor, S_1, is better (worse) than the imaginary Sponsor, S_0, for the females without any preschool experience.

A slight change in notation is called for. Let $\overline{dY}_{ijk}$ denote the mean of Y values when the first factor (e.g., sponsorship) is at level i; the second factor (e.g., sex) is at level j; and the third factor (e.g., preschool experience) is at level k. By considering the groups for which 1) all X's are at zero-level, 2) only one of the X's is positive, 3) only two of the X's are positive, etc., we can interpret the b-weights to have the meanings displayed in equation 50.

TABLE MIV-3: Dummy-Coded Predictors for Table MIV-1 Data

		← SINGLE FACTORS →						← 2-WAY PRODUCTS →									← 3-WAY PRODUCTS →			
GROUPS	FREQUENCIES	x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}	x_{11}	x_{12}	x_{13}	x_{14}	x_{15}	x_{16}	x_{17}	x_{18}	x_{19}
S_1MP	33 (n_{111})	1	0	0	0	1	1	1	0	0	0	1	0	0	0	1	1	0	0	0
S_1MN	12 (n_{110})	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
S_1FP	11 (n_{101})	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
S_1FN	30 (n_{100})	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S_2MP	38 (n_{011})	0	1	0	0	1	1	0	1	0	0	0	1	0	0	1	0	1	0	0
S_2MN	19 (n_{010})	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
S_2FP	32 (n_{001})	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
S_2FN	19 (n_{200})	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S_3MP	29 (n_{311})	0	0	1	0	1	1	0	0	1	0	0	0	1	0	1	0	0	1	0
S_3MN	5 (n_{310})	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
S_3FP	31 (n_{301})	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
S_3FN	8 (n_{300})	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S_4MP	35 (n_{411})	0	0	0	1	1	1	0	0	0	1	0	0	0	1	1	0	0	0	1
S_4MN	6 (n_{410})	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
S_4FP	29 (n_{401})	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
S_4FN	12 (n_{400})	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S_0MP	17 (n_{011})	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0
S_0MN	20 (n_{010})	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
S_0FP	21 (n_{021})	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S_0FN	8 (n_{000})	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$$
\left\{
\begin{array}{lll}
b_0 & = & \overline{dY}_{0,0,0} \\
b_i & = & \overline{dY}_{i,0,0} - \overline{dY}_{0,0,0} \qquad (i = 1,\ 2,\ 3,\ 4) \\
b_5 & = & \overline{dY}_{0,0,1} - \overline{dY}_{0,0,0} \\
b_6 & = & \overline{dY}_{0,1,0} - \overline{dY}_{0,0,0} \\
b_{i+6} & & \overline{dY}_{i,0,1} - \overline{dY}_{0,0,1} - (\overline{dY}_{i,0,0} - \overline{dY}_{0,0,0}) \\
b_{i+10} & = & \overline{dY}_{i,1,0} - \overline{dY}_{0,1,0} - (\overline{dY}_{i,0,0} - \overline{dY}_{0,0,0}) \\
b_{15} & = & \overline{dY}_{0,1,1} - \overline{dY}_{0,1,0} - (\overline{dY}_{0,0,1} - \overline{dY}_{0,0,0}) \\
b_{i+15} & = & \overline{dY}_{i,1,1} - \overline{dY}_{0,1,1} - (\overline{dY}_{i,0,1} - \overline{dY}_{0,0,1}) \\
 & & \quad - [\ \overline{dY}_{i,1,0} - \overline{dY}_{0,1,0} - (\overline{dY}_{i,0,0} - \overline{dY}_{0,0,0})\ ] .
\end{array}
\right.
\tag{50}
$$

The determination of the AV main effects and the AV interactions is much more complex with the dummy coding scheme than with the effects coding scheme--a not very surprising finding when one remembers that these two schemes have different raison d'être. For example, the AV main effect of sex is $\overline{\overline{dY}}_{.1.} - \overline{\overline{dY}}_{.0.}$, i.e., the difference between the unweighted means of dY values for males (averaged over all sponsors and both preschool levels) less the corresponding mean for all females. In terms of the b-weights associated with the dummy predictors, sex effect equals $b_6 + \frac{1}{5}\sum b_{i+10} + \frac{1}{2} b_{15} + \frac{1}{10}\sum b_{i+15}$. In the effects coding scheme, the corresponding value would have been b_6 only. The additional terms represent the contamination with the appropriate second and third order interaction terms. Similarly, the AV preschool effect, $\overline{\overline{dY}}_{..1} - \overline{\overline{dY}}_{..0}$ equals $b_5 + \frac{1}{5}\sum b_{i+6} + \frac{1}{2} b_{15} + \frac{1}{10}\sum b_{i+15}$. If the analyst had wished to estimate these main effects, he would have been better off using the effects coding scheme discussed earlier.

If the analyst wishes to estimate the contrast $\overline{\overline{dY}}_{1..} - \overline{\overline{dY}}_{0..}$, i.e. the difference between the first Sponsor and the control group, he runs into similar difficulties. Note that b_1 equals $\overline{dY}_{1,0,0} - \overline{dY}_{0,0,0}$, i.e., the difference between the first Sponsor and the control group for all females without any preschool. To eliminate the qualifiers about sex and preschool experience, one must add the appropriate two-factor and three-factor interactions: namely, b_7 (Sponsor 1 x preschool); b_{11} (Sponsor x sex); and b_{16} (Sponsor 1 x preschool x sex). Thus, $\overline{\overline{dY}}_{1..} - \overline{\overline{dY}}_{0..} = b_1 + \frac{1}{2} b_7 + \frac{1}{2} b_{11} + \frac{1}{4} b_{16}$. If the analyst had dummy-coded the sponsorship, but effects-coded the sex and preschool experience, he would have obtained $\overline{\overline{dY}}_{1..} - \overline{\overline{dY}}_{0..} = b_1$ by itself. Again, it follows that the coding scheme should be dictated by the nature of each factor and the comparisons one wishes to make.

4.4 The Effects and the Dummy Coding

Consider again the analytical design of Table MIV-1, and examine the nature of the desired comparisons. The sponsorship is defined at five levels: S_1, S_2, S_3, S_4 and S_0; sex is a dichotomy -- male and female; and preschool experience is also a dichotomy -- some and none. The sponsorship levels are not equally important--whereas S_1 through S_4 represent the variations on sponsorship, S_0 is a control group in that it is comprised of all non-Follow Through pupils for each of these sponsors. Thus, the only meaningful comparisons are those between S_i and S_0 (i = 1, 2, 3, and 4). For sex and preschool experience, however, such is not the case: one is equally interested between males and females, and also between some preschool experience and none. If we accept this logic, then sex and preschool should be effects-coded--1/2 at one level and -1/2 at another level. Thus, the resultant mixed coding scheme is defined as follows.

$$(51) \qquad X_i = \begin{cases} 1 & \text{for observations with Sponsor i,} \\ 0 & \text{otherwise.} \end{cases}$$

The sponsorship control group (S_0) is determined by $X_1 = X_2 = X_3 = X_4 = 0$ simultaneously. The preschool experience is defined by X_5, where,

$$(52) \qquad X_5 = \begin{cases} 1/2 & \text{for those with preschool experience,} \\ -1/2 & \text{for others.} \end{cases}$$

The sex predictor, X_6, is defined to be:

$$(53) \qquad X_6 = \begin{cases} 1/2 & \text{for males} \\ -1/2 & \text{for females}. \end{cases}$$

The interaction between sponsorship and preschool experience is carried by four predictors, X_7 through X_{10}, where for i = 1, 2, 3, 4, $X_{i+6} = X_i \cdot X_5$. The interaction between sponsorship and sex is carried by X_{11} through X_{15}, where $X_{i+10} = X_i \cdot X_6$. Similarly, $X_{15} = X_5 \cdot X_6$ represents the preschool x sex interaction. The three-factor interaction (sponsor x preschool x sex) is determined by X_{16} through X_{19} where $X_{i+15} = X_i \cdot X_5 \cdot X_6$. The resultant coding scheme is shown in Table MIV-4. Note that the sponsorship coding corresponds to that in Table MIV-3, the sex and preschool coding matches with the appropriate columns of Table MIV-2, and the interaction predictors combine the results of both tables. The b-weights interpretation follows.

$$(54) \quad \begin{cases} b_0 = \overline{\overline{dY}}_{0..} \\ b_i = \overline{\overline{dY}}_{i..} - \overline{\overline{dY}}_{0..} \qquad (i = 1,\ 2,\ 3,\ \text{and } 4) \\ b_5 = \overline{\overline{dY}}_{0.1} - \overline{\overline{dY}}_{0.0} \\ b_6 = \overline{\overline{dY}}_{01.} - \overline{\overline{dY}}_{00.} \\ b_{i+6} = \overline{\overline{dY}}_{i.1} - \overline{\overline{dY}}_{i.0} - (\overline{\overline{dY}}_{0.1} - \overline{\overline{dY}}_{0.0}) \\ b_{i+11} = \overline{\overline{dY}}_{i1.} - \overline{\overline{dY}}_{i0.} - (\overline{\overline{dY}}_{01.} - \overline{\overline{dY}}_{00.}) \\ b_{15} = \overline{dY}_{0,1,1} - \overline{dY}_{0,1,0} - (\overline{dY}_{0,0,1} - \overline{dY}_{0,0,0}) \\ b_{i+15} = \overline{dY}_{i,1,1} - \overline{dY}_{i,1,0} - (\overline{dY}_{i,0,1} - \overline{dY}_{i,0,0}) \\ \qquad - [\, \overline{dY}_{0,1,1} - \overline{dY}_{0,1,0} - (\overline{dY}_{0,0,1} - \overline{dY}_{0,0,0}) \,]. \end{cases}$$

Note that these results combine the properties associated with both the dummy- and effects-coded schemes. For instance, b_0 is the mean of the (dummy-coded) sponsorship reference group averaged over the (effects-coded)

TABLE MIV-4: A Mixed Coding Scheme for Table MIV-1 Data

GROUPS	← PREDICTORS →																		
	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}	X_{16}	X_{17}	X_{18}	X_{19}
S_1^{MP}	1	0	0	0	½	½	½	0	0	0	½	0	0	0	¼	¼	0	0	0
S_1^{MN}	1	0	0	0	-½	½	-½	0	0	0	½	0	0	0	-¼	-¼	0	0	0
S_1^{FP}	1	0	0	0	½	-½	½	0	0	0	-½	0	0	0	-¼	-¼	0	0	0
S_1^{FN}	1	0	0	0	-½	-½	-½	0	0	0	-½	0	0	0	¼	¼	0	0	0
S_2^{MP}	0	1	0	0	½	½	0	½	0	0	0	½	0	0	¼	0	¼	0	0
S_2^{MN}	0	1	0	0	-½	½	0	-½	0	0	0	½	0	0	-¼	0	-¼	0	0
S_2^{FP}	0	1	0	0	½	-½	0	½	0	0	0	-½	0	0	-¼	0	-¼	0	0
S_2^{FN}	0	1	0	0	-½	-½	0	-½	0	0	0	-½	0	0	¼	0	¼	0	0
S_3^{MP}	0	0	1	0	½	½	0	0	½	0	0	0	½	0	¼	0	0	¼	0
S_3^{MN}	0	0	1	0	-½	½	0	0	-½	0	0	0	½	0	-¼	0	0	-¼	0
S_3^{FP}	0	0	1	0	½	-½	0	0	½	0	0	0	-½	0	-¼	0	0	-¼	0
S_3^{FN}	0	0	1	0	-½	-½	0	0	-½	0	0	0	-½	0	¼	0	0	¼	0
S_4^{MP}	0	0	0	1	½	½	0	0	0	½	0	0	0	½	¼	0	0	0	¼
S_4^{MN}	0	0	0	1	-½	½	0	0	0	-½	0	0	0	½	-¼	0	0	0	-¼
S_4^{FP}	0	0	0	1	½	-½	0	0	0	½	0	0	0	-½	-¼	0	0	0	-¼
S_4^{FN}	0	0	0	1	-½	-½	0	0	0	-½	0	0	0	-½	¼	0	0	0	¼
S_0^{MP}	0	0	0	0	½	½	0	0	0	0	0	0	0	0	¼	0	0	0	0
S_0^{MN}	0	0	0	0	-½	½	0	0	0	0	0	0	0	0	-¼	0	0	0	0
S_0^{FP}	0	0	0	0	½	-½	0	0	0	0	0	0	0	0	-¼	0	0	0	0
S_0^{FN}	0	0	0	0	-½	-½	0	0	0	0	0	0	0	0	¼	0	0	0	0

sex and preschool predictors. For i = 1 through 4, b_1 determines the extent to which (averaged over the effects-coded sex and preschool experience predictors) the Sponsor influence is better (worse) than the control group. The pair of b-weights, b_5 and b_6, estimate the preschool effect and sex effect respectively within the control Sponsor. The interaction term, b_{i+6}, is a difference of two differences: that between having some preschool and none (averaged over sex) for Sponsor S_i and the corresponding difference for the control group; b_{i+11} provides a similar interpretation of Sponsor x sex interaction. The next b-weight, b_{15}, estimates the preschool x sex interaction within the control Sponsor. Finally, b_{i+15} represents an aspect of the triple interaction.

As before, one can represent other contrasts of interest by suitable combination of the multiple regression b's. For example, the AV main effect of preschool experience, $\overline{\overline{dY}}_{..1} - \overline{\overline{dY}}_{..0}$, is estimated to be $b_5 + \frac{1}{5}\sum b_{i+6}$; the corresponding main effect for sex is $b_6 + \frac{1}{5}\sum b_{i+11}$. (One does not need to look for the AV main effect of sponsorship--if we were interested, we would have employed the effects coding scheme.) Finally, the AV preschool x sex interaction $\overline{\overline{dY}}_{.1,1} - \overline{\overline{dY}}_{.1,0} - \overline{\overline{dY}}_{.0,1} + \overline{\overline{dY}}_{.0,0}$ is estimated to be: $b_{15} + \frac{1}{5}\sum b_{i+15}$.

As we had indicated at the beginning of this section on the nominal coding schemes, any nominal scheme can be used for representing the research research factors of interest. It is important to remember that, depending on the comparisons to be made, some schemes are more convenient than others. One more coding scheme is presented below.

4.5 The Orthogonal Contrasts Coding Scheme

In either the dummy coding scheme, or the effects coding scheme (with more than two levels) presented earlier, the predictors representing different levels of the same research factor (e.g., the sponsorship) are negatively correlated--even if the design is a balanced one. Consequently, $\hat{R}^2_{Y\cdot 12...k} \neq r^2_{y1} + ... + r^2_{yk}$. If such an equality is desirable for some research purposes, one must devise an orthogonal set of contrasts for jointly representing the different levels of each factor. Specifically, assume that a research factor appears at m distinct levels, and that X_1, ..., X_{m-1} denote the corresponding set of predictors. Also, let $X_{i,g}$ denote the "value" of X_i ($i = 1, 2, ..., m - 1$) for all observations in the group g ($g = 1, 2, ..., m$). Then the predictor set, X_1, ..., X_{m-1} constitutes an orthogonal set of contrasts if and only if:

1. Each predictor is a contrast, i.e., $\sum_{g=1}^{m} X_{ig} = 0$ for each of the m - 1 predictors.
2. The coefficient vectors of any pair of distinct predictors are orthogonal to each other, i.e., for $1 \leq i \neq j \leq m - 1$; $X_i \odot X_j = \sum_{g=1}^{m} X_{ig} X_{jg} = 0$.

If there is an equal number of observations in each group, then it follows that 1) each predictor has zero mean ($\overline{X}_i = 0$), and that 2) any two distinct predictors are uncorrelated in the data ($r_{ij} = 0$), so that corresponding effects can be independently assessed. Note also that in this coding scheme, no group serves as a "reference group." Whereas it is relatively easy to create these sets as the need arises, the rules for creating the sets are difficult to explain. Consequently, Table MIV-5 shows the sets of orthogonal contrasts for m = 2 through m = 11 levels of a research factor. These sets are not found in the usual textbooks on statistics or experimental design. Note that except when m = 2, the corresponding b-weights do not equal the AV main effects.

Relevance to the Evaluation of the Follow Through Effects. In the January report cited earlier, the Follow Through effect as represented by the Follow Through/non-Follow Through contrast is assumed to be nested within sponsorship. A coding scheme (see Table C.1.2 of that report for related substantive issues) employed in that report is presented again in Table MIV-6. It generalizes the notion of the orthogonal contrasts to the case of two research factors. There are six Sponsors, S_1 through S_6,[4] and each one of these administers a Follow Through/non-Follow Through contrast. Consequently there are 6 x 2 = 12 observation groups and 12 - 1 = 11 non-redundant nominal predictors to represent the group memberships. For

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[4] The Sponsor numbers used here do not correspond to the January scheme.

$i = 1$ through 11 and for $g = 1$ through 12, let X_{ig} denote the coefficient of X_i in the g^{th} group. Then it can be verified that the predictors X_1 through X_{11} constitute an orthogonal contrast coding scheme.

1. Each predictor is a contrast, i.e., $\sum_{g=1}^{12} X_{ig} = 0$.
2. The coefficient vectors are orthogonal, i.e., for $1 \leq i \neq j \leq 11$,

$$X_i \odot X_j = \sum_{g=1}^{12} X_{ig} \cdot X_{jg} = 0.$$

These two properties together imply that <u>in a balanced design</u> (equal number of observations in each of the twelve groups), 1) each predictor has zero mean ($\overline{X}_i = 0$) in the data, and 2) each pair of distinct predictors is uncorrelated in the data.

The "nestedness" of the design is inferred from the following facts: 1) there are as many predictors to represent the "Follow Through/non-Follow Through" effect as there are Sponsors (= 6 in Table MI-6), and 2) there are no predictors to represent the Follow Through/non-Follow Through x sponsor interaction. The predictors X_7 through X_{11} are coded in such a way that their coefficient vectors are orthogonal to each other as well as to the coefficient vectors of X_1 through X_6. The predictors X_7 through X_{11} can be used to estimate the traditional main effects of sponsorship, though with some difficulty since the b-weights do not equal these main effects. One rationale for not doing this in the January report may be summarized as follows. One could consider the Sponsors to be the "blocks" within which Follow Through/non-Follow Through is a "treatment." In this conceptual framework, one is rarely interested in the effect of blocks; the blocking explains away the unintended Y-variations and the analyst can then concentrate on the treatment effects (within blocks). This reasoning becomes even more pertinent when the blocks represent the geographical regions.

<u>Interpretation of b-weights in the design of Table 6</u>. With the now familiar linear model, $\widehat{dY} = b_0 + b_1X_1 + \ldots + b_{11}X_{11}$, and the usual estimation method for the full model: $\widehat{dY}$ (grou) = $\overline{dY}$ (group), one can interpret the b-weights as follows. (See equation 55).

TABLE MIV-5:

Sets of Coefficients for Nominal Predictors

(m = number of levels of a research factor)

m = 2

1
-1

m = 3

1	1
-1	1
0	-2

m = 4

1	1	1
1	-1	-1
-1	1	-1
-1	-1	1

m = 5

1	1	1	1
1	-1	-1	1
-1	1	-1	1
-1	-1	1	1
0	0	0	-4

m = 6

1	1	1	1	1
1	-1	-1	1	1
1	0	0	-2	-2
-1	1	-1	1	-1
-1	-1	1	1	-1
-1	0	0	-2	2

m = 7

1	1	1	1	1	-1
1	-1	-1	1	1	-1
1	0	0	-2	-2	-1
0	0	0	0	0	6
-1	1	-1	1	-1	-1
-1	-1	1	1	-1	-1
-1	0	0	-2	2	-1

m = 8

1	1	1	1	1	1	1
1	1	-1	-1	1	-1	-1
1	-1	-1	-1	-1	1	1
1	-1	1	1	-1	-1	-1
-1	1	-1	1	-1	-1	1
-1	1	1	-1	-1	1	-1
-1	-1	1	-1	1	-1	1
-1	-1	-1	1	1	1	-1

m = 9

1	1	1	1	1	1	1	1
1	1	-1	1	-1	-1	-1	1
1	-1	1	-1	1	-1	-1	1
1	-1	-1	-1	-1	1	1	1
0	0	0	0	0	0	0	-8
-1	1	1	-1	-1	1	-1	1
-1	1	-1	-1	1	-1	1	1
-1	-1	1	1	-1	-1	1	1
-1	-1	-1	1	1	1	-1	1

m = 10

1	1	1	1	1	1	1	1	1
1	-1	-1	1	1	1	1	-1	-1
1	1	1	-1	-1	1	1	-1	-1
1	-1	-1	-1	-1	1	1	1	1
1	0	0	0	0	-4	-4	0	0
-1	0	0	0	0	-4	4	0	0
-1	1	-1	1	-1	1	-1	1	-1
-1	-1	1	1	-1	1	-1	-1	1
-1	1	-1	-1	1	1	-1	-1	1
-1	-1	1	-1	1	1	-1	1	-1

m = 11

1	1	1	1	1	1	1	1	1	1
1	1	1	-1	-1	-1	-1	1	1	1
1	-1	-1	1	1	-1	-1	1	1	1
1	-1	-1	-1	-1	1	1	1	1	1
1	0	0	0	0	0	0	-4	-4	1
0	0	0	0	0	0	0	0	0	-10
-1	0	0	0	0	0	0	-4	4	1
-1	1	-1	1	-1	-1	1	1	-1	1
-1	1	-1	-1	1	1	-1	1	-1	1
-1	-1	1	1	-1	1	-1	1	-1	1
-1	-1	1	-1	1	-1	1	1	-1	1

TABLE MIV-6: <u>A Contrast-Coding Scheme for a Nested Design</u>

PREDICTORS GROUPS		X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}
S_1	FT	½	0	0	0	0	0	1	0	-2	0	2
	NFT	-½	0	0	0	0	0	1	0	-2	0	2
S_2	FT	0	½	0	0	0	0	1	1	1	1	-1
	NFT	0	-½	0	0	0	0	1	1	1	1	-1
S_3	FT	0	0	½	0	0	0	1	-1	1	-1	-1
	NFT	0	0	-½	0	0	0	1	-1	1	-1	-1
S_4	FT	0	0	0	½	0	0	-1	0	-2	0	-2
	NFT	0	0	0	-½	0	0	-1	0	-2	0	-2
S_5	FT	0	0	0	0	½	0	-1	1	1	-1	1
	NFT	0	0	0	0	-½	0	-1	1	1	-1	1
S_6	FT	0	0	0	0	0	½	-1	-1	1	1	1
	NFT	0	0	0	0	0	-½	-1	-1	1	1	1

$$
(55)\quad \left\{
\begin{array}{rcl}
b_0 & = & \overline{\overline{dY}}_{..} \\
b_i & = & \overline{dY}_{i1} - \overline{dY}_{10} \quad (i = 1, 2, \ldots, 6) \\
6\,b_7 & = & \overline{\overline{dY}}_{1.} + \overline{\overline{dY}}_{2.} + \overline{\overline{dY}}_{3.} - \overline{\overline{dY}}_{4.} - \overline{\overline{dY}}_{5.} - \overline{\overline{dY}}_{6.} \\
4\,b_8 & = & \overline{\overline{dY}}_{2.} - \overline{\overline{dY}}_{3.} + \overline{\overline{dY}}_{5.} - \overline{\overline{dY}}_{6.} \\
8\,b_9 & = & \overline{\overline{dY}}_{1.} + \overline{\overline{dY}}_{2.} + \overline{\overline{dY}}_{3.} - \overline{\overline{dY}}_{4.} + \overline{\overline{dY}}_{5.} + \overline{\overline{dY}}_{6.} \\
4\,b_{10} & = & \overline{\overline{dY}}_{2.} - \overline{\overline{dY}}_{3.} - \overline{\overline{dY}}_{5.} + \overline{\overline{dY}}_{6.} \\
8\,b_{11} & = & \overline{\overline{dY}}_{1.} - \overline{\overline{dY}}_{2.} - \overline{\overline{dY}}_{3.} - \overline{\overline{dY}}_{4.} + \overline{\overline{dY}}_{5.} + \overline{\overline{dY}}_{6.}
\end{array}
\right.
$$

It follows that b_0 through b_6 have usual AV interpretations, but that b_7 through b_{11} do not correspond to the traditional main effects of sponsorships. This is a consequence of the coding scheme used. Whereas the latter quantities can be obtained as the linear combinations of b_0, b_7 through b_{11}, these are not of much interest when the Sponsors are considered to be "blocks."

SECTION V

APPENDIX TABLES

Table A III - 1

GEOGRAPHIC DIVISIONS OF THE UNITED STATES[1]

Northeast

Connecticut
Maine
Massachusetts
New Hampshire
New Jersey
New York
Pennsylvania
Rhode Island
Vermont

North Central

Illinois
Indiana
Iowa
Kansas
Michigan
Minnesota
Missouri
Nebraska
North Dakota
Ohio
South Dakota
Wisconsin

South

Alabama
Arkansas
Delaware
Florida
Georgia
Kentucky
Louisiana
Maryland
Mississippi
North Carolina
Oklahoma
South Carolina
Tennessee
Texas
Virginia
West Virginia

West

Arizona
California
Colorado
Idaho
Montana
Nevada
New Mexico
Oregon
Utah
Washington
Wyoming

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[1] U.S. Department of Commerce, Bureau of the Census.

TABLE A VII - 1

VARIANCE PARTITIONS
251 Schools, Excluding Big Cities

STATISTIC	CRITERION VARIABLE Y							
	WRAT	MAT			GUMP-GOOKIES	LOCUS OF CONTROL		ABSENCE
		Listening	Reading	Numbers		Positive	Negative	
$R^2_{Y\cdot A}$	.55448	.39480	.41458	.41313	.19136	.42730	.09078	.38924
$R^2_{Y\cdot B}$	.11717	.15107	.10835	.18036	.08022	.02749	.02966	.03088
$R^2_{Y\cdot C}$	.01346	.00040	.00923	.00493	.03170	.00076	.00419	.00310
$R^2_{Y\cdot D} = R^2_{Y\cdot F}$	.11159	.16937	.10633	.11058	.26383	.07334	.03961	.14707
$R^2_{Y\cdot AB}$	.59701	.48481	.45346	.50629	.27771	.44453	.11863	.40324
$R^2_{Y\cdot AC}$	.57292	.39614	.42812	.41737	.24669	.42747	.09591	.40118
$R^2_{Y\cdot AD} = R^2_{Y\cdot AF}$	.60652	.52777	.50553	.47830	.44168	.44938	.12850	.45069
$R^2_{Y\cdot BC} = R^2_{Y\cdot E}$	.12854	.15197	.11486	.18671	.09314	.02751	.03517	.03801
$R^2_{Y\cdot BD}$	.23344	.31403	.21324	.28423	.33761	.10215	.06850	.18217
$R^2_{Y\cdot CD}$	.12639	.17066	.11705	.11539	.29836	.07356	.04495	.51300
$R^2_{Y\cdot ABC} = R^2_{Y\cdot AE}$	.62163	.49144	.46961	.51881	.31103	.44721	.12798	.42175
$R^2_{Y\cdot ABD}$	.64410	.60069	.53631	.56162	.50371	.46539	.15257	.46317
$R^2_{Y\cdot ACD}$	.62614	.52847	.51760	.48314	.48128	.44943	.13268	.46505
$R^2_{Y\cdot BCD} = R^2_{Y\cdot EF}$	.24685	.31577	.22109	.29110	.35288	.10249	.07556	.19173
$R^2_{Y\cdot ABCD} = R^2_{Y\cdot AEF}$	.66936	.60511	.54979	.57548	.52920	.46742	.16107	.48362

KEY TO PREDICTOR VARIABLE SETS:

Factorial Analysis
- A: 11 covariables
- B: 9 within-sponsor effects
- C: 1 main effect of FT
- D: 9 sponsor contrasts

Nested Analysis
- E: 10 FT effects within sponsors
- F: 9 sponsor contrasts

TABLE A VII - 2

VARIANCE PARTITIONS

288 Schools, Including Big Cities

STATISTIC	CRITERION VARIABLE Y							
	WRAT	MAT			GUMP-GOOKIES	LOCUS OF CONTROL		ABSENCE
		Listening	Reading	Numbers		Positive	Negative	
$R^2_{Y \cdot A}$	.54502	.38107	.40863	.39603	.18969	.41484	.09089	.34536
$R^2_{Y \cdot B}$	.09534	.12888	.08930	.16774	.05344	.02769	.02502	.00991
$R^2_{Y \cdot C}$	.00930	.00005	.00659	.00685	.03828	.00351	.00152	.00231
$R^2_{Y \cdot D} = R^2_{Y \cdot F}$	.15616	.17944	.14624	.13760	.11404	.07787	.03733	.15342
$R^2_{Y \cdot AB}$	.58180	.46455	.44627	.49347	.24432	.43362	.11519	.35835
$R^2_{Y \cdot AC}$	.55211	.38110	.41377	.39822	.23781	.41496	.09538	.34757
$R^2_{Y \cdot AD} = R^2_{Y \cdot AF}$	.61206	.49592	.50158	.48021	.38195	.44428	.13082	.42276
$R^2_{Y \cdot BC} = R^2_{Y \cdot E}$	.10252	.12928	.09379	.17737	.07820	.02896	.02811	.01371
$R^2_{Y \cdot BD}$	.24979	.30304	.23038	.29459	.16511	.10499	.06109	.16519
$R^2_{Y \cdot CD}$	.16646	.18011	.15402	.14412	.15415	.08086	.03915	.15586
$R^2_{Y \cdot ABC} = R^2_{Y \cdot AE}$	.58233	.46530	.45163	.50061	.27932	.43390	.12389	.36156
$R^2_{Y \cdot ABD}$	.64622	.57187	.53403	.56884	.42767	.46151	.15302	.43805
$R^2_{Y \cdot ACD}$	.62125	.49592	.50771	.48457	.42184	.44447	.13609	.42556
$R^2_{Y \cdot BCD} = R^2_{Y \cdot EF}$	.25878	.30457	.23641	.30496	.19252	.10571	.06497	.16997
$R^2_{Y \cdot ABCD} = R^2_{Y \cdot AEF}$	.65730	.57296	.54025	.57997	.45764	.46175	.16377	.44256

KEY TO PREDICTOR VARIABLE SETS:

Factorial Analysis
- A: 11 covariables
- B: 9 within-sponsor effects
- C: 1 main effect of FT
- D: 9 sponsor contrasts

Nested Analysis
- E: 10 FT effects within sponsors
- F: 9 sponsor contrasts

TABLE A VII - 3
F-STATISTICS FOR FOLLOW THROUGH MAIN EFFECTS AND WITHIN-SPONSOR EFFECTS
251 Schools, Excluding Big Cities

PREDICTOR SET		CRITERION VARIABLE							
		WRAT	MAT			GUMP-GOOKIES	LOCUS OF CONTROL		ABSENCE
			Listening	Reading	Numbers		Positive	Negative	
A: 11 covariables	F	27.0411	14.1737	15.3867	15.2950	5.1416	16.2110	2.1693	13.8469
	df	11,239	11,239	11,239	11,239	11,239	11,239	11,239	11,239
C: Main Effect, Unadjusted	F	4.1130	0.5874	2.3281	2.2386	5.4509	0.0875	1.7642	2.7322
	df	1,231	1,231	1,231	1,231	1,231	1,231	1,231	1,231
C: Main Effect, Adjusted	F	16.8074	2.4625	6.5872	7.1827	11.9112	0.8386	2.2290	8.7126
	df	1,220	1,220	1,220	1,220	1,220	1,220	1,220	1,220
E: Sponsor Effects, Adjusted	F	4.1486	4.9426	3.4034	5.8824	3.1788	0.7503	0.8983	1.2764
	df	10,231	10,231	10,231	10,231	10,231	10,231	10,231	10,231
E: Sponsor Effects, Unadjusted	F	4.1812	4.3087	2.1628	5.0362	4.0897	0.7452	0.8541	1.4030
	df	10,220	10,220	10,220	10,220	10,220	10,220	10,220	10,220
BCD = EF: Complete Analysis, Unadjusted	F	3.9848	5.6108	3.4510	4.9925	6.6298	1.3884	0.9937	2.8840
	df	19,231	19,231	19,231	19,231	19,231	19,231	19,231	19,231
ABCD = AEF: Complete Analysis, Adjusted	F	14.8459	11.2372	8.9553	9.9411	8.2430	6.4361	1.4080	6.8681
	df	30,220	30,220	30,220	30,220	30,220	30,220	30,220	30,220

TABLE A VII - 4

F-STATISTICS FOR FOLLOW THROUGH MAIN EFFECTS
AND WITHIN-SPONSOR EFFECTS
288 Schools, Including Big Cities

PREDICTOR SET		CRITERION VARIABLE							
		WRAT	MAT			GUMP-COOKIES	LOCUS OF CONTROL		ABSENCE
			Listening	Reading	Numbers		Positive	Negative	
A: 11 covariables	F	30.0564	15.4483	17.3375	16.4524	5.8737	17.7878	2.5085	13.2369
	df	11,276	11,276	11,276	11,276	11,276	11,276	11,276	11,276
C: Main Effect, Unadjusted	F	3.2505	0.5896	2.1164	3.9986	9.0973	0.2158	1.1121	1.5434
	df	1,268	1,268	1,268	1,268	1,268	1,268	1,268	1,268
C: Main Effect, Adjusted	F	8.3092	0.6560	3.4770	6.8100	14.2014	0.1146	3.3038	2.0793
	df	1,257	1,257	1,257	1,257	1,257	1,257	1,257	1,257
E: Sponsor Effects, Adjusted	F	3.7104	4.8222	3.1647	6.4532	2.6047	0.8343	0.7922	0.5344
	df	10,268	10,268	10,268	10,268	10,268	10,268	10,268	10,268
E: Sponsor Effects, Unadjusted	F	3.3927	4.6364	2.1617	6.1039	3.5866	0.8342	1.0127	0.9129
	df	10,257	10,257	10,257	10,257	10,257	10,257	10,257	10,257
BCD = EF: Complete Analysis, Unadjusted	F	4.9245	6.1775	4.3670	6.1889	3.3630	1.6673	0.9801	2.8884
	df	19,268	19,268	19,268	19,268	19,268	19,268	19,268	19,268
ABCD = AEF: Complete Analysis, Adjusted	F	16.4309	11.4939	10.0667	11.8287	7.2285	7.3491	1.6777	6.8012
	df	30,257	30,257	30,257	30,257	30,257	30,257	30,257	30,257

Table A VIII-1

CHILD STUDY

SUMMARY OF EFFECTS
FT/NFT
Predictor
Predictor by FT/NFT

Predictor = Preschool Experien.

Outcome Variable									
	WRAT	MAT-READ	MAT-MATH	MAT-LISTENING	PPVT	GUMP	Locus of Control		ABSENCE
							Positive	Negative	
FT-NFT Effect d.f. = 1,3555									
sr_C^2	.0029	.0046	.0017	.0004	.0004	.0008	.0000	.0006	.0001
$R^2_{Y.MAIN}$	.5574	.3348	.3621	.3082	.5156	.0574	.1172	.0264	.0807
F	23.2927	24.5835	9.4737	2.0555	2.9354	3.0171	.0000	2.1906	0.3864
P	.005	.005	.005	NS	NS	NS	NS	NS	NS
Predictor d.f. = 2,3555									
sr_A^2	.0592	.0304	.0305	.0277	.0891	.0080	.0096	.0016	.0001
$R^2_{Y.MAIN}$	.5574	.3348	.3621	.3082	.5156	.0574	.1172	.0264	.0807
F	237.7497	81.2326	84.9878	71.1718	326.9512	15.0858	19.3292	2.9210	0.1932
P	.005	.005	.005	.005	.001	.005	.005	NS	NS
Predictor by FT/NFT d.f. = 2,3526									
sr_E^2	.00004	.0008	.0001	.0008	.0003	.0007	.0003	.00002	.0001
$R^2_{Y.2\ WAYS}$	.5715	.3549	.3912	.3295	.5227	.0666	.1264	.0317	.0881
F	0.1645	2.1863	0.2895	2.1034	1.1080	1.3221	0.6054	0.0363	0.1932
P	NS	NS	NS	NS	NS	NS	NS	NS	NS

FACTORS:

COV See list of covariates discussed in the Measures section of the Head Start chapter.

A Predictor = Preschool Experience

B Sponsor = 2,3,5,7,8,9,10,11,12,14

C FT/NFT

D Predictor by Sponsor

E Predictor by FT/NFT

F Sponsor by FT/NFT

G Predictor by Sponsor by FT/NFT

$$sr_C^2 = R^2_{Y\cdot cov\ ABC} - R^2_{Y.cov\ AB}$$

$$R^2_{Y\cdot MAINS} = R^2_{Y\cdot cov\ ABC}$$

$$sr_A^2 = R^2_{Y\cdot cov\ ABC} - R^2_{Y\cdot cov\ BC}$$

$$R^2_{Y\cdot 2\ WAYS} = R^2_{Y\cdot cov\ ABCDEF}$$

$$sr_E^2 = R^2_{Y\cdot cov\ ABCDEF} - R^2_{Y\cdot cov\ ABCDF}$$

sr^2 represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table A VIII-1 (cont'd.)

CHILD STUDY

SUMMARY OF EFFECTS

Sponsor X FT/NFT

Predictor X Sponsor X FT/NFT

Predictor = Preschool Experience

Outcome Variable									
	WRAT	MAT-READ	MAT-MATH	MAT-LISTENING	PPVT	GUMP	Locus of Control		ABSENCE
							Positive	Negative	
Sponsor by FT/NFT d.f. = 9,3526									
sr^2_F	.0085	.0095	.0219	.0132	.0035	.0031	.0029	.0015	.0022
$R^2_{Y.2\ WAYS}$	.5715	.3549	.3912	.3295	.5227	.0666	.1264	.0317	.0881
F	7.7720	5.7698	14.0940	7.7133	2.8730	1.3012	1.3006	0.6069	0.9452
P	.005	.005	.005	.005	.01	NS	NS	NS	NS
Predictor by Sponsor by FT/NFT d.f. = 18,3508									
sr^2_G	.0038	.0053	.0068	.0053	.0020	.0021	.0036	.0036	.0036
$R^2_{Y.TOTAL}$	.5753	.3602	.3980	.3348	.5247	.0687	.1300	.0353	.0916
F	1.7438	1.6145	2.2015	1.5529	0.8200	0.4395	0.8065	0.7273	0.7724
P	.05	.05	.01	.10	NS	NS	NS	NS	NS

FACTORS:

COV	See list of covariates discussed in the <u>Measures</u> section of the *Head Start* chapter.	
A	Predictor = Preschool Experience	$sr^2_F = R^2_{Y \cdot cov\ ABCDEF} - R^2_{Y \cdot cov\ ABCDE}$
B	Sponsor = 2,3,5,7,8,9,10,11,12,14	
C	FT/NFT	$R^2_{Y \cdot 2\ WAYS} = R^2_{Y \cdot cov\ ABCDEF}$
D	Predictor by Sponsor	
E	Predictor by FT/NFT	$sr^2_G = R^2_{Y \cdot cov\ ABCDEFG} - R^2_{Y \cdot cov\ ABCDEF}$
F	Sponsor by FT/NFT	$R^2_{Y \cdot TOTAL} = R^2_{Y \cdot cov\ ABCDEFG}$
G	Predictor by Sponsor by FT/NFT	

sr^2 represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

[illegible]

CHILD STUDY
SUMMARY OF EFFECTS*

FT/NFT
Sponsor X FT/NFT
Predictor X Sponsor X FT/NFT

Predictor = Ethnicity

* Adjusted for all covariates using a reliability of .80 for the psychometric covariate

	Outcome Variable								
	WRAT	MAT-READ	MAT-MATH	MAT-LISTENING	PPVT	GUMP	Locus of Control		ABSE
							Positive	Negative	
FT/NFT Effect d.f. = 1, 3807									
sr_C^2	.00263	.00337	.00141	.00027	.00027	.00065	.00001	.00064	.00
$R^2_{Y \cdot MAIN}$	.56359	.32915	.35594	.29723	.51400	.05583	.11376	.02495	.07
F	22.9426	19.12437	8.33442	1.4626	2.1159	2.6208	.0429	2.4988	.82
P	.005	.005	.005	NS	NS	NS	NS	NS	NS
Sponsor by FT/NFT Interaction d.f. = 9, 3789									
sr_F^2	.00461	.00595	.01951	.01394	.00333	.00202	.00322	.00191	.00
$R^2_{Y \cdot 2\ WAYS}$	.57513	.34002	.38591	.31548	.52381	.06661	.12093	.03010	.08
F	4.5669	3.7945	13.3721	8.5712	2.9458	.9108	1.5417	.8288	.87
P	.005	.005	.005	.005	.10	NS	NS	NS	NS
Predictor by Sponsor by FT/NFT Interaction d.f. = 9, 3779									
sr_G^2	.00708	.00275	.00455	.00364	.00363	.00269	.00214	.00239	.00
$R^2_{Y \cdot TOTAL}$	.58221	.34277	.39046	.31912	.52744	.06930	.12307	.03249	.08
F	7.1532	1.7569	3.1343	2.2447	3.2264	.7624	1.0246	1.0372	1.53
P	.005	.10	.005	.025	.01	NS	NS	NS	NS

FACTORS

COV	See list of covariates discussed in the Measures section of the Head Start chapter.
A	Predictor = Ethnicity
B	Sponsor = 2,3,5,7,8,9,10,11,12,14
C	FT/NFT
D	Predictor by Sponsor
E	Predictor by FT/NFT
F	Sponsor by FT/NFT
G	Predictor by Sponsor by FT/NFT

$$sr_C^2 = R^2_{Y \cdot cov\ ABC} - R^2_{Y \cdot cov\ AB}$$

$$R^2_{Y \cdot MAIN} = R^2_{Y \cdot cov\ ABC}$$

$$sr_F^2 = R^2_{Y \cdot cov\ ABCDEF} - R^2_{Y \cdot cov\ ABCDE}$$

$$R^2_{Y \cdot 2\ WAYS} = R^2_{Y \cdot cov\ ABCDEF}$$

$$sr_G^2 = R^2_{Y \cdot cov\ ABCDEFG} - R^2_{Y \cdot cov\ ABCDEF}$$

$$R^2_{Y \cdot TOTAL} = R^2_{Y \cdot cov\ ABCDEFG}$$

sr^2 represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table AVIII-3

CHILD STUDY
SUMMARY OF EFFECT

FT/NFT
Sponsor X FT/NFT
Predictor X Sponsor X FT/NFT

Predictor = Sex *

* Adjusted for all covariates using a reliability of .80 for the psychometric covariate

	Outcome Variable								
	WRAT	MAT-READ	MAT-MATH	MAT-LISTENING	PPVT	GUMP	Locus of Control		ABSENCE
							Positive	Negative	
Sex Main Effect d.f. = 1,3807									
sr_A^2	.00123	.00011	.00296	.00013	.00085	.00116	.00103	.00024	.00077
$R^2_{Y\cdot MAIN}$	.56455	.32777	.35714	.29604	.51336	.05756	.11111	.02543	.07232
F	10.7533	0.6228	17.5289	.7078	6.6493	4.6857	4.4112	.9373	3.1598
P	.005	NS	.005	NS	.01	.05	.05	NS	NS
FT/NFT Main Effect d.f. = 1, 3807									
sr_C^2	.00301	.00382	.00190	.00042	.00092	.00067	.00005	.00063	.00017
$R^2_{Y\cdot MAIN}$	.56455	.32777	.35714	.29604	.51336	.05756	.11111	.02543	.07232
F	26.3154	21.6335	11.2517	2.2713	7.1972	2.7065	.21414	2.4609	.6976
P	.005	.005	.005	NS	.01	NS	NS	NS	NS
Sponsor by FT/NFT Interaction d.f. = 9,3788									
sr_F^2	.00723	.00732	.02231	.01475	.00360	.00235	.00257	.00186	.00160
$R^2_{Y\cdot 2\ WAYS}$	.57436	.33691	.38215	.31220	.51819	.06219	.11632	.03109	.07552
F	7.1492	4.6462	15.1979	9.0269	3.1448	1.0549	1.2244	.8082	.7286
P	.005	.005	.005	.005	.005	NS	NS	NS	NS
Predictor by Sponsor by FT/NFT Interaction d.f. = 9, 3779									
sr_G^2	.00139	.00174	.00137	.00292	.0093	.00292	.00199	.00138	.00076
$R^2_{Y\cdot TOTAL}$	.57575	.33865	.38352	.31512	.51912	.06511	.11831	.03247	.07628
F	1.3761	1.1050	.9334	1.7907	.8123	1.3118	.9479	.5991	.3455
P	NS	NS	NS	NS	NS	NS	NS	NS	NS

FACTORS:

COV See list of covariates discussed in the Measures section of the Head Start chapter.

A	Predictor = Sex	$sr_A^2 = R^2_{Y\cdot cov\ ABC} - R^2_{Y\cdot cov\ BC}$
B	Sponsor = 2,3,5,7,8,9,10,11,12,14	$sr_C^2 = R^2_{Y\cdot cov\ ABC} - R^2_{Y\cdot cov\ AB}$
C	FT/NFT	$R^2_{Y\cdot MAIN} = R^2_{Y\cdot cov\ ABC}$
D	Predictor by Sponsor	$sr_F^2 = R^2_{Y\cdot cov\ ABCDEF} - R^2_{Y\cdot cov\ ABCDE}$
E	Predictor by FT/NFT	$R^2_{Y\cdot 2\ WAYS} = R^2_{Y\cdot cov\ ABCDEF}$
F	Sponsor by FT/NFT	$sr_G^2 = R^2_{Y\cdot cov\ ABCDEFG} - R^2_{Y\cdot cov\ ABCDEF}$
G	Predictor by Sponsor by FT/NFT	$R^2_{Y\cdot TOTAL} = R^2_{Y\cdot cov\ ABCDEFG}$

sr^2 represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table AMI-1A

Household Income

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 2,3,5,7,8,9,10,11,12,14

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample	90	73	74	91	53	28	38	35	60	74
		5.7	4.6	4.6	5.7	3.3	1.8	2.4	2.2	3.8	4.6
	Pop.	311	251	291	277	179	100	118	115	160	142
		6.9	5.5	6.4	6.1	4.0	2.2	2.6	2.5	3.5	3.1
FT	Sample	178	186	238	196	130	87	60	84	108	107
		7.5	7.8	10.0	8.2	5.5	3.7	2.5	3.5	4.5	4.5
	Pop.	445	444	536	437	301	184	161	161	213	216
		8.6	8.6	10.3	8.4	5.8	3.5	3.1	3.1	4.1	4.2

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	75	82	75	38	31	50	43	55	58	52
		4.7	5.2	4.7	2.4	1.9	3.1	2.7	3.5	3.6	3.3
	Pop.	232	227	197	103	73	107	169	120	140	130
		5.1	5.0	4.4	2.3	1.6	2.4	3.7	2.7	3.1	2.9
FT	Sample	138	95	82	51	30	45	65	57	69	53
		5.8	4.0	3.4	2.1	1.3	1.9	2.7	2.4	2.9	2.2
	Pop.	280	191	177	88	65	85	113	100	110	94
		5.4	3.7	3.4	1.7	1.3	1.6	2.2	1.9	2.1	1.8

		21	22	23	TOTAL
NFT	Sample	56	361		1592
		3.5	22.7		100.0
	Pop.	153	775	157	4527
		3.4	17.1	3.5	100.0
FT	Sample	42	281		2382
		1.8	11.8		100.0
	Pop.	86	497	201	5185
		1.7	9.6	3.9	100.0

Response code:

1: Under $2,000
2: $2,000 - $2,499
3: $2,500 - $3,199
4: $3,200 - $3,799
5: $3,800 - $4,199
6: $4,200 - $4,399
7: $4,400 - $4,699
8: $4,700 - $4,999
9: $5,000 - $5,199
10: $5,200 - $5,699
11: $5,700 - $6,199
12: $6,200 - $6,799
13: $6,800 - $7,199
14: $7,200 - $7,399
15: $7,400 - $7,699
16: $7,700 - $7,999
17: $8,000 - $8,199
18: $8,200 - $8,699
19: $8,700 - $9,199
20: $9,200 - $9,799
21: $9,800 - $9,999
22: $10,000 and over
23: missing data

Table AM1-1B

Household Income

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 2

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample	26	21	22	18	16	3	7	4	11	8
		8.5	6.8	7.2	5.9	5.2	1.0	2.3	1.3	3.6	2.6
	Pop.	62	54	63	48	31	7	16	16	13	14
		9.0	7.8	9.1	7.0	4.5	1.0	2.3	2.3	1.9	4.0
FT	Sample	19	24	38	30	11	5	8	14	16	17
		6.3	8.0	12.6	10.0	3.7	1.7	2.7	4.7	5.3	5.6
	Pop.	43	64	86	68	33	16	19	22	21	31
		6.8	10.1	13.6	10.8	5.2	2.5	3.0	3.5	3.3	4.9

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	12	15	14	6	7	12	8	14	20	11
		3.9	4.9	4.6	2.0	2.3	3.9	2.6	4.6	6.5	3.6
	Pop.	28	34	22	20	14	19	20	20	29	18
		4.1	4.9	3.2	2.9	2.0	2.8	2.9	2.9	4.2	2.6
FT	Sample	16	14	7	6	8	7	9	8	7	2
		5.3	4.7	2.3	2.0	2.7	2.3	3.0	2.7	2.3	0.7
	Pop.	25	19	16	17	12	13	13	10	11	5
		4.0	3.0	2.5	2.7	1.9	2.1	2.1	1.6	1.7	.8

		21	22	23	TOTAL
NFT	Sample	11	41		307
		3.6	13.4		100.
	Pop.	27	99	16	690
		3.9	14.3	2.3	100.0
FT	Sample	5	30		301
		1.7	10.0		100.0
	Pop.	11	50	27	632
		1.7	7.9	4.3	100.0

Response code:

1: Under $2,000
2: $2,000 - $2,499
3: $2,500 - $3,199
4: $3,200 - $3,799
5: $3,800 - $4,199
6: $4,200 - $4,399
7: $4,400 - $4,699
8: $4,700 - $4,999
9: $5,000 - $5,199
10: $5,200 - $5,699
11: $5,700 - $6,199
12: $6,200 - $6,799
13: $6,800 - $7,199
14: $7,200 - $7,399
15: $7,400 - $7,699
16: $7,700 - $7,999
17: $8,000 - $8,199
18: $8,200 - $8,699
19: $8,700 - $9,199
20. $9,200 - $9,799
21: $9,800 - $9,999
22: $10,000 and over
23: missing data

Table AMI-1C

Household Income

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 3

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample	7	13	5	13	9	5	6	7	8	10
		2.6	4.8	1.8	4.8	3.3	1.8	2.2	2.6	2.9	3.7
	Pop.	20	21	24	29	23	12	13	14	23	18
		3.3	3.5	4.0	4.8	3.8	2.0	2.2	2.3	3.8	3.0
FT	Sample	17	12	27	34	15	17	8	8	17	17
		5.0	3.5	8.0	10.0	4.4	5.0	2.4	2.4	5.0	5.0
	Pop.	34	40	52	58	34	32	16	14	27	33
		5.5	6.5	8.5	9.4	5.5	5.2	2.6	2.3	4.4	5.4

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	7	9	10	9	6	10	2	5	5	12
		2.6	3.3	3.7	3.3	2.2	3.7	0.7	1.8	1.8	4.4
	Pop.	19	24	26	15	7	17	23	17	15	23
		3.2	4.0	4.3	2.5	1.2	2.8	3.8	2.8	2.5	3.8
FT	Sample	20	13	19	7	2	7	9	11	7	12
		5.9	3.8	5.6	2.1	0.6	2.1	2.7	3.2	2.1	3.5
	Pop.	36	22	29	12	4	10	15	12	13	17
		5.9	3.6	4.7	2.0	.7	1.6	2.4	2.0	2.1	2.8

		21	22	23	TOTAL
NFT	Sample	15	99		272
		5.5	36.4		100.0
	Pop.	29	168	21	601
		4.8	28.0	3.5	100.0
FT	Sample	5	55		339
		1.5	16.2		100.0
	Pop.	9	80	15	614
		1.5	13.0	2.4	100.0

Response code:

1: Under $2,000
2: $2,000 - $2,499
3: $2,500 - $3,199
4: $3,200 - $3,799
5: $3,800 - $4,199
6: $4,200 - $4,399
7: $4,400 - $4,699
8: $4,700 - $4,999
9: $5,000 - $5,199
10: $5,200 - $5,699
11: $5,700 - $6,199
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14: $7,200 - $7,399
15: $7,400 - $7,699
16: $7,700 - $7,999
17: $8,000 - $8,199
18: $8,200 - $8,699
19: $8,700 - $9,199
20: $9,200 - $9,799
21: $9,800 - $9,999
22: $10,000 and over
23: missing data

Table AMI-1D

Household Income

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 5

Response Category

			1	2	3	4	5	6	7	8	9	10
NFT	Sample	N	2	4	5	4	2	2	3	2	4	8
		%	1.4	2.9	3.6	2.9	1.4	1.4	2.1	1.4	2.9	5.7
	Pop.	N	17	11	14	20	10	7	10	3	9	15
		%	4.9	3.2	4.0	5.7	2.9	2.0	2.9	0.9	2.6	4.3
FT	Sample	N	13	14	20	14	10	5	5	8	10	16
		%	5.6	6.1	8.7	6.1	4.3	2.2	2.2	3.5	4.3	6.9
	Pop.	N	14	25	29	27	15	10	10	15	13	21
		%	3.7	6.6	7.7	7.2	4.0	2.7	2.7	4.0	3.5	5.6

Response Category

			11	12	13	14	15	16	17	18	19	20
NFT	Sample	N	11	6	11	3	4	4	5	7	7	3
		%	7.9	4.3	7.9	2.1	2.9	2.9	3.6	5.0	5.0	2.1
	Pop.	N	23	18	19	9	6	11	22	12	10	9
		%	6.6	5.2	5.5	2.6	1.7	3.2	6.3	3.4	2.9	2.6
FT	Sample	N	17	11	12	6	4	6	7	8	11	4
		%	7.4	4.8	5.2	2.6	1.7	2.6	3.0	3.5	4.8	1.7
	Pop.	N	24	17	18	5	8	10	8	13	14	8
		%	6.4	4.5	4.8	1.3	2.1	2.7	2.1	3.5	3.7	2.1

			21	22	23	TOTAL
NFT	Sample	N	7	36		140
		%	5.0	25.7		100.0
	Pop.	N	13	70	10	348
		%	3.7	20.1	2.9	100.0
FT	Sample	N	6	24		231
		%	2.6	10.4		100.0
	Pop.	N	9	57	6	376
		%	2.4	15.2	1.6	100.0

Response code:

1: Under $2,000
2: $2,000 - $2,499
3: $2,500 - $3,199
4: $3,200 - $3,799
5: $3,800 - $4,199
6: $4,200 - $4,399
7: $4,400 - $4,699
8: $4,700 - $4,999
9: $5,000 - $5,199
10: $5,200 - $5,699
11: $5,700 - $6,199
12: $6,200 - $6,799
13: $6,800 - $7,199
14: $7,200 - $7,399
15: $7,400 - $7,699
16: $7,700 - $7,999
17: $8,000 - $8,199
18: $8,200 - $8,699
19: $8,700 - $9,199
20: $9,200 - $9,799
21: $9,800 - $9,999
22: $10,000 and over
23: missing data

Table AMI-1E

Household Income

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 7

Response Category

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	TOTAL
NFT	Sample	7	5	6	8	5	3	2	3	6	4	4	10	4	2	2	3	6	1	4	4	4	29		122
		5.7	4.1	4.9	6.6	4.1	2.5	1.6	2.5	4.9	3.3	3.3	8.2	3.3	1.6	1.6	2.5	4.9	0.8	3.3	3.3	3.3	23.8		100.0
	Pop.	23	17	27	19	16	13	9	9	17	7	21	21	22	6	8	9	19	8	14	14	14	73	28	414
		5.6	4.1	6.5	4.6	3.9	3.1	2.2	2.2	4.1	1.7	5.1	5.1	5.3	1.4	1.9	2.2	4.6	1.9	3.4	3.4	3.4	17.6	6.8	100.0
FT	Sample	23	19	27	16	10	11	7	9	9	2	12	9	3	1	2		4	3	2	1		2		172
		13.4	11.0	15.7	9.3	5.8	6.4	4.1	5.2	5.2	1.2	7.0	5.2	1.7	0.6	1.2		2.3	1.7	1.2	0.6		1.2		100.0
	Pop.	47	45	55	37	16	21	19	14	25	14	25	20	14	3	5	5	9	6	5	5	5	32	18	445
		10.6	10.1	12.4	8.3	3.6	4.7	4.3	3.1	5.6	3.1	5.6	4.5	3.1	0.7	1.1	1.1	2.0	1.3	1.1	1.1	1.1	7.2	4.0	100.0

Response code:

1:	Under $2,000	13:	$6,800 - $7,199
2:	$2,000 - $2,499	14:	$7,200 - $7,399
3:	$2,500 - $3,199	15:	$7,400 - $7,699
4:	$3,200 - $3,799	16:	$7,700 - $7,999
5:	$3,800 - $4,199	17:	$8,000 - $8,199
6:	$4,200 - $4,399	18:	$8,200 - $8,699
7:	$4,400 - $4,699	19:	$8,700 - $9,199
8:	$4,700 - $4,999	20:	$9,200 - $9,799
9:	$5,000 - $5,199	21:	$9,800 - $9,999
10:	$5,200 - $5,699	22:	$10,000 and over
11:	$5,700 - $6,199	23:	missing data
12:	$6,200 - $6,799		

Table AMI-1F

Household Income

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 8

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample	15	10	11	11	3	3	4	1	3	7
		12.7	8.5	9.3	9.3	2.5	2.5	3.4	0.8	2.5	5.8
	Pop.	64	43	48	39	16	12	14	9	16	15
		13.0	8.7	9.7	7.9	3.2	2.4	2.8	1.8	3.2	3.0
FT	Sample	37	36	32	21	23	11	7	10	13	12
		12.0	11.7	10.4	6.8	7.5	3.6	2.3	3.2	4.2	3.9
	Pop.	101	74	72	62	49	25	16	24	27	37
		13.1	9.6	9.3	8,0	6.3	3.2	2.1	3.1	3.5	4.8

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	5	4	8			2	4	2	2	1
		4.2	3.4	6.8			1.7	3.4	1.7	1.7	0.8
	Pop.	25	17	17	5	8	13	11	6	10	12
		5.1	3.4	3.4	1.0	1.6	2.6	2.2	1.2	2.0	2.4
FT	Sample	18	11	10	8	2	8	7	4	6	7
		5.8	3.6	3.2	2.6	0.6	2.6	2.3	1.3	1.9	2.3
	Pop.	44	28	25	14	7	13	12	11	11	12
		5.7	3.6	3.2	1.8	0.9	1.7	1.6	1.4	1.4	1.6

		21	22	23	TOTAL
NFT	Sample	2	20		118
		1.7	16.9		100.0
	Pop.	16	8	19	493
		3.2	11.8	3.9	100.0
FT	Sample	3	22		308
		1.0	7.1		100.0
	Pop.	6	64	38	772
		0.8	8.3	5.0	100.0

Response code:

1: Under $2,000
2: $2,000 - $2,499
3: $2,500 - $3,199
4: $3,200 - $3,799
5: $3,800 - $4,199
6: $4,200 - $4,399
7: $4,400 - $4,699
8: $4,700 - $4,999
9: $5,000 - $5,199
10: $5,200 - $5,699
11: $5,700 - $6,199
12: $6,200 - $6,799
13: $6,800 - $7,199
14: $7,200 - $7,399
15: $7,400 - $7,699
16: $7,700 - $7,999
17: $8,000 - $8,299
18: $8,300 - $8,699
19: $8,700 - $9,199
20: $9,200 - $9,799
21: $9,800 - $9,999
22: $10,000 and over
23: missing data

Table AMI-1G

Household Income

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 9

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample	10	6	11	12	7	1	2	4	8	10
		7.0	4.2	7.7	8.5	4.9	0.7	1.4	2.8	5.6	7.0
	Pop.	34	26	34	31	18	9	10	14	15	17
		8.3	6.3	8.3	7.6	4.4	2.2	2.4	3.4	3.7	4.1
FT	Sample	19	24	24	13	11	8	3	8	7	9
		10.9	13.8	13.8	7.5	6.3	4.6	1.7	4.6	4.0	5.2
	Pop.	49	60	64	53	31	15	15	12	20	16
		10.5	12.8	13.7	11.3	6.6	3.2	3.2	2.6	4.3	3.4

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	4	11	5	4		5	5	3	5	4
		2.8	7.7	3.5	2.8		3.5	3.5	2.1	3.5	2.8
	Pop.	19	25	20	10	3	7	15	7	8	9
		4.6	6.1	4.9	2.4	0.7	1.7	3.7	1.7	2.0	2.2
FT	Sample	4	4	4	1	2	1	5	1	6	2
		2.3	2.3	2.3	0.6	1.1	0.6	2.9	0.6	3.4	1.1
	Pop.	17	14	16	5	6	2	11	8	11	3
		3.6	3.0	3.4	1.1	1.3	0.4	2.4	1.7	2.4	0.6

		21	22	23	TOTAL
NFT	Sample	4	21		142
		2.8	14.8		100.0
	Pop.	12	58	9	410
		2.9	14.1	2.2	100.0
FT	Sample	3	15		174
		1.7	8.6		100.0
	Pop.	8	26	5	467
		1.7	5.6	1.1	100.0

Response code:

1: Under $2,000
2: $2,000 - $2,499
3: $2,500 - $3,199
4: $3,200 - $3,799
5: $3,800 - $4,199
6: $4,200 - $4,399
7: $4,400 - $4,699
8: $4,700 - $4,999
9: $5,000 - $5,199
10: $5,200 - $5,699
11: $5,700 - $6,199
12: $6,200 - $6,799
13: $6,800 - $7,199
14: $7,200 - $7,399
15: $7,400 - $7,699
16: $7,700 - $7,999
17: $8,000 - $8,199
18: $8,200 - $8,699
19: $8,700 - $9,199
20: $9,200 - $9,799
21: $9,800 - $9,999
22: $10,000 and over
23: missing data

Table AMI-1H

Household Income

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 10

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample	9	7	4	6	2	3	3	1	3	5
		8.2	6.4	3.6	5.5	1.8	2.7	2.7	0.9	2.7	4.5
	Pop.	28	23	21	14	9	11	6	5	13	10
		8.2	6.8	6.2	4.1	2.6	3.2	1.8	1.5	3.8	2.9
FT	Sample	18	22	23	26	11	11	2	7	8	10
		7.3	9.0	9.4	10.6	4.5	4.5	0.8	2.9	3.3	4.1
	Pop.	56	44	54	39	17	15	16	14	17	16
		11.5	9.1	11.1	8.0	3.5	3.1	3.3	2.9	3.5	3.3

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	4	4	3	4	4	2	4	6	2	2
		3.6	3.6	2.7	3.6	3.6	1.8	3.6	5.5	1.8	1.8
	Pop.	22	24	7	8	6	6	14	12	8	9
		6.5	7.1	2.1	2.4	1.8	1.8	4.1	3.5	2.4	2.6
FT	Sample	12	3	8	4	1	5	9	7	6	6
		4.9	1.2	3.3	1.6	0.4	2.0	3.7	2.9	2.4	2.4
	Pop.	22	11	17	5	3	7	13	9	10	10
		4.5	2.3	3.5	1.0	0.6	1.4	2.7	1.9	2.1	2.1

		21	22	23	TOTAL
NFT	Sample	4	28		110
		3.6	25.5		100.0
	Pop.	8	59	17	340
		2.4	17.4	5.0	100.0
FT	Sample	5	41		245
		2.0	16.7		100.0
	Pop.	8	54	28	485
		1.6	11.1	5.8	100.0

Response code:

1: Under $2,000
2: $2,000 - $2,499
3: $2,500 - $3,199
4: $3,200 - $3,799
5: $3,800 - $4,199
6: $4,200 - $4,399
7: $4,400 - $4,699
8: $4,700 - $4,999
9: $5,000 - $5,199
10: $5,200 - $5,699
11: $5,700 - $6,199
12: $6,200 - $6,799
13: $6,800 - $7,199
14: $7,200 - $7,399
15: $7,400 - $7,699
16: $7,700 - $7,999
17: $8,000 - $8,199
18: $8,200 - $8,699
19: $8,700 - $9,199
20: $9,200 - $9,799
21: $9,800 - $9,999
22: $10,000 and over
23: missing data

Table AMI-1I

Household Income

Kindergarten
Population N: 9
Sample N: 3

Sponsor: 11

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample	5	6	3	7	2	1	3	5	8	9
		3.3	4.0	2.0	4.6	1.3	0.7	2.0	3.3	5.3	6.0
	Pop.	19	14	11	20	16	4	7	15	20	13
		5.1	3.8	2.9	5.4	4.3	1.1	1.9	4.0	5.4	3.5
FT	Sample	4	8	20	19	16	9	10	10	13	10
		1.4	2.9	7.2	6.8	5.8	3.2	3.6	3.6	4.7	3.6
	Pop.	26	27	42	43	42	21	20	20	31	22
		4.3	4.4	6.9	7.1	6.9	3.4	3.3	3.3	5.1	3.6

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	5	11	7	5	3	5	3	11	5	5
		3.3	7.3	4.6	3.3	2.0	3.3	2.0	7.3	3.3	3.3
	Pop.	17	25	22	11	5	9	11	14	15	15
		4.6	6.7	5.9	2.9	1.3	2.4	2.9	3.8	4.0	4.0
FT	Sample	20	17	10	12	5	4	7	10	14	11
		7.2	6.1	3.6	4.3	1.8	1.4	2.5	3.6	5.0	4.0
	Pop.	41	31	24	16	8	10	16	16	22	17
		6.7	5.1	3.9	2.6	1.3	1.6	2.6	2.6	3.6	2.8

		21	22	23	TOTAL
NFT	Sample	3	39		151
		2.0	25.8		100.0
	Pop.	11	66	13	373
		2.9	17.7	3.5	100.0
FT	Sample	7	42		278
		2.5	15.1		100.0
	Pop.	17	65	32	609
		2.8	10.7	5.3	100.0

Response code:

1: Under $2,000
2: $2,000 - $2,499
3: $2,500 - $3,199
4: $3,200 - $3,799
5: $3,800 - $4,199
6: $4,200 - $4,399
7: $4,400 - $4,699
8: $4,700 - $4,999
9: $5,000 - $5,199
10: $5,200 - $5,699
11: $5,700 - $6,199
12: $6,200 - $6,799
13: $6,800 - $7
14: $7,200 - $7
15: $7,400 - $7
16: $7,700 - $7
17: $8,000 - $8
18: $8,200 - $8
19: $8,700 - $9
20: $9,200 - $9
21: $9,800 - $9
22: $10,000 and
23: missing dat

Table-AMI-1J

Household Income

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 12

Response Category

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	TOTAL
NFT	Sample	3	1	3	6	4	6	5	5	7	11	15	7	12	5	4	7	6	5	7	8	6	36		169
		1.8	0.6	1.8	3.6	2.4	3.6	3.0	3.0	4.1	6.5	8.9	4.1	7.1	3.0	2.4	4.1	3.6	3.0	4.1	4.7	3.6	21.3		100.0
	Pop.	7	15	7	17	9	7	9	14	16	19	29	19	23	9	8	7	18	14	24	15	12	35	12	395
		1.8	3.8	1.8	4.3	2.3	1.8	2.3	3.5	4.1	4.8	7.3	4.8	5.8	2.3	2.0	1.8	4.6	3.5	6.1	3.8	3.0	21.5	3.0	100.0
FT	Sample	22	20	17	16	21	7	7	7	12	8	17	13	8	4	3	7	6	4	7	7	6	40		259
		8.5	7.7	6.6	6.2	8.1	2.7	2.7	2.7	4.6	3.1	6.6	5.0	3.1	1.5	1.2	2.7	2.3	1.5	2.7	2.7	2.3	15.4		100.0
	Pop.	28	21	29	18	23	10	10	7	15	10	18	16	9	6	4	8	8	6	9	8	5	42	15	325
		8.6	6.5	8.9	5.5	7.1	3.1	3.1	2.2	4.6	3.1	5.5	4.9	2.8	1.8	1.2	2.5	2.5	1.8	2.8	2.5	1.5	12.9	4.6	100.0

Response code:

1:	Under $2,000	13:	$6,800 - $7,199
2:	$2,000 - $2,499	14:	$7,200 - $7,399
3:	$2,500 - $3,199	15:	$7,400 - $7,699
4:	$3,200 - $3,799	16:	$7,700 - $7,999
5:	$3,800 - $4,199	17:	$8,000 - $8,199
6:	$4,200 - $4,399	18:	$8,200 - $8,699
7:	$4,400 - $4,699	19:	$8,700 - $9,199
8:	$4,700 - $4,999	20:	$9,200 - $9,799
9:	$5,000 - $5,199	21:	$9,800 - $9,999
10:	$5,200 - $5,699	22:	$10,000 and over
11:	$5,700 - $6,199	23:	missing data
12:	$6,200 - $6,799		

Table AMI-1K

Household Income

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 14

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample	6		4	6	3	1	3	3	2	2
		9.8		6.6	9.8	4.9	1.6	4.9	4.9	3.3	3.3
	Pop.	37	27	42	40	31	18	24	16	18	14
		8.0	5.8	9.1	8.6	6.7	3.9	5.2	3.5	3.9	3.0
FT	Sample	6	7	10	7	2	3	3	3	3	6
		8.0	9.3	13.3	9.3	2.7	4.0	4.0	4.0	4.0	8.0
	Pop.	47	44	53	32	41	19	20	19	17	16
		10.2	9.6	11.5	7.0	8.9	4.1	4.3	4.1	3.7	3.5

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	8	5	1		1			1	1	2
		13.1	8.2	1.6		1.6			1.6	1.6	3.3
	Pop.	29	20	19	10	8	9	16	10	7	6
		6.3	4.3	4.1	2.2	1.7	1.9	3.5	2.2	1.5	1.3
FT	Sample	2		1	2	1		2	1	3	1
		2.7		1.3	2.7	1.3		2.7	1.3	4.0	1.3
	Pop.	28	13	9	5	8	7	8	9	4	9
		6.1	2.8	2.0	1.1	1.7	1.5	1.7	2.0	0.9	2.0

		21	22	23	TOTAL
NFT	Sample		12		61
			19.7		100.0
	Pop.	11	39	12	463
		2.4	8.4	2.6	100.0
FT	Sample	2	10		75
		2.7	13.3		100.0
	Pop.	8	27	17	460
		1.7	5.9	3.7	100.0

Response code:

1:	Under $2,000	13:	$6,800 - $7,199
2:	$2,000 - $2,499	14:	$7,200 - $7,399
3:	$2,500 - $3,199	15:	$7,400 - $7,699
4:	$3,200 - $3,799	16:	$7,700 - $7,999
5:	$3,800 - $4,199	17:	$8,000 - $8,199
6:	$4,200 - $4,399	18:	$8,200 - $8,699
7:	$4,400 - $4,699	19:	$8,700 - $9,199
8:	$4,700 - $4,999	20:	$9,200 - $9,799
9:	$5,000 - $5,199	21:	$9,800 - $9,999
10:	$5,200 - $5,699	22:	$10,000 and over
11:	$5,700 - $6,199	23:	missing data
12:	$6,200 - $6,799		

Table AMI-2A

Highest Grade Completed by Mother

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 2,3,5,7,8,9,10,11,12,14

		Response Category									
		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample	4	8	25	12	473	709	168	93		1592
		0.3	0.5	1.6	7.0	29.7	44.5	10.6	5.8		100.0
	Pop.	28	62	221	404	1406	1667	372	180	187	4527
		0.6	1.3	4.9	8.9	31.1	36.8	8.2	4.0	4.1	100.0
FT	Sample	2	4	47	195	854	991	234	83		2382
		0.1	0.3	2.0	6.9	35.9	41.6	9.8	3.5		100.0
	Pop.	20	85	233	453	1797	1767	401	141	288	5185
		0.4	1.6	4.5	8.7	34.7	34.1	7.7	2.7	5.6	100.0

Response code:

1: No schooling
2: Kindergarten through third grade
3: Fourth through sixth grade
4: Seventh through eigth grade
5: High school incomplete
6: High school complete
7: Some college incomplete
8: College complete
9: Missing data

Table AMI-2B

Highest Grade Completed by Mother

Kindergarten
Population N: 9,712
Sample N: 2,974

Sponsor: 2

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample		1	4	21	105	132	38	6		307
			0.3	1.3	6.8	34.2	43.0	12.4	2.0		100.0
	Pop.		10	17	48	225	285	65	13	27	690
			1.4	2.5	7.0	32.6	41.3	9.4	1.9	3.9	100.0
FT	Sample		2	2	17	102	132	38	8		301
			0.7	0.7	5.6	33.9	43.9	12.6	2.7		100.0
	Pop.	1	7	17	47	213	247	60	11	29	632
		0.2	1.1	2.7	7.4	33.7	39.1	9.5	1.7	4.6	100.0

Sponsor: 3

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample			5	10	56	138	32	31		272
				1.8	3.7	20.6	50.7	11.8	11.4		100.0
	Pop.			14	29	153	256	77	47	25	601
				2.3	4.8	25.5	42.6	12.8	7.8	4.2	100.0
FT	Sample			11	20	101	145	44	18		339
				3.2	5.9	29.8	42.8	13.0	5.3		100.0
	Pop.	5	6	27	48	201	218	59	24	26	614
		0.8	1.0	4.4	7.8	32.7	35.5	9.6	3.9	4.2	100.0

Response code:

1: No schooling
2: Kindergarten through third grade
3: Fourth through sixth grade
4: Seventh through eigth grade
5: High school incomplete
6: High school complete
7: Some college incomplete
8: College complete
9: Missing data

Table AMI-2C

Highest Grade Completed by Mother

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 5

		Response Category									
		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample	2	4	4	14	29	69	14	4		140
		1.4	2.9	2.9	10.0	20.7	49.3	10.0	2.9		100.0
	Pop.	6	10	15	35	92	146	26	9	9	348
		1.7	2.9	4.3	10.1	26.4	42.0	7.5	2.6	2.6	100.0
FT	Sample	1		6	20	88	94	16	6		231
		0.4		2.6	8.7	38.1	40.7	6.9	2.6		100.0
	Pop.	1	2	15	33	128	130	29	15	23	376
		0.3	0.5	4.0	8.8	34.0	34.6	7.7	4.0	6.1	100.0

Sponsor: 7

		Response Category									
		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample				8	46	43	15	10		122
					6.6	37.7	35.2	12.3	8.2		100.0
	Pop.	2	2	9	34	134	150	40	30	13	414
		0.5	0.5	2.2	8.2	32.4	36.2	9.7	7.2	3.1	100.0
FT	Sample			6	14	79	51	18	4		172
				3.5	8.1	45.9	29.7	10.5	2.3		100.0
	Pop.	1		15	38	168	148	36	19	20	445
		0.2		3.4	8.5	37.8	33.3	8.1	4.3	4.5	100.0

Response code:

1: No schooling
2: Kindergarten through third grade
3: Fourth through sixth grade
4: Seventh through eigth grade
5: High school incomplete
6: High school complete
7: Some college incomplete
8: College complete
9: Missing data

Table AMI-2D

Highest Grade Completed by Mother

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 8

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample		1	3	9	54	37	12	2		118
			0.8	2.5	7.6	45.8	31.4	10.2	1.7		100.0
	Pop.	8	12	35	53	198	123	24	3	37	493
		1.6	2.4	7.1	10.8	40.2	24.9	4.9	0.6	7.5	100.0
FT	Sample		1	11	24	129	106	28	9		308
			0.3	3.6	7.8	41.9	34.4	9.1	2.9		100.0
	Pop.	2	3	32	53	308	233	49	20	72	772
		0.3	0.4	4.1	6.9	39.8	30.1	6.3	2.6	9.4	100.0

Sponsor: 9

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample		1	4	11	45	60	15	6		142
			0.7	2.8	7.7	31.7	42.3	10.6	4.2		100.0
	Pop.	2	7	18	44	136	133	35	13	22	410
		0.5	1.7	4.4	10.7	33.2	32.4	8.5	3.2	5.4	100.0
FT	Sample			1	11	58	73	27	4		174
				0.6	6.3	33.3	42.0	15.5	2.3		100.0
	Pop.	2	7	19	44	154	150	60	4	27	467
		0.4	1.5	4.1	9.4	33.0	32.1	12.8	0.9	5.8	100.0

Response code:

1: No schooling
2: Kindergarten through third grade
3: Fourth through sixth grade
4: Seventh through eigth grade
5: High school incomplete
6: High school complete
7: Some college incomplete
8: College complete
9: Missing data

Table AMI-2E

Highest Grade Completed by Mother

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 10

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample				10	37	48	10	5		110
					9.1	33.6	43.6	9.1	4.5		100.0
	Pop.		3	24	42	118	114	21	8	10	340
			0.9	7.1	12.4	34.7	33.5	6.2	2.4	2.9	100.0
FT	Sample		1		23	106	90	20	5		245
			0.4		9.4	43.3	36.7	8.2	2.0		100.0
	Pop.		9	19	52	194	144	32	8	27	435
			1.9	3.9	10.7	40.0	29.7	6.6	1.6	5.6	100.0

Sponsor: 11

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample			1	13	45	67	14	11		151
				0.7	8.6	29.8	44.4	9.3	7.2		100.0
	Pop.		2	5	33	[illegible]	161	23	17	16	373
			0.5	1.3	8.8	31.1	43.2	6.2	4.6	4.3	100.0
FT	Sample				17	111	113	19	18		278
					6.1	39.9	40.6	6.8	6.5		100.0
	Pop.			11	49	239	225	32	25	28	609
				1.8	8.0	39.2	36.9	5.3	4.1	4.6	100.0

Response Code:

1: No schooling
2: Kindergarten through third grade
3: Fourth through sixth grade
4: Seventh through eighth grade
5: High school incomplete
6: High school complete
7: Some college incomplete
8: College complete
9: [illegible] data

Table AMI-2F

Highest Grade Completed by Mother·

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 12

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample			2	5	37	93	15	17		169
				1.2	3.0	21.9	55.0	8.9	10.1		100.0
	Pop.			3	13	95	198	39	32	15	395
				0.8	3.3	24.1	50.1	9.9	8.1	3.8	100.0
FT	Sample	1		1	9	63	161	16	8		259
		0.4		0.4	3.5	24.3	62.2	6.2	3.1		100.0
	Pop.	1	1	1	12	81	183	19	9	18	325
		0.3	0.3	0.3	3.7	24.9	56.3	5.8	2.8	5.5	100.0

Sponsor: 14

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample	2	1	2	11	19	22	3	1		61
		3.3	1.6	3.3	18.0	31.1	36.1	4.9	1.6		100.0
	Pop.	10	16	81	73	139	101	22	8	13	463
		2.2	3.5	17.5	15.8	30.0	21.8	4.8	1.7	2.8	100.0
FT	Sample		2	9	10	17	26	8	3		75
			2.7	12.0	13.3	22.7	34.7	10.7	4.0		100.0
	Pop.	7	50	77	77	111	89	25	6	18	460
		1.5	10.9	16.7	16.7	24.1	19.3	5.4	1.3	3.9	100.0

Response code:

1: No schooling
2: Kindergarten through third grade
3: Fourth through sixth grade
4: Seventh through eigth grade
5: High school incomplete
6: High school complete
7: Some college incomplete
8: College complete
9: Missing data

Table AMI-3A

Years at Present Address

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 2,3,5,7,8,9,10,11,12,14

		Response Category								
		0	1	2	3	4	5	6	7	Total
NFT	Sample	312	172	220	197	137	121	433		1592
		19.6	10.8	13.8	12.4	8.6	7.6	27.2		100.0
	Pop.	1013	546	590	551	381	293	1149	4	4527
		22.4	12.1	13.0	12.2	8.4	6.5	25.4	0.1	100.0
FT	Sample	475	297	358	209	229	175	539		2382
		19.9	12.5	15.0	13.0	9.6	7.3	22.6		100.0
	Pop.	1133	611	739	707	487	376	1130	2	5185
		21.9	11.8	14.3	13.6	9.4	7.3	21.8	0.1	100.0

Response Code:

0: Less than one year
1-5: Number of years
6: 6 years or more
7: Missing data

Table AMI-3B

Years at Present Address

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 2

		Response Category								
		0	1	2	3	4	5	6	7	Total
NFT	Sample	65	31	47	41	27	22	74		307
		21.2	10.1	15.3	13.4	8.8	7.2	24.1		100.0
	Pop.	163	85	93	92	61	44	152		690
		23.6	12.3	13.5	13.3	8.8	6.4	22.0		100.0
FT	Sample	61	34	55	44	27	20	60		301
		20.3	11.3	18.3	14.6	9.0	6.6	19.9		100.0
	Pop.	156	73	104	85	53	47	114		632
		24.7	11.6	16.5	13.4	8.4	7.4	18.0		100.0

Sponsor: 3

		Response Category								
		0	1	2	3	4	5	6	7	Total
NFT	Sample	62	37	48	28	23	15	59		272
		22.8	13.6	17.6	10.3	8.5	5.5	21.7		100.0
	Pop.	155	85	89	64	56	30	122		601
		25.8	14.1	14.8	10.6	9.3	5.0	20.3		100.0
FT	Sample	69	51	63	39	29	20	68		339
		20.4	15.0	18.6	11.5	8.6	5.9	20.1		100.0
	Pop.	139	91	101	85	50	37	111		614
		22.6	14.8	16.4	13.8	8.1	6.0	18.1		100.0

Response Code:

0: Less than one year
1-5: Number of years
6: 6 years or more
7: Missing data

Table AMI-3C

Years at Present Address

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 5

Response Category

		0	1	2	3	4	5	6	7	Total
NFT	Sample	17	15	8	16	9	17	58		140
		12.1	10.7	5.7	11.4	6.4	12.1	41.4		100.0
	Pop.	53	44	50	44	28	25	104		348
		15.2	12.6	14.4	12.6	8.1	7.2	29.9		100.0
FT	Sample	41	27	32	25	21	26	59		231
		17.7	11.7	13.9	10.8	9.1	11.3	25.5		100.0
	Pop.	75	46	52	49	37	29	87	1	376
		20.0	12.2	13.8	13.0	9.8	7.7	23.1	0.3	100.0

Sponsor: 7

Response Category

		0	1	2	3	4	5	6	7	Total
NFT	Sample	32	19	12	16	12	6	25		122
		26.2	15.6	9.8	13.1	9.8	4.9	20.5		100.0
	Pop.	91	55	48	54	38	19	108	1	414
		22.0	13.3	11.6	13.0	9.2	4.6	26.1	0.2	100.0
FT	Sample	32	27	23	35	14	11	30		172
		18.6	15.7	13.4	20.3	8.1	6.4	17.4		100.0
	Pop.	100	55	65	61	44	31	89		445
		22.5	12.4	14.6	13.7	9.9	7.0	20.0		100.0

Response Code:

0: Less than one year
1-5: Number of years
6: 6 years or more
7: Missing data

Table AMI-3D

Years at Present Address

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 8

		Response Category								
		0	1	2	3	4	5	6	7	Total
NFT	Sample	19	19	14	13	9	14	30		118
		16.1	16.1	11.9	11.0	7.6	11.9	25.4		100.0
	Pop.	130	57	62	55	33	41	114	1	493
		26.4	11.6	12.6	11.2	6.7	8.3	23.2	0.2	100.0
FT	Sample	69	40	45	43	32	21	58		308
		22.4	13.0	14.6	14.0	10.4	6.8	18.8		100.0
	Pop.	163	76	103	132	84	55	159		772
		21.1	9.8	13.3	17.1	10.9	7.1	20.6		100.0

Sponsor: 9

		Response Category								
		0	1	2	3	4	5	6	7	Total
NFT	Sample	37	17	18	18	8	3	41		142
		26.1	12.0	12.7	12.7	5.6	2.1	28.9		100.0
	Pop.	115	47	44	54	29	20	100	1	410
		28.1	11.5	10.7	13.2	7.1	4.9	24.4	0.2	100.0
FT	Sample	46	20	23	27	22	10	26		174
		26.4	11.5	13.2	15.5	12.6	5.7	14.9		100.0
	Pop.	120	64	76	59	47	27	74		467
		25.7	13.7	16.3	12.6	10.1	5.8	15.9		100.0

Response Code:

0: Less than one year
1-5: Number of years
6: 6 years or more
7: Missing data

Table AMI-3E

Years at Present Address

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 10

Response Category

		0	1	2	3	4	5	6	7	Total
NFT	Sample	24	8	19	12	13	10	24		110
		21.8	7.3	17.3	10.9	11.8	9.1	21.8		100.0
	Pop.	90	38	40	41	33	26	71	1	340
		26.5	11.2	11.8	12.1	9.7	7.7	20.9	0.3	100.0
FT	Sample	56	31	31	23	28	19	57		245
		22.9	12.7	12.7	9.4	11.4	7.8	23.3		100.0
	Pop.	122	65	57	56	49	35	101		485
		25.2	13.4	11.8	11.5	10.1	7.2	20.8		100.0

Sponsor: 11

Response Category

		0	1	2	3	4	5	6	7	Total
NFT	Sample	23	15	28	18	14	16	37		151
		15.2	9.9	18.5	11.9	9.3	10.6	24.5		100.0
	Pop.	72	50	57	44	31	24	95		373
		19.3	13.4	15.3	11.8	8.3	6.4	25.5		100.0
FT	Sample	32	32	45	34	26	23	86		278
		11.5	11.5	16.2	12.2	9.4	8.3	30.9		100.0
	Pop.	100	66	91	80	62	50	160		609
		16.4	10.8	14.9	13.1	10.2	8.2	26.3		100.0

Response Code:

0: Less than one year
1-5: Number of years
6: 6 years or more
7: Missing data

Table AMI-3F

Years at Present Address

Kindergarten
Population N: 9,712
Sample N: 3,974

Sponsor: 12

		Response Category								
		0	1	2	3	4	5	6	7	Total
NFT	Sample	22	7	21	28	18	14	59		169
		13.0	4.1	12.4	16.6	10.7	8.3	34.9		100.0
	Pop.	56	33	47	55	38	35	31		395
		14.2	8.4	11.9	13.9	9.6	8.9	33.2		100.0
FT	Sample	55	32	31	33	18	21	69		259
		21.2	12.4	12.0	12.7	6.9	8.1	26.6		100.0
	Pop.	69	42	35	35	22	26	95	1	325
		21.2	12.9	10.8	10.8	6.8	8.0	29.2	0.3	100.0

Sponsor: 14

		Response Category								
		0	1	2	3	4	5	6	7	Total
NFT	Sample	11	4	5	7	4	4	26		61
		18.0	6.6	8.2	11.5	6.6	6.6	42.6		100.0
	Pop.	88	52	60	48	34	29	152		463
		19.0	11.2	13.0	10.4	7.3	6.3	32.8		100.0
FT	Sample	14	3	10	6	12	4	26		75
		18.7	4.0	13.3	8.0	16.0	5.3	34.7		100.0
	Pop.	89	33	55	65	39	39	140		460
		19.3	7.2	12.0	14.1	8.5	8.5	30.4		100.0

Response Code:

0: Less than one year
1-5: Number of years
6: 6 years or more
7: Missing data

Table AMI-4A

Does Parent Respondent Work in School?

Kindergarten
Population N: 9.712
Sample N: 3,974

Sponsor: 2,3,5,7,8,9, 10,11,12,14

		Response Category			
		1	2	3	Total
NFT	Sample	160	1432		1592
		10.1	89.9		100.0
	Pop.	375	4149	3	4527
		8.3	91.7	0.1	100.0
FT	Sample	510	1872		2382
		21.4	78.6		100.0
	Pop.	1029	4155	1	5185
		19.8	80.2	0.02	100.0

Response Code:

1: yes
2: no
3: missing data

Table AMI-4B

Does Parent Respondent Work in School?

Kindergarten
Population N: 9.712
Sample N: 3,974

Sponsor: 2

		Response Category			
		1	2	3	Total
NFT	Sample	36	271		307
		11.7	88.3		100.0
	Pop.	65	625		690
		9.6	90.6		100.0
FT	Sample	70	231		601
		23.3	76.7		100.0
	Pop.	147	485		632
		23.3	76.7		100.0

Sponsor: 3

		Response Category			
		1	2	3	Total
NFT	Sample	35	237		272
		12.9	87.1		100.0
	Pop.	67	533	1	601
		11.1	88.7	0.2	100.0
FT	Sample	76	263		339
		22.4	77.6		100.0
	Pop.	108	506		614
		17.6	82.4		100.0

Response Code:

1: yes
2: no
3: missing data

Table AMJ-4C

Does Parent Respondent Work in School?

Kindergarten
Population N: 9.712
Sample N: 3,974

Sponsor: 5

		Response Category			
		1	2	3	Total
NFT	Sample	14	126		140
		10.0	90.0		100.0
	Pop.	32	316		348
		9.2	90.8		100.0
FT	Sample	40	191		231
		17.3	82.7		100.0
	Pop.	59	317		376
		15.7	84.3		100.0

Sponsor: 7

		Response Category			
		1	2	3	Total
NFT	Sample	7	115		122
		5.7	94.3		100.0
	Pop.	31	383		414
		7.5	92.5		100.0
FT	Sample	28	144		172
		16.3	83.7		100.0
	Pop.	75	370		445
		16.9	83.1		100.0

Response Code:

1: yes
2: no
3: missing data

Table AMI-4D

[illegible] Parent Respondent Work in School?

Kindergarten
Population N: 9.712
Sample N: 3,974

Sponsor: 8

		Response Category 1	2	3	Total
NFT	Sample	14	104		118
		11.9	88.1		100.0
	Pop.	32	460	1	493
		6.5	93.3	0.2	100.0
FT	Sample	72	236		308
		23.4	76.6		100.0
	Pop.	153	619		772
		19.8	80.2		100.0

Sponsor: 9

		Response Category 1	2	3	Total
NFT	Sample	14	126		142
		9.9	90.1		100.0
	Pop.	31	379		410
		7.6	92.4		100.0
FT	Sample	32	142		174
		18.4	81.6		100.0
	Pop.	68	399		467
		14.6	85.4		100.0

Response Code:

1: yes
2: no
3: missing data

Table AMJ-4E

Does Parent Respondent Work in School?

Kindergarten
Population N: 9.712
Sample N: 3,974

Sponsor: 10

		Response Category			
		1	2	3	Total
NFT	Sample	9	101		110
		8.2	91.8		100.0
	Pop.	22	317	1	340
		6.5	93.2	0.3	100.0
FT	Sample	58	187		245
		23.7	76.3		100.0
	Pop.	103	382		485
		21.2	78.8		100.0

Sponsor: 11

		Response Category			
		1	2	3	Total
NFT	Sample	18	133		151
		11.9	88.1		100.0
	Pop.	29	344		373
		7.8	92.2		100.0
FT	Sample	58	220		278
		20.9	79.1		100.0
	Pop.	122	486	1	609
		20.0	79.8	0.2	100.0

Response Code:

1: yes
2: no
3: missing data

Table AMI-4F

Does Parent Respondent Work in School?

Kindergarten
Population N: 9.71
Sample N: 3,97

Sponsor: 12

Response Category

		1	2	3	Total
NFT	Sample	6	163		169
		3.6	96.4		100.0
	Pop.	20	375		395
		5.1	94.9		100.0
FT	Sample	50	209		259
		19.3	80.7		100.0
	Pop.	59	266		325
		18.2	81.8		100.0

Sponsor: 14

Response Category

		1	2	3	Total
NFT	Sample	7	54		61
		11.5	88.5		100.0
	Pop.	46	417		463
		9.9	90.1		100.0
FT	Sample	26	49		75
		34.7	65.3		100.0
	Pop.	135	325		460
		29.3	70.7		100.0

Response Code:

1: yes
2: no
3: missing data

Table AMI-5A

Household Income

Third Grade
Population N: 1411
Sample N: 813

Sponsor: 0109,5,6,7,
9,10,11,12

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample	15	4	12	16	6	6	6	4	3	8
		5.3	1.4	4.3	5.7	2.1	2.1	2.1	1.4	1.1	2.8
	Pop.	32	15	23	29	16	12	10	10	9	22
		5.9	2.8	4.3	5.4	3.0	2.2	1.9	1.9	1.7	4.1
FT	Sample	36	36	33	37	23	21	18	5	11	29
		6.8	6.8	6.2	7.0	4.3	4.0	3.4	0.9	2.1	5.5
	Pop.	74	67	63	65	49	48	27	16	27	41
		8.5	7.7	7.2	7.5	5.6	5.5	3.1	1.8	3.1	4.7

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	8	15	16	11	6	2	3	10	3	10
		2.8	5.3	5.7	3.9	2.1	0.7	1.1	3.5	2.8	3.5
	Pop.	22	27	24	21	8	5	7	19	13	21
		4.1	5.0	4.4	3.9	1.5	0.9	1.3	3.5	2.4	3.9
FT	Sample	18	23	27	16	14	12	13	11	10	14
		3.4	4.3	5.1	3.0	2.6	2.3	2.4	2.1	1.9	2.6
	Pop.	30	32	40	22	21	17	16	18	14	19
		3.4	3.7	4.6	2.5	2.4	2.0	1.8	2,1	1.6	2.2

Response Category

		21	22	23	24	25	26	Total
NFT	Sample	3	12	30	33	35		282
		1.1	4.3	10.6	11.7	12.4		100.0
	Pop.	12	22	46	45	58	12	540
		2.2	4.1	8.5	8.3	10.7	2.2	100.0
FT	Sample	15	13	36	34	26		531
		2.8	2.4	6.8	6.4	4.9		100.0
	Pop.	17	20	45	39	30	14	871
		2.0	2.3	5.2	4.5	3.4	1.6	100.0

Response Code:

1: under $1,500
2: $1,500 - $1,999
3: $2,000 - $2,499
4: $2,500 - $3,199
5: $3,200 - $3,799
6: $3,800 - $4,199
7: $4,200 - $4,399
8: $4,400 - $4,699
9: $4,700 - $4,999
10: $5,000 - $5,199
11: $5,200 - $5,699
12: $5,700 - $6,199
13: $6,200 - $6,799
14: $6,800 - $7,199
15: $7,200 - $7,399
16: $7,400 - $7,699
17: $7,700 - $7,999
18: $8,000 - $8,199
19: $8,200 - $8,699
20: $8,700 - $9,199
21: $9,200 - $9,799
22: $9,800 - $9,999
23: $10,000 - $11,999
24: $12,000 - $14,999
25: $15,000 and over
26: missing data

Table AMI-5B

Household Income

Third Grade
Population N: 1411
Sample N: 813

Sponsor: 0109

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample										
	Pop.										
FT	Sample	2	1	2	6	2		2	1	1	2
		4.1	2.0	4.1	12.2	4.1		4.1	2.0	2.0	4.1
	Pop.	3	2	2	6	2	1	2	1	1	3
		5.3	3.5	3.5	10.5	3.5	1.8	3.5	1.8	1.8	5.3

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample		1		1			1			1
			7.7		7.7			7.7			7.7
	Pop.	2	2	1	1	1		1			2
		8.7	8.7	4.3	4.3	4.3		4.3			8.7
FT	Sample	2	4	2	1	3	2	1	1		2
		4.1	8.2	4.1	2.0	6.1	4.1	2.0	2.0		4.1
	Pop.	3	4	2	1	4	2	1	1		2
		5.3	7.0	3.5	1.8	7.0	3.5	1.8	1.8		3.5

Response Category

		21	22	23	24	25	26	Total
NFT	Sample		3	3	1	2		13
			23.1	23.1	7.7	15.7		100.0
	Pop.	1	3	5	1	3		23
		4.3	13.0	21.7	4.3	3.0		100.0
FT	Sample	2	1	1	2	6		49
		4.1	2.0	2.0	4.1	12.2		100.0
	Pop.	2	1	2	2	6	1	57
		3.5	1.8	3.5	3.5	10.5	1.8	100.0

Response code:

1: under $1,500
2: $1,500 - $1,999
3: $2,000 - $2,499
4: $2,500 - $3,199
5: $3,200 - $3,799
6: $3,800 - $4,199
7: $4,200 - $4,399
8: $4,400 - $4,699
9: $4,700 - $4,999
10: $5,000 - $5,199
11: $5,200 - $5,699
12: $5,700 - $6,199
13: $6,200 - $6,799
14: $6,800 - $7,199
15: $7,200 - $7,399
16: $7,400 - $7,699
17: $7,700 - $7,999
18: $8,000 - $8,199
19: $8,200 - $8,699
20: $8,700 - $9,199
21: $9,200 - $9,799
22: $9,800 - $9,999
23: $10,000 - $11,999
24: $12,000 - $14,999
25: $15,000 and over
26: missing data

Table AMJ-5C

Household Income

Third Grade
Population N: 1411
Sample N: 813

Sponsor: 5

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample	1				2				1	1
		8.3				16.7				8.3	8.3
	Pop.	1		1	2	2				2	1
		5.9		5.9	11.8	11.8				11.8	5.9
FT	Sample	5	6	7	3	4	1	3	1	2	2
		9.1	10.9	12.7	5.5	7.3	1.8	5.5	1.8	3.6	5.5
	Pop.	15	13	13	8	6	3	4	1	4	3
		16.0	13.8	13.8	8.5	6.4	3.2	4.3	1.1	4.3	3.2

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	1	2			1					
		8.3	16.2			8.3					
	Pop.	1	2			1					
		5.9	11.8			5.9					
FT	Sample		3	1		1	2	2	1		
			5.5	1.8		1.8	3.6	3.6	1.8		
	Pop.		3	2		1	2	2	1		
			3.2	2.1		1.1	2.1	2.1	1.1		

Response Category

		21	22	23	24	25	26	Total
NFT	Sample	1		2				12
		8.3		16.7				100.0
	Pop.	2		2				17
		11.8		11.8				100.0
FT	Sample	2		5	3			55
		3.6		9.1	5.5			100.0
	Pop.	2	2	6	3			94
		2.1	2.1	6.4	3.2			100.0

Response code:

1: under $1,500
2: $1,500 - $1,999
3: $2,000 - $2,499
4: $2,500 - $3,199
5: $3,200 - $3,799
6: $3,800 - $4,199
7: $4,200 - $4,399
8: $4,400 - $4,699
9: $4,700 - $4,999
10: $5,000 - $5,199
11: $5,200 - $5,699
12: $5,700 - $6,199
13: $6,200 - $6,799
14: $6,800 - $7,199
15: $7,200 - $7,399
16: $7,400 - $7,699
17: $7,700 - $7,999
18: $8,000 - $8,199
19: $8,200 - $8,699
20: $8,700 - $9,199
21: $9,200 - $9,799
22: $9,800 - $9,999
23: $10,000 - $11,999
24: $12,000 - $14,999
25: $15,000 and over
26: missing data

Table AMI-5D

Household Income

Third Grade
Population N: 1411
Sample N: 813

Sponsor: 6

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample			2	3	1	1	1		1	1
				4.9	7.3	2.4	2.4	2.4		2.4	2.4
	Pop.	2	1	3	4	4	5	1	2	2	2
		2.1	1.1	3.2	4.2	4.2	5.3	1.1	2.1	2.1	2.1
FT	Sample	4	10	7	8	6	8	5	2	6	6
		3.4	8.6	6.0	6.9	5.2	6.9	4.3	1.7	5.2	5.2
	Pop.	9	16	13	11	8	12	8	5	8	11
		5.1	9.1	7.4	6.3	4.5	6.8	4.5	2.8	4.5	6.3

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample		2	3	2				2	1	3
			4.9	7.3	4.9				4.9	2.4	7.3
	Pop.	1	4	7	7				5	2	6
		1.1	4.2	7.4	7.4				5.3	2.1	6.3
FT	Sample	4	6	8	5	2		4	1		2
		3.4	5.2	6.9	4.3	1.7		3.4	0.9		1.7
	Pop.	5	8	10	6	2	1	4	4		4
		2.8	4.5	5.7	3.4	1.1	0.6	2.3	2.3		2.3

Response Category

		21	22	23	24	25	26	Total
NFT	Sample		1	3	9	5		41
			2.4	7.3	22.0	12.2		100.0
	Pop.	2	4	7	14	9	1	95
		2.1	4.2	7.4	14.7	9.5	1.1	100.0
FT	Sample	3	2	8	4	5		116
		2.6	1.7	6.9	3.4	4.3		100.0
	Pop.	3	4	10	4	6	4	176
		1.7	2.3	5.7	2.3	3.4	2.3	100.0

Response code:

1: Under $1,500
2: $1,500 - $1,999
3: $2,000 - $2,499
4: $2,500 - $3,199
5: $3,200 - $3,799
6: $3,800 - $4,199
7: $4,200 - $4,399
8: $4,400 - $4,699
9: $4,700 - $4,999
10: $5,000 - $5,199
11: $5,200 - $5,699
12: $5,700 - $6,199
13: $6,200 - $6,799
14: $6,800 - $7,199
15: $7,200 - $7,599
16: $7,600 - $7,699
17: $7,700 - $7,999
18: $8,000 - $8,199
19: $8,200 - $8,699
20: $8,700 - $9,199
21: $9,200 - $9,799
22: $9,800 - $9,999
23: $10,000 - $11,999
24: $12,000 - $14,999
25: $15,000 and over
26: missing data

Table AMI-5E

Household Income

Third Grade
Population N: 1411
Sample N: 813

Sponsor: 7

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample				1		2		1		1
					2.9		5.7		2.9		2.9
	Pop.	1		1	3	1	2	1	2	1	3
		1.3		1.3	3.9	1.3	2.6	1.3	2.6	1.3	3.9
FT	Sample	4	4	4	3	2	4	4		1	4
		8.0	8.0	8.0	6.0	4.0	8.0	8.0		2.0	8.0
	Pop.	13	13	15	14	14	10	5	3	4	9
		8.7	8.7	10.0	9.3	9.3	6.7	3.3	2.0	2.7	6.0

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	1	2	1	3		1		3	1	3
		2.9	5.7	2.9	8.6		2.9		8.6	2.9	8.6
	Pop.	3	3	2	6		1	3	4	1	4
		3.9	3.9	2.6	7.9		1.3	3.9	5.3	1.3	5.3
FT	Sample	2	2	2	1			1	1	2	3
		4.0	4.0	4.0	2.0			2.0	2.0	4.0	6.0
	Pop.	8	6	4	4	4	3	2	2	2	5
		5.3	4.0	2.7	2.7	2.7	2.0	1.3	1.3	1.3	3.3

Response Category

		21	22	23	24	25	26	Total
NFT	Sample	1	4	3	3	4		35
		2.9	11.4	8.6	8.6	11.4		100.0
	Pop.	3	4	5	4	16	2	76
		3.9	5.3	6.6	5.3	21.1	2.6	100.0
FT	Sample	2		2	2			50
		4.0		4.0	4.0			100.0
	Pop.	2		3	4		1	150
		1.3		2.0	2.7		0.7	100.0

Response code:

1: under $1,5[illegible]
2: $1,5[illegible] - [illegible]
3: $2,0[illegible] - [illegible]
4: $2,5[illegible] - [illegible]
5: $3,200 - [illegible]
6: $3,800 - $4,199
7: $4,200 - $4,3[illegible]
8: $4,400 - $4,6[illegible]
9: $4,700 - $4,9[illegible]
10: $5,000 - $5,199
11: $5,200 - $5,699
12: $5,700 - $6,199
13: $6,200 - $6,799
14: [illegible] - [illegible]
15: [illegible] - [illegible]
16: [illegible] - $7,699
17: [illegible] - [illegible]
18: [illegible] - [illegible]
19: [illegible] - [illegible]
20: [illegible] - [illegible]
21: [illegible] - [illegible]
22: [illegible] - [illegible]
23: [illegible] - [illegible]
24: [illegible] - $14,99[illegible]
25: $15,000 and over
26: missing data

Table AMI-5F

Household Income

Third Grade
Population N: 1411
Sample N: 813

Sponsor: 9

Response Category

			1	2	3	4	5	6	7	8	9	10
NFT	Sample	N	14	4	9	10	2		4		1	1
		%	18.4	5.3	11.8	13.2	2.6		5.3		1.3	1.3
	Pop.	N	26	10	14	12	5	1	5	1	1	6
		%	19.8	7.6	10.7	9.2	3.8	0.8	3.8	0.8	0.8	4.6
FT	Sample	N	17	11	9	9	5	2	2	1		4
		%	22.7	14.7	12.0	12.0	6.7	2.7	2.7	1.3		5.3
	Pop.	N	27	16	14	13	13	9	5	2	1	5
		%	20.8	12.3	10.8	10.0	10.0	6.9	3.8	1.5	0.8	3.8

Response Category

			11	12	13	14	15	16	17	18	19	20
NFT	Sample	N	3		2	2	2			3	3	
		%	3.9		2.6	2.6	2.6			3.9	3.9	
	Pop.	N	4	3	3	3	2		2	4	3	1
		%	3.1	2.3	2.3	2.3	1.5		1.5	3.1	2.3	0.8
FT	Sample	N	4	2	1	1		1			1	
		%	5.3	2.7	1.3	1.3		1.3			1.3	
	Pop.	N	6	3	2	2	1	2			1	2
		%	4.6	2.3	1.5	1.5	0.8	1.5			0.8	1.5

Response Category

			21	22	23	24	25	26	Total
NFT	Sample	N		1	7	7	1		76
		%		1.3	9.2	9.2	1.3		100.0
	Pop.	N	3	3	9	7	2	1	131
		%	2.3	2.3	6.9	5.3	1.5	0.8	100.0
FT	Sample	N		2	2	1			75
		%		2.7	2.7	1.3			100.0
	Pop.	N	1	2	2	1			130
		%	0.8	1.5	1.5	0.8			100.0

Response codes:

1: under $1,500
2: $1,500 - $1,999
3: $2,000 - $2,499
4: $2,500 - $3,199
5: $3,200 - $3,799
6: $3,800 - $4,199
7: $4,200 - $4,399
8: $4,400 - $4,699
9: $4,700 - $4,999
10: $5,000 - $5,199
11: $5,200 - $5,699
12: $5,700 - $6,199
13: $6,200 - $6,799
14: $6,800 - $7,199
15: $7,200 - $7,399
16: $7,400 - $7,699
17: $7,700 - $7,999
18: $8,000 - $8,199
19: $8,200 - $8,699
20: $8,700 - $9,199
21: $9,200 - $9,599
22: $9,600 - $9,999
23: $10,000 - $11,999
24: $12,000 - $14,999
25: $15,000 and over
26: missing data

Table AMI-5G

Household Income

Third Grade
Population N: 1411
Sample N: 813

Sponsor: 10

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample			1			1		2		3
				2.9			2.9		5.9		8.8
	Pop.			2			1		3	1	3
				3.7			1.9		5.6	1.9	5.6
FT	Sample		1		4		4	1			1
			1.8		7.0		7.0	1.8			1.8
	Pop.		2		6	1	4	2	2	1	1
			2.4		7.1	1.2	4.8	2.4	2.4	1.2	1.2

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample		1	1		2		1	2	1	1
			2.9	2.9		5.9		2.9	5.9	2.9	2.9
	Pop.		2	1	1	3		1	3	2	4
			3.7	1.9	1.9	5.6		1.9	5.6	3.7	7.4
FT	Sample	2	3	4	4	3	3	2	2	4	2
		3.5	5.3	7.0	7.0	5.3	5.3	3.5	3.5	7.0	3.5
	Pop.	2	3	8	4	3	5	2	5	4	3
		2.4	3.6	9.5	4.8	3.6	6.0	2.4	6.0	4.8	3.6

Response Category

		21	22	23	24	25	26	Total
NFT	Sample			6	4	8		34
				17.6	11.8	23.5		100.0
	Pop.		2	8	5	11	1	54
			3.7	14.8	9.3	20.4	1.9	100.0
FT	Sample	4	3	2	6	2		57
		7.0	5.3	3.5	10.5	3.5		100.0
	Pop.	4	5	3	7	5	2	84
		4.8	6.0	3.6	8.3	6.0	2.4	100.0

Response code:

1: under $1,500
2: $1,500 - $1,999
3: $2,000 - $2,499
4: $2,500 - $3,199
5: $3,200 - $3,799
6: $3,800 - $4,199
7: $4,200 - $4,399
8: $4,400 - $4,699
9: $4,700 - $4,999
10: $5,000 - $5,199
11: $5,200 - $5,699
12: $5,700 - $6,199
13: $6,200 - $6,799
14: $6,800 - $7,199
15: $7,200 - $7,399
16: $7,400 - $7,[illegible]
17: $7,700 - $7,9[illegible]
18: $8,000 - $8,[illegible]
19: $8,200 - $8,[illegible]
20: $8,700 - $9,199
21: $9,200 - $9,799
22: $9,800 - $9,999
23: $10,000 - $11,[illegible]
24: $12,000 - $14,999
25: $15,000 and over
26: missing data

Table AMI-5H

Household Income

Third Grade
Population N: 1411
Sample N: 813

Sponsor: 11

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample					1			1	1	1
						2.4			2.4	2.4	2.4
	Pop.				1	2		1	1	1	1
					1.6	..2		1.6	1.6	1.6	1.6
FT	Sample	2	2	2	2	2	2	1		5	2
		2.7	2.7	2.7	2.7	2.7	2.7	1.3		6.7	2.7
	Pop.	2	2	2	2	2	2	1	1	5	2
		2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2	5.9	2.4

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	2	2	2	1		1		1	2	1
		4.9	4.9	4.9	2.4		2.4		2.4	4.9	2.4
	Pop.	4	2	2	2		2		2	4	3
		6.3	3.2	3.2	3.2		3.2		3.2	6.3	4.8
FT	Sample	2	2	2	2	3	1	3	1	4	1
		2.7	2.7	2.7	2.7	4.0	1.3	4.0	1.3	5.3	1.3
	Pop.	2	2	2	2	3	1	3	3	4	2
		2.4	2.4	2.4	2.4	3.5	1.2	3.5	3.5	4.7	2.4

Response Category

		21	22	23	24	25	26	Total
NFT	Sample		2	4	6	13		41
			4.9	9.8	14.6	31.7		100.0
	Pop.		4	7	7	14	3	63
			6.3	11.1	11.1	22.2	4.8	100.0
FT	Sample		3	10	10	11		75
			4.0	13.3	13.3	14.7		100.0
	Pop.		3	13	11	11	2	85
			3.5	15.3	12.9	12.9	2.4	100.0

Response code:

1: under $1,500
2: $1,500 - $1,999
3: $2,000 - $2,499
4: $2,500 - $3,199
5: $3,200 - $3,799
6: $3,800 - $4,199
7: $4,200 - $4,399
8: $4,400 - $4,699
9: $4,700 - $4,999
10: $5,000 - $5,199
11: $5,200 - $5,699
12: $5,700 - $6,199
13: $6,200 - $6,799
14: $6,800 - $7,199
15: $7,200 - $7,399
16: $7,400 - $7,699
17: $7,700 - $7,999
18: $8,000 - $8,199
19: $8,200 - $8,699
20: $8,700 - $9,199
21: $9,200 - $9,799
22: $9,800 - $9,999
23: $10,000 - $11,999
24: $12,000 - $14,999
25: $15,000 and over
26: missing data

Table AMJ-5I

Household Income

Third Grade
Population N: 1411
Sample N: 813

Sponsor: 12

Response Category

		1	2	3	4	5	6	7	8	9	10
NFT	Sample				2		1	1			
					8.3		4.2	4.2			
	Pop.		1	2	3	2	2	1			2
			2.4	4.9	7.3	4.9	4.9	2.4			4.9
FT	Sample	2	1		2	2				1	3
		4.3	2.2		4.3	4.3				2.2	6.5
	Pop.	2	2		3	3			1	1	4
		3.5	3.5		5.3	5.3			1.8	1.8	7.0

Response Category

		11	12	13	14	15	16	17	18	19	20
NFT	Sample	2	5	5	1					1	
		8.3	20.8	20.8	4.2					4.2	
	Pop.	2	6	5	1					1	
		4.9	14.6	12.2	2.4					2.4	
FT	Sample	1		7	2	2	1	2	1	2	1
		2.2		15.2	4.3	4.3	2.2	4.3	2.2	4.3	2.2
	Pop.	1		7	3	2	1	2	1	3	1
		1.8		21.3	5.3	3.5	1.8	3.5	1.8	5.3	1.8

Response Category

		21	22	23	24	25	26	Total
NFT	Sample		1	2	1	2		24
			4.2	8.3	4.2	8.3		100.0
	Pop.		2	3	2	3	3	41
			4.9	7.3	4.9	7.3	7.3	100.0
	Sample	1	1	6	6	2		46
		2.2	2.2	13.0	13.0	4.3		100.0
		3	2	6	7	2		57
		5.3	3.5	10.5	12.3	3.5		100.0

Response code:

1: under $1,500
2: $1,500 - $1,999
3: $2,000 - $2,499
4: $2,500 - $3,199
5: $3,200 - $3,799
6: $3,800 - $4,199
7: $4,200 - $4,399
8: $4,400 - $4,699
9: $4,700 - $4,999
10: $5,000 - $5,199
11: $5,200 - $5,699
12: $5,700 - $6,199
13: $6,200 - $6,799
14: [illegible]
15: [illegible]
16: [illegible]
17: [illegible]
18: [illegible]
19: [illegible]
20: [illegible]
21: [illegible]
22: [illegible]
23: [illegible]
24: $12,[illegible] - $14,999
25: $15,000 and over
26: missing data

Table AMI-6A

Highest Grade Completed by Mother

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 0109,5,6,7,9,10,11,12

		Response Category									
		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample		6	20	36	72	107	30	11		282
			2.1	7.1	12.8	25.5	37.9	10.6	3.9		100.0
	Pop.	1	8	35	70	134	176	51	26	39	540
		0.2	1.5	6.5	13.0	24.8	32.6	9.4	4.8	7.2	100.0
FT	Sample	1	7	50	77	179	156	45	16		531
		0.2	1.3	9.4	14.5	33.7	29.4	8.5	3.0		100.0
	Pop.	17	23	97	134	248	210	62	19	61	871
		2.0	2.6	11.1	15.4	28.5	24.1	7.1	2.2	7.0	100.0

Response code:

1: No schooling
2: Kindergarten through third grade
3: Fourth through sixth grade
4: Seventh through eigth grade
5: High school incomplete
6: High school complete
7: Some college incomplete
8: College complete
9: Missing data

Table AMI-6B

Highest Grade Completed by Mother

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 0109

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample				1		11	1			13
					7.7		84.6	7.7			100.0
	Pop.				3	1	15	2	1	1	23
					13.0	4.3	65.2	8.7	4.3	4.3	
FT	Sample			4	7	9	20	4	5		49
				8.2	14.3	18.4	40.8	8.2	10.2		100.0
	Pop.			5	7	12	22	6	5		57
				8.8	12.3	21.1	38.6	10.5	8.8		100.0

Sponsor: 5

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample			4	3	3	2				12
				33.3	25.0	25.0	16.7				100.0
	Pop.			5	3	4	2			3	17
				29.4	17.6	23.5	11.8			17.6	100.0
FT	Sample		2	4	10	19	14	3	3		55
			3.6	7.3	18.2	34.5	25.5	5.5	5.5		100.0
	Pop.	1	2	5	16	27	20	5	3	15	94
		1.1	2.1	5.3	17.0	28.7	21.3	5.3	3.2	16.0	100.0

Response code:

1: No schooling
2: Kindergarten through third grade
3: Fourth through sixth grade
4: Seventh through eigth grade
5: High school incomplete
6: High school complete
7: Some college incomplete
8: College complete
9: Missing data

Table AMI-6C

Highest Grade Completed by Mother

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 6

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample			2	5	18	10	4	2		41
				4.9	12.2	43.9	24.4	9.8	4.9		100.0
	Pop.	1		4	9	34	34	8	4	1	95
		1.1		4.2	9.5	35.8	35.8	8.4	4.2	1.1	100.0
FT	Sample		1	16	14	46	29	6	4		116
			0.9	13.8	12.1	39.7	25.0	5.2	3.4		100.0
	Pop.	1	2	24	24	56	40	11	4	14	176
		0.6	1.1	13.6	13.6	31.8	22.7	6.3	2.3	8.0	100.0

Sponsor: 7

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample				5	8	17	5			35
					14.3	22.9	48.6	14.3			100.0
	Pop.		1	3	9	14	28	13	5	3	76
			1.3	3.9	11.8	18.4	36.8	17.1	6.6	3.9	100.0
FT	Sample	1	1		6	22	13	6	1		50
		2.0	2.0		12.0	44.0	26.0	12.0	2.0		100.0
	Pop.	11	15	17	28	37	19	7	2	14	35
		7.3	10.0	11.3	18.7	24.7	12.7	4.7	1.3	9.3	100.0

Response code:

1: No schooling
2: Kindergarten through third grade
3: Fourth through sixth grade
4: Seventh through eigth grade
5: High school incomplete
6: High school complete
7: Some college incomplete
8: College complete
9: Missing data

Table AMI-6D

Highest Grade Completed by Mother

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 9

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample		6	12	13	16	23	3	3		76
			7.9	15.8	17.1	21.1	30.3	3.9	3.9		100.0
	Pop.		7	13	18	24	35	7	6	21	131
			5.3	9.9	13.7	18.3	26.7	5.3	4.6	16.0	100.0
FT	Sample		3	15	15	23	14	5			75
			4.0	20.0	20.0	30.7	18.7	6.7			100.0
	Pop.		3	20	22	42	26	7		10	130
			2.3	15.4	16.9	32.3	20.0	5.4		7.7	100.0

Sponsor: 10

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample			2	2	7	16	5	2		34
				5.9	5.9	20.6	47.1	14.7	5.9		100.0
	Pop.			2	5	13	24	6	3	1	54
				3.7	9.3	24.1	44.4	11.1	5.6	1.9	100.0
FT	Sample			8	9	16	13	9	2		57
				14.0	15.8	28.1	22.8	15.8	3.5		100.0
	Pop.			11	13	23	20	11	3	3	84
				13.1	15.5	27.4	23.8	13.1	3.6	3.6	100.0

Response code:

1: No schooling
2: Kindergarten through third grade
3: Fourth through sixth grade
4: Seventh through eigth grade
5: High school incomplete
6: High school complete
7: Some college incomplete
8: College complete
9: Missing data

Table AMI-6E

Highest Grade Completed by Mother

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 11

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample				1	12	15	9	4		41
					2.4	29.3	36.6	22.0	9.8		100.0
	Pop.				4	23	20	9	6	1	63
					6.3	36.5	31.7	14.3	9.5	1.6	100.0
FT	Sample			1	13	25	29	6	1		75
				1.3	17.3	33.3	38.7	8.0	1.3		100.0
	Pop.			1	14	26	33	7	2	2	85
				1.2	16.5	30.6	38.8	8.2	2.4	2.4	100.0

Sponsor: 12

Response Category

		1	2	3	4	5	6	7	8	9	TOTAL
NFT	Sample				5	4	12	3			24
					20.8	16.7	50.0	12.5			100.0
	Pop.			1	10	7	16	4	3		41
				2.4	24.4	17.1	39.0	9.8	7.3		100.0
FT	Sample			2	2	15	23	4			46
				4.3	4.3	32.6	50.0	8.7			100.0
	Pop.			3	3	16	27	5	3		57
				5.3	5.3	28.1	47.4	8.8	5.3		100.0

Response code:

1: No schooling
2: Kindergarten through third grade
3: Fourth through sixth grade
4: Seventh through eigth grade
5: High school incomplete
6: High school complete
7: Some college incomplete
8: College complete
9: Missing data

Table AMI-7A

Years at Present Address

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 0109,5,6,7,9,10,11,12

Response Category

		0	1	2	3	4	5	6	7	Total
NFT	Sample	22	15	26	33	27	20	22	117	[illegible]2
		7.8	5.3	9.2	11.7	9.6	7.1	7.8	41.5	100.0
	Pop.	62	41	67	55	44	33	31	207	540
		11.5	7.6	12.4	10.2	8.1	6.1	5.7	38.3	100.0
FT	Sample	58	33	49	39	49	47	33	223	531
		10.9	6.2	9.2	7.3	9.2	8.9	6.2	42.0	100.0
	Pop.	101	54	78	71	81	64	58	364	871
		11.6	6.2	9.0	8.2	9.3	7.3	6.7	41.8	100.0

Response Code:

0: Less than one year
1-6: Number of years
7: 7 or more years

Table AMI-7B

Years at Present Address

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 0109

		Response Category								
		0	1	2	3	4	5	6	7	Total
NFT	Sample		1	1	1	1	1	1	7	13
			7.7	7.7	7.7	7.7	7.7	7.7	53.8	100.0
	Pop.	2	1	5	3	1	1	1	9	23
		8.7	4.3	21.7	13.0	4.3	4.3	4.3	39.1	100.0
FT	Sample	4	3	5	2	5	5	2	23	49
		8.2	6.1	10.2	4.1	10.2	10.2	4.1	46.9	100.0
	Pop.	6	3	6	3	6	5	2	26	80
		10.5	5.3	10.5	5.3	10.5	8.8	3.5	45.6	100.0

Sponsor: 5

		Response Category								
		0	1	2	3	4	5	6	7	Total
NFT	Sample	1		2	1	2		2	4	12
		8.3		16.7	8.3	16.7		16.7	33.3	100.0
	Pop.	1		2	1	2		2	9	17
		5.9		11.8	5.9	11.8		11.8	52.9	100.0
FT	Sample	5	5	7	7	3	2	3	23	55
		9.1	9.1	12.7	12.7	5.5	3.6	5.5	41.8	100.0
	Pop.	6	8	8	8	7	5	7	45	94
		6.4	8.5	8.5	8.5	7.4	5.3	7.4	47.9	100.0

Response Code:

0: Less than one year
1-6: Number of years
7: 7 or more years

Table AMI-7C

Years at Present Address

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 6

Response Category

		0	1	2	3	4	5	6	7	Total
NFT	Sample	5	5	4	2	3	5	2	15	41
		12.2	12.2	9.8	4.9	7.3	12.2	4.9	36.6	100.0
	Pop.	11	7	8	9	8	11	4	37	95
		11.6	7.4	8.4	9.5	8.4	11.6	4.2	38.9	100.0
FT	Sample	12	9	8	5	9	7	7	59	116
		10.3	7.8	6.9	4.3	7.8	6.0	6.0	50.9	100.0
	Pop.	20	12	14	13	13	10	9	85	176
		11.4	6.8	8.0	7.4	7.4	5.7	5.1	48.3	100.0

Sponsor: 7

Response Category

		0	1	2	3	4	5	6	7	Total
NFT	Sample	3	2	4	6	2	3	3	12	35
		8.6	5.7	11.4	17.1	5.7	8.6	8.6	34.3	100.0
	Pop.	7	5	11	8	7	4	4	30	76
		9.2	6.6	14.5	10.5	9.2	5.3	5.3	39.5	100.0
FT	Sample	7	4	8	7	2	4	1	17	50
		14.0	8.0	16.0	14.0	4.0	8.0	2.0	34.0	100.0
	Pop.	14	8	14	18	13	6	10	67	150
		9.3	5.3	9.3	12.0	8.7	4.0	6.7	44.7	100.0

Response Code:

0: Less than one year
1-6: Number of years
7: 7 or more years

Table AMI-7D

Years at Present Address

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 9

		Response Category								
		0	1	2	3	4	5	6	7	Total
NFT	Sample	8	4	7	7	7	3	4	36	76
		10.5	5.3	9.2	9.2	9.2	3.9	5.3	47.4	100.0
	Pop.	23	8	7	8	9	5	8	63	131
		17.6	6.1	5.3	6.1	6.9	3.8	6.1	48.1	100.0
FT	Sample	11	5	8	5	8	6	3	29	75
		14.7	6.7	10.7	6.7	10.7	8.0	4.0	38.7	100.0
	Pop.	25	12	14	7	8	8	8	48	130
		19.2	9.2	10.8	5.4	6.2	6.2	6.2	36.9	100.0

Sponsor: 10

		Response Category								
		0	1	2	3	4	5	6	7	Total
NFT	Sample	2	1		7	3	4	3	14	34
		5.9	2.9		20.6	8.8	11.8	8.8	41.2	100.0
	Pop.	4	9	5	8	3	4	4	17	54
		7.4	16.7	9.3	14.8	5.6	7.4	7.4	31.5	100.0
FT	Sample	11	2	4	3	7	6	7	17	57
		19.3	3.5	7.0	5.3	12.3	10.5	12.3	29.8	100.0
	Pop.	17	4	7	5	9	8	8	26	84
		20.2	4.8	8.3	6.0	10.7	9.5	9.5	31.0	100.0

Response Code:

0:	Less than one year
1-6:	Number of years
7:	7 or more years

Table AMI-7E

Years at Present Address

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 11

Response Category

		0	1	2	3	4	5	6	7	Total
NFT	Sample	3	1	5	6	6	2	6	12	41
		7.3	2.4	12.2	14.6	14.6	4.9	14.6	29.3	100.0
	Pop.	4	2	12	9	8	3	7	18	63
		6.3	3.2	19.0	14.3	12.7	4.8	11.1	28.6	100.0
FT	Sample	5	3	7	6	8	12	4	30	75
		6.7	4.0	9.3	8.0	10.7	16.0	5.3	40.0	100.0
	Pop.	6	3	8	7	8	13	6	34	85
		7.1	3.5	9.4	8.2	9.4	15.3	7.1	40.0	100.0

Sponsor: 12

Response Category

		0	1	2	3	4	5	6	7	Total
NFT	Sample		1	2	2	1		1	17	24
			4.2	8.3	8.3	4.2		4.2	70.8	100.0
	Pop.	4	4	6	4	1		1	21	41
		9.8	9.8	14.6	9.8	2.4		2.4	51.2	100.0
FT	Sample	1	2	2	3	6	5	5	22	46
		2.2	4.3	4.3	6.5	13.0	10.9	10.9	47.8	100.0
	Pop.	2	2	5	5	7	5	6	25	57
		3.5	3.5	8.8	8.8	12.3	8.8	10.5	43.9	100.0

Response Code:

0: Less than one year
1-6: Number of years
7: 7 or more years

Table AMI-8A

Does Parent Respondent Work in School?

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 0109,5,6,7,
9,10,11,12

		Response Category 1	2	3	Total
NFT	Sample	47	235		282
		16.7	83.3		100.0
	Pop.	75	465		540
		13.9	86.1		100.0
FT	Sample	91	440		531
		17.1	82.9		100.0
	Pop.	141	729		871
		16.2	83.7		100.0

Response Code:

1: yes
2: no
3: missing data

Table AMI-8B

Does Parent Respondent Work in School?

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 0109

		Response Category			
		1	2	3	Total
NFT	Sample	2	11		13
		15.4	84.6		100.0
	Pop.	4	19		23
		17.4	82.6		100.0
FT	Sample	12	37		49
		24.5	75.5		100.0
	Pop.	14	43		57
		24.6	75.4		100.0

Sponsor: 5

		Response Category			
		1	2	3	Total
NFT	Sample	1	11		12
		8.3	91.7		100.0
	Pop.	2	15		17
		11.8	88.2		100.0
FT	Sample	13	42		55
		23.6	76.4		100.0
	Pop.	18	76		94
		19.1	80.9		100.0

Response Code:

1: yes
2: no
3: missing data

Table AMI-8C

Does Parent Respondent Work in School?

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 6

		Response Category			
		1	2	3	Total
NFT	Sample	5	36		41
		12.2	87.8		100.0
	Pop.	10	85		95
		10.5	89.5		100.0
FT	Sample	17	99		116
		14.7	85.3		100.0
	Pop.	25	151		176
		14.2	85.8		100.0

Sponsor: 7

		Response Category			
		1	2	3	Total
NFT	Sample	7	28		35
		20.0	80.0		100.0
	Pop.	13	63		76
		17.1	82.9		100.0
FT	Sample	7	43		50
		14.0	86.0		100.0
	Pop.	27	123		150
		18.0	82.0		100.0

Response Code:

1: yes
2: no
3: missing data

Table AMI-8D

Does Parent Respondent Work in School?

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 9

		Response Category			
		1	2	3	Total
NFT	Sample	11	65		76
		14.5	85.5		100.0
	Pop.	19	112		131
		14.5	85.5		100.0
FT	Sample	15	60		75
		20.0	80.0		100.0
	Pop.	20	110		130
		15.4	84.6		100.0

Sponsor: 10

		Response Category			
		1	2	3	Total
NFT	Sample	14	20		34
		41.2	58.8		100.0
	Pop.	20	34		54
		37.0	63.0		100.0
FT	Sample	11	46		57
		19.3	80.7		100.0
	Pop.	18	66		84
		21.4	78.6		100.0

Response Code:

1: yes
2: no
3: missing data

Table AMI-8E

Does Parent Respondent Work in School?

Third Grade
Population N: 1,411
Sample N: 813

Sponsor: 11

		Response Category 1	2	3	Total
NFT	Sample	5	36		41
		12.2	87.8		100.0
	Pop.	5	58		63
		7.9	92.1		100.0
FT	Sample	11	64		75
		14.7	85.3		100.0
	Pop.	11	73	1	85
		12.9	85.9	1.2	100.0

Sponsor: 12

		Response Category 1	2	3	Total
NFT	Sample	2	22		24
		8.3	91.7		100.0
	Pop.	2	39		41
		4.9	95.1		100.0
FT	Sample	5	41		46
		10.9	89.1		100.0
	Pop.	7	50		57
		12.3	87.7		100.0

Response Code:

1: yes
2: no
3: missing data

Table AMI-9

KINDERGARTEN
PARENT STUDY

SUMMARY STATISTICS*

FT/NFT

Sponsor X FT/NFT

* No Covariates

	Dependent Variable			
	Parent-School Interaction (A)	Parent-School Interaction (B)	Parent-Child Oriented Behavior	Parent Satisfaction with child's academic success
	FT/NFT Effect			
sr^2_F	.03365	.02693	.00267	.00965
$R^2_{Y \cdot MAINS}$	.04489	.03878	.00782	.01793
F	139.6226	111.0293	10.6646	38.9411
d.f. =	1,3963	1,3963	1,3963	1,3963
p	.005	.005	.005	.005
	Sponsor X FT/NFT Interaction			
$sr^2_{S \times F}$	.00448	.00812	.00239	.00296
$R^2_{Y \cdot 2\ Ways}$	.04937	.04690	.01021	.02089
F	2.07043	3.7429	1.06083	1.32817
d.f. =	9,3954	9,3954	9,3954	9,3954
p	.05	.005	N.S.	N.S.

FACTORS:

- B Sponsor = 2,3,5,7,8,9,10,11,12,14
- C FT/NFT
- F Sponsor by FT/NFT

$$sr^2_C = R^2_{Y.BC} - R^2_{Y.B}$$

$$R^2_{Y.MAIN} = R^2_{Y.BC}$$

$$sr^2_F = R^2_{Y.BCF} - R^2_{Y.BC}$$

$$R^2_{Y.2WAYS} = R^2_{Y.BCF}$$

sr^2_i: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for the FACTOR INDICATED.

Table AMI-10

Unadjusted Means and Standard Deviations of Parent-School Interaction (A) for Parents of Kindergarten Children by Sponsor by FT/NFT

SPONSOR	FT			NFT			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
2	301	9.595	3.936	307	7.635	2.771	608	8.605	3.534
3	339	8.799	3.538	272	7.566	2.550	611	8.250	3.194
5	231	8.870	3.254	140	7.921	2.816	371	8.512	3.126
7	172	8.023	3.498	122	7.267	2.424	294	7.718	3.114
8	308	9.045	3.979	118	7.898	3.288	426	8.728	3.831
9	174	8.759	3.833	142	7.542	2.986	316	8.212	3.525
10	245	8.910	3.757	110	8.582	3.093	355	8.808	3.563
11	278	9.108	3.772	151	7.623	2.773	429	8.585	3.522
12	259	8.336	3.444	169	6.834	2.081	428	7.743	3.067
14	75	9.827	3.950	61	7.639	2.727	136	8.846	3.612
TOTAL	2382	8.909	3.715	1592	7.612	2.753	3974	8.390	3.422

Table AMI-11

Unadjusted Means and Standard Deviations of Parent-School Interaction (B) for Parents of Kindergarten Children by Sponsor by FT/NFT

SPONSOR	FT			NFT			TOTAL		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
2	301	7.708	2.783	307	6.332	1.898	608	7.013	2.474
3	339	7.280	2.548	272	6.294	1.867	611	6.841	2.321
5	231	7.035	2.216	140	6.650	2.000	371	6.889	2.143
7	172	6.535	2.118	122	6.189	1.736	294	6.391	1.973
8	308	7.016	2.573	118	6.559	2.311	426	6.890	2.509
9	174	7.057	2.541	142	6.451	2.220	316	6.785	2.418
10	245	7.033	2.540	110	7.109	2.316	355	7.056	2.470
11	278	7.306	2.463	151	6.437	1.627	429	7.000	2.242
12	259	6.683	2.313	169	5.633	1.233	428	6.269	2.023
14	75	7.707	2.680	61	6.328	1.972	136	7.088	2.478
TOTAL	2382	7.132	2.510	1592	6.359	1.931	3974	6.823	2.326

Table AMI-12

Unadjusted Means and Standard Deviations of Parent-Child School Oriented Behavior for Parents of Kindergarten Children by Sponsor by FT/NFT

SPONSOR	FT			NFT			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
2	301	22.867	2.337	307	22.765	2.362	608	22.816	2.348
3	339	22.876	2.549	272	22.787	2.538	611	22.836	2.543
5	231	22.762	3.036	140	22.771	2.678	371	22.769	2.902
7	172	23.198	2.668	122	22.746	2.738	294	23.010	2.702
8	308	23.282	2.559	118	22.814	2.371	426	23.153	2.514
9	174	23.190	2.246	142	22.859	2.564	316	23.041	2.396
10	245	22.984	2.466	110	23.073	2.265	355	23.011	2.403
11	278	22.788	2.527	151	22.046	2.855	429	22.527	2.667
12	259	22.811	2.304	169	22.450	2.609	428	22.668	2.433
14	75	23.027	2.331	61	22.295	3.122	136	22.699	2.728
TOTAL	2382	22.961	2.523	1592	22.682	2.576	3974	22.849	2.548

Table AMI-13

Unadjusted Means and Standard Deviations
of Parent Satisfaction with Child's Academic Success
for Parents of Kindergarten Children
by Sponsor by FT/NFT

SPONSOR	FT			NFT			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
2	301	19.628	1.973	307	18.912	2.500	608	19.266	2.284
3	339	19.407	2.258	272	19.051	2.056	611	19.249	2.176
5	231	19.532	2.074	140	19.343	2.158	371	19.480	2.104
7	172	19.366	2.242	122	18.525	2.601	294	19.017	2.429
8	308	19.299	2.275	118	18.636	2.751	426	19.115	2.431
9	174	19.632	1.921	142	19.204	1.991	316	19.440	1.961
10	245	19.665	1.915	110	19.500	1.796	355	19.614	1.878
11	278	19.320	2.092	151	18.868	2.521	429	19.161	2.260
12	259	19.625	1.573	169	19.533	1.666	428	19.589	1.609
14	75	19.867	1.687	61	19.410	2.101	136	19.662	1.890
TOTAL	2382	19.501	2.047	1592	19.075	2.265	3974	19.331	2.147

Table AMI-14

THIRD GRADE
PARENT STUDY

SUMMARY STATISTICS*

FT/NFT
Sponsor X FT/NFT

*No Covariates

	Dependent Variable				
	Parent-School Interaction (A)	Parent-School Interaction (B)	Parent-Child School Oriented Behavior	Parent Satisfaction with Child's Academic Success	Parent Satisfaction with Child's Affective Growth
FT/NFT Effect d.f. = 1,803					
sr_C^2	.0092	.0170	.0031	.0013	.0073
$R^2_{Y \cdot MAINS}$	.0266	.0341	.0440	.0173	.0946
F	7.6148	14.1339	2.6208	1.0623	6.4835
P	.01	.005	NS	NS	.025
Sponsor by FT/NFT Interaction d.f. = 8,795					
sr_F^2	.0147	.0130	.0182	.0104	.0206
$R^2_{Y \cdot 2\ WAYS}$	.0414	.0471	.0623	.0277	.1152
F	1.5291	1.3520	1.9330	1.0620	2.3149
P	NS	NS	.10	NS	.025

FACTORS:

B Sponsor = 0104, 0109, 5, 6,
7, 9, 10, 11, 12

C FT/NFT

F Sponsor by FT/NFT

$$sr_C^2 = R^2_{Y \cdot BC} - R^2_{Y \cdot B}$$

$$R^2_{Y.MAIN} = R^2_{Y \cdot BC}$$

$$sr_F^2 = R^2_{Y \cdot BCF} - R^2_{Y \cdot BC}$$

$$R^2_{Y \cdot 2\ WAYS} = R^2_{Y \cdot BCF}$$

sr_i^2 represents the squared semi-partial correlation or the percent of the variance uniquely accounted for the FACTOR INDICATED.

Table AMI-15

THIRD GRADE
PARENT STUDY

SUMMARY STATISTICS
Sponsor

Dependent Variable		
	Knowledge of Follow Through[a]	Knowledge of Follow Through[b]
Sponsor Effect		
sr^2_B		.12118
$R^2_{Y.SPONSOR}$	.04915	.17491
F	3.375527	4.2083398
d.f.	8, 522	8, 517
P	.005	.005

[a] No Covariates
FACTORS:
B Sponsor = 0104,0109,5,6,7,9,10,11,12

$R^2_{Y.SPONSOR}$

- -

[b] Adjusted by Selected Covariates
FACTORS:
Covariate = School Receptivity of Parent
Parent Locus of Control
Mother's Education
Household Income
Parent Respondent Works in School

B Sponsor = 0104, 0109, 5, 6, 7, 9, 10, 11, 12

$sr^2_B = R^2_{Y.cov\ B} - R^2_{Y.cov}$

$R^2_{Y.SPONSOR} = R^2_{Y.cov\ B}$

- -

sr^2_i: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for the FACTOR INDICATED.

Table AMI-16

Unadjusted Means and Standard Deviations
of Parent-School Interaction (A)
for Parents of Third Grade Children
by Sponsor by FT/NFT

SPONSOR	FT			NFT			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
0104	8	8.750	3.576	6	7.333	3.933	14	8.143	3.655
0109	49	9.388	3.628	13	8.769	3.876	62	9.258	3.657
5	55	9.891	4.293	12	7.000	2.523	67	9.373	4.170
6	116	8.621	4.032	41	8.268	3.742	157	8.529	3.949
7	50	9.400	4.486	35	9.571	2.883	85	9.471	3.887
9	75	9.973	4.899	76	8.053	3.358	151	9.007	4.290
10	57	8.544	2.626	34	8.882	3.023	91	8.670	2.769
11	75	8.947	3.788	41	7.805	2.400	116	8.543	3.397
12	46	7.522	3.325	24	7.875	2.643	70	7.643	3.093
TOTAL	531	9.032	4.017	282	8.294	3.170	813	8.776	3.760

Table AMI-17

Unadjusted Means and Standard Deviations of Parent-School Interaction (B) for Parents of Third Grade Children by Sponsor by FT/NFT

SPONSOR	FT			NFT			TOTAL		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
0104	8	9.125	4.549	6	6.500	4.722	14	8.000	4.641
0109	49	8.265	3.644	13	7.538	3.643	62	8.113	3.626
5	55	8.818	4.317	12	5.917	2.234	67	8.299	4.163
6	116	7.560	3.850	41	7.171	3.680	157	7.459	3.799
7	50	8.340	4.236	35	7.886	2.720	85	8.153	3.669
9	75	8.800	4.725	76	6.816	3.341	151	7.801	4.194
10	57	7.088	2.385	34	6.500	2.004	91	6.868	2.257
11	75	8.320	3.606	41	7.024	2.641	116	7.862	3.344
12	46	6.630	3.043	24	7.125	3.221	70	6.800	3.091
TOTAL	531	8.004	3.882	282	7.007	3.080	813	7.658	3.653

Table AMI-18

Unadjusted Means and Standard Deviations of Parent-Child School Oriented Behavior for Parents of Third Grade Children by Sponsor by FT/NFT

SPONSOR	FT			NFT			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
0104	8	29.875	8.676	6	25.333	7.866	14	27.929	8.352
0109	49	27.531	6.529	13	29.538	5.222	62	27.952	6.292
5	55	30.255	6.407	12	29.000	6.688	67	30.030	6.424
6	116	30.405	6.400	41	30.390	5.713	157	30.401	6.210
7	50	31.920	5.233	35	29.343	5.087	85	30.859	5.299
9	75	32.693	4.733	76	30.382	5.130	151	31.530	5.055
10	57	29.298	5.907	34	31.353	5.169	91	30.066	5.701
11	75	30.067	5.522	41	30.268	4.863	116	30.138	5.278
12	46	28.196	5.659	24	26.625	6.240	70	27.657	5.868
TOTAL	531	30.224	6.043	282	29.830	5.506	813	30.087	5.862

Table AMI-19

Unadjusted Means and Standard Deviations of Parent Satisfaction with Child's Academic Success for Parents of Third Grade Children by Sponsor by FT/NFT

SPONSOR	FT			NFT			TOTAL		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
0104	8	11.250	2.435	6	12.167	4.622	14	11.643	3.411
0109	49	13.306	3.164	13	13.231	2.127	62	13.290	2.961
5	55	12.909	2.737	12	13.583	2.539	67	13.030	2.697
6	116	13.828	2.798	41	13.098	2.508	157	13.637	2.737
7	50	13.500	2.279	35	12.686	2.207	85	13.165	2.272
9	75	13.867	2.796	76	13.421	2.862	151	13.642	2.829
10	57	13.158	2.411	34	13.529	2.926	91	13.297	2.606
11	75	12.747	3.167	41	13.366	3.006	116	12.966	3.112
12	46	13.978	2.285	24	13.000	2.874	70	13.643	2.525
TOTAL	531	13.409	2.782	282	13.223	2.750	813	13.344	2.771

Table AMI-20

Unadjusted Means and Standard Deviations of Parent Satisfaction with Child's Affective Growth for Parents of Third Grade Children by Sponsor by FT/NFT

SPONSOR	FT			NFT			TOTAL		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
0104	8	20.000	4.536	6	21.833	4.215	14	20.786	4.336
0109	49	20.286	3.062	13	20.154	4.469	62	20.258	3.363
5	55	22.473	3.150	12	22.167	3.927	67	22.418	3.271
6	116	21.345	3.381	41	20.000	3.969	157	20.994	3.580
7	50	21.000	3.482	35	20.314	2.918	85	20.314	2.918
9	75	22.960	3.198	76	20.895	3.737	151	21.921	3.619
10	57	20.491	3.355	34	20.412	3.276	91	20.462	3.308
11	75	18.680	3.953	41	19.951	3.420	116	19.129	3.807
12	46	19.370	3.200	24	18.125	3.927	70	18.943	3.489
TOTAL	531	20.900	3.642	282	20.301	3.700	813	20.692	3.671

Table AMI-21

Unadjusted Means and Standard Deviations of Parental Knowledge of Follow Through for Follow Through Parents of Third Grade Children by Sponsor

SPONSOR	FT		
	N	$\overline{X}$	S.D.
0104	8	18.000	5.345
0109	49	21.286	4.509
5	55	19.364	4.828
6	116	20.121	4.788
7	50	20.840	4.626
9	75	21.053	4.318
10	57	19.649	3.998
11	75	18.880	4.765
12	46	17.783	4.765
TOTAL	531	19.889	4.703

Table AMI-22

KINDERGARTEN
PARENT STUDY

SUMMARY STATISTICS*

FT/NFT
Sponsor X FT/NFT

* Adjusted by Selected Covariates

	Dependent Variable			
	Parent-School Interaction (A)	Parent-School Interaction (B)	Parent-Child Oriented Behavior	Parent Satisfaction with child's academic success
	FT/NFT Effect			
sr^2_F	.03226	.01188	.00055	.00521
$R^2_{Y\cdot MAINS}$	.09953	.21602	.08216	.04167
F	141.7624	60.55726	2.37056	21.528
d.f. =	1,3957	1,3956	1,3956	1,3960
p	.005	.005	N.S.	.005
	Sponsor by FT/NFT Interaction			
$sr^2_{S\ X\ F}$	.00397	.01188	.00178	.20360
$R^2_{Y\cdot 2\ Ways}$	.10100	.22392	.08394	.04527
F	1.93716	4.46403	.85216	1.65534
d.f. =	9,3948	9,3947	9,3947	9,3951
p	.05	.005	N.S.	.10

FACTORS:

Covariate = School Receptivity of Parent

Parent Satisfaction with Child's academic success (not for column 4)

Parent Locus of Control (not for column 4)

Poverty Index

Mother's Education (not for column 4)

City size (not for column 4)

Parent Respondent works in school (not for column 1)

B Sponsor = 2,3,5,7,8,9,10,11,12,14

C FT/NFT

Sponsor by FT/NFT

$sr^2_C = R^2_{Y.cov\ BC} - R^2_{Y.cov\ B}$

$R^2_{Y.MAIN} = R^2_{Y.cov\ BC}$

$sr^2_F = R^2_{Y.cov\ BCF} - R^2_{Y.cov\ BC}$

$R^2_{Y.2WAYS} = R^2_{Y.cov\ BCF}$

sr^2_i: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for the FACTOR INDICATED.

Table AMI-23

THIRD GRADE
PARENT STUDY

SUMMARY STATISTICS*

FT/NFT
Sponsor X FT/NFT

*Adjusted by Selected Covariates

	Dependent Variable				
	Parent-School Interaction (A)	Parent-School Interaction (B)	Parent-Child School Oriented Behavior	Parent Satisfaction with Child's Academic Success	Parent Satisfaction with Child's Affective Growth
FT/NFT Effect d.f. = 1,798 (1,799 for columns 1, 4 and 5)					
sr_C^2	0.0239	0.0318	0.0024	0.0018	0.0033
$R^2_{Y\cdot MAINS}$	0.1284	0.2105	0.0533	0.0526	0.1133
F	21.9095	32.1710	1.9894	1.4927	3.0096
P	.005	.005	NS	NS	.10
Sponsor by FT/NFT Interaction d.f. = 8,790 (8,791 for columns 1, 4 and 5)					
sr_F^2	0.0127	0.0108	0.0167	0.0109	0.0215
$R^2_{Y\cdot 2\ WAYS}$	0.1411	0.2213	0.0701	0.0634	0.1348
F	1.4666	1.3747	1.7787	1.1476	2.4617
P	NS	NS	.10	NS	.025

FACTORS:

Covariates = School Receptivity of Parent
Parent Locus of Control (not for columns 4 and 5)
Mother's Education
Household Income
Parent Respondent works in School (not for column 1)

B Sponsor = 0104,0109,5,6,7,9,10,11,12

C FT/NFT

F Sponsor by FT/NFT

$$sr_C^2 = R^2_{Y.cov\ BC} - R^2_{Y.cov\ B}$$

$$R^2_{Y.MAIN} = R^2_{Y.cov\ BC}$$

$$sr_F^2 = R^2_{Y.cov\ BCF} - R^2_{Y.cov\ BC}$$

$$R^2_{Y.2\ WAYS} = R^2_{Y,cov\ BCF}$$

sr_i^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for the FACTOR INDICATED.

Table AMI-24
THIRD GRADE
PARENT STUDY

SUMMARY STATISTICS*
FT/NFT
Sponsor X FT/NFT
Predictor X Sponsor X FT/NFT

*No Covariates

	PREDICTOR: Parent - School Interaction (A)		PREDICTOR: Parent - School Interaction (B)	
	Dependent Variable			
	Parent satisfaction with child's academic success	Parent satisfaction with child's affective growth	Parent satisfaction with child's academic success	Parent satisfaction with child's affective growth
	FT/NFT Effect d.f. = 1, 802			
[illegible]	.00065	.00634	.00070	.00617
$R_{Y \cdot MAIN}^2$	.02901	.09775	.02245	.09683
F	.537	5.635	.574	5.479
P	N.S.	.025	N.S.	.025
	Sponsor by FT/NFT Interaction d.f. = 8, 785			
sr_F^2	.01119	.02215	.01155	.02316
$R_{Y \cdot 2\ WAYS}^2$	.05475	.12827	.04479	.12799
F	1.162	2.493	1.186	2.606
P	N.S.	.025	N.S.	N.S.
	Predictor by Sponsor by FT/NFT Interaction d.f. = 8, 777			
sr_G^2	.01109	.01612	.01296	.01240
$R_{Y \cdot TOTAL}^2$	.06584	.14439	.05775	.14039
F	1.153	1.830	1.336	1.401
P	N.S.	.10	N.S.	N.S.

FACTORS:

B Sponsor = 0104,0109,5,6,7,9,10,11,12

C FT/NFT

F Sponsor by FT/NFT

G Sponsor by FT/NFT by Predictor

$sr_C^2 = R_{Y.BC}^2 - R_{Y.B}^2$

$R_{Y.MAIN}^2 = R_{Y.BC}^2$

$sr_F^2 = R_{Y.BCF}^2 - R_{Y.BC}^2$

$R_{Y.2WAYS}^2 = R_{Y.BCF}^2$

$sr_G^2 = R_{Y.BCFG}^2 - R_{Y.BCF}^2$

$R_{Y.TOTAL}^2 = R_{Y.BCFG}^2$

sr_i^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for the FACTOR INDICATED.

Table AMI-25
THIRD GRADE
PARENT STUDY

SUMMARY STATISTICS*

FT/NFT

Sponsor X FT/NFT

Predictor X Sponsor X FT/NFT

Predictor Parent-Child School Oriented Behavior

* No Covariates

	Dependent Variable			
	Parent-School Interaction (A)	Child-School Interaction (B)	Parent Satisfaction with Child's Academic Success	Parent Satisfaction with Child's Affective Growth
FT/NFT Effect d.f. = 1, 802				
sr_C^2	.00732	.01433	.00052	.00536
$R^2_{Y \cdot MAIN}$	.06154	.06896	.07147	.13946
F	6.256	12.344	.449	4.995
P	.025	.005	N.S.	.05
Sponsor by FT/NFT Interaction d.f. = 8, 785				
sr_F^2	.01210	.01089	.00940	.01664
$R^2_{Y \cdot 2\ WAYS}$	.08411	.09690	.09598	.16615
F	1.296	1.182	1.020	1.958
P	N.S.	N.S.	N.S.	.05
Predictor by Sponsor by FT/NFT Interaction d.f. = 8, 777				
sr_G^2	.00989	.00870	.00394	.01270
$R_Y^2 \cdot TOTAL$	.09400	.10560	.09992	.17885
F	1.060	.945	.425	1.502
P	N.S.	N.S.	N.S.	N.S.

FACTORS:

B Sponsor = 0104,0109,5,6,7,9,10,11,12

C FT/NFT

F Sponsor by FT/NFT

G Sponsor by FT/NFT by Predictor

$sr_C^2 = R^2_{Y.BC} - R^2_{Y.B}$

$R^2_{Y.MAIN} = R^2_{y.BC}$

$sr_F^2 = R^2_{Y.BCF} - R^2_{y.BC}$

$R^2_{Y.2WAYS} = R^2_{Y.BCF}$

$sr_G^2 = R^2_{Y.BCFG} - R^2_{Y.BCF}$

$R^2_{Y.TOTAL} = R^2_{Y.BCFG}$

sr_i^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for the FACTOR INDICATED.

Table AMI-26
THIRD GRADE
PARENT STUDY

SUMMARY STATISTICS*

FT/NFT

Sponsor X FT/NFT

Predictor X Sponsor X FT/NFT

Predictor Income

* No Covariates

Dependent Variable				
	Parent-School Interaction (A)	[illegible]-School Interaction (B)	**Parent Satisfaction with Child's Academic Success**	**Parent Satisfaction with Child's Affective Growth**
FT/NFT Effect d.f. = 1, 802				
sr_C^2	.02346	.03469	.00179	.00309
$R^2_{Y.MAINS}$	.08092	.08843	.01817	.10559
F	20.471	30.520	1.462	2.771
P	.005	.005	N.S.	.10
Sponsor by FT/NFT Interaction d.f. = 8, 785				
sr_F^2	.01251	.01353	.00852	.01290
$R^2_{Y.2\ WAYS}$	.10167	.11190	.05284	.14451
F	1.366	1.495	.883	1.480
P	N.S.	N.S.	N.S.	N.S.
Predictor by Sponsor by FT/NFT Interaction d.f. = 8, 777				
sr_G^2	.00966	.01088	.02435	.01381
$R^2_{Y.TOTAL}$	.11133	.12278	.07719	.15832
F	1.056	1.205	2.563	1.594
P	N.S.	N.S.	.01	N.S.

FACTORS:

- B Sponsor = 0101,0109,5,6,7,9, 10,11,12
- C FT/NFT
- F Sponsor by FT/NFT
- G Sponsor by FT/NFT by Predictor

$sr_C^2 = R^2_{Y.BC} - R^2_{Y.B}$

$R^2_{Y.MAIN} = R^2_{y.BC}$

$sr_F^2 = R^2_{y.BCF} - R^2_{y.BC}$

$R^2_{Y.2WAYS} = R^2_{Y.BCF}$

$sr_G^2 = R^2_{Y.BCFG} - R^2_{Y.BCF}$

$R^2_{Y.TOTAL} = R^2_{Y.BCFG}$

sr_i^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for the FACTOR INDICATED.

Table AMI-27

THIRD GRADE
PARENT STUDY

SUMMARY STATISTICS*
FT/NFT

Sponsor X FT/NFT†

Predictor X Sponsor X FT/NFT

Predictor School's Receptivity of Parent

* No Covariates

	Dependent Variable			
	Parent - School Interaction (A)	Parent - School Interaction (B)	Parent Satisfaction with Child's Academic Success	Parent Satisfaction with Child's Affective Growth
FT/NFT Effect d.f. = 1, 802				
sr_C^2	.00984	.01708	.00165	.00787
$R^2_{Y \cdot MAINS}$	.02739	.03417	.02914	.10125
F	7.817	14.183	1.363	7.023
P	.01	.005	N.S.	.01
Sponsor by FT/NFT Interaction d.f. = 8, 785				
sr_F^2	.01568	.01297	.01383	.02062
$R^2_{Y \cdot 2\ WAYS}$	.04898	.05422	.05658	.13728
F	1.618	1.346	1.438	2.245
P	N.S.	N.S.	N.S.	.025
Predictor by Sponsor by FT/NFT Interaction d.f. = 8, 777				
sr_G^2	.01640	.01743	.01284	.01219
$R^2_{Y \cdot TOTAL}$	.06538	.07165	.06942	.14947
F	1.704	1.823	1.340	1.392
P	.10	N.S.	N.S.	N.S.

FACTORS:

- B Sponsor = 0104,0109,5,6,7,9, 10,11,12
- C FT/NFT
- F Sponsor by FT/NFT
- G Sponsor by FT/NFT by Predictor

$sr_C^2 = R^2_{Y.BC} - R^2_{Y.B}$

$R^2_{Y.MAIN} = R^2_{y.BC}$

$sr_F^2 = R^2_{y.BCF} - R^2_{y.BC}$

$R^2_{Y.2WAYS} = R^2_{Y.BCF}$

$sr_G^2 = R^2_{Y.BCFG} - R^2_{Y.BCF}$

$R^2_{Y.TOTAL} = R^2_{Y.BCFG}$

sr_i^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for the FACTOR INDICATED.

Table AMI-28

Regression Results of Third Grade Parent Data

Predictor	Outcome	Zero Order[a]					Partial[b]			
		r	b	SE	F (1,811)	p	b	SE	F (1,777)	p
Parent-School Interaction (A)	Parent Satisfaction with Child's Academic Success	.10719	.07900	.02573	9.42702	.005	.07816	.04153	3.54182	.10
	Parent Satisfaction with Child's Affective Growth	.08744	.08539	.03416	6.24853	.025	.12386	.05267	5.53117	.025
Parent-School Interaction (B)	Parent Satisfaction with Child's Academic Success	.06799	.05157	.02657	3.76613	.10	.03672	.04160	0.77915	NS
	Parent Satisfaction with Child's Affective Growth	.07232	.07268	.03520	4.26351	.05	.10349	.05265	3.86359	.05
Income	Parent-School Interaction (A)	.15987	.07277	.01578	21.27083	.005	.12363	.02879	18.49956	.005
	Parent-School Interaction (B)	.15631	.06913	.01534	20.31022	.005	.12700	.02775	20.94817	.005
	Parent Satisfaction with Child's Academic Success	-.00527	-.00177	.01178	0.02253	NS	.00710	.02159	0.10811	NS
	Parent Satisfaction with Child's Affective Growth	-.21916	-.09742	.01523	40.91992	.005	-.01299	.02732	0.22596	NS

[a] The regression equation only includes the predictor and outcome variables.

[b] In addition to the predictor and outcome variables, the regression equation includes variables representing FT/NFT, eight Sponsors and all two and three-way interactions.

Table AMI-28 (continued)

Regression Results of Third Grade Parent Data

Predictor	Outcome	Zero Order[a]					Partial[b]			
		r	b	SE	F (1,811)	p	b	SE	F (1,777)	p
Parent-Child School Oriented Behavior	Parent-School Interaction (A)	.20067	.12870	.02206	34.02679	.005	.12203	.02880	17.94860	.005
	Parent-School Interaction (B)	.19718	.12287	.02145	32.80586	.005	.12689	.02781	20.82388	.005
	Parent Satisfaction with Child's Academic Success	.23510	.11113	.01613	47.45026	.005	.10074	.02116	22.66936	.005
	Parent Satisfaction with Child's Affective Growth	.24731	.15490	.02131	52.83599	.005	.15592	.02678	33.90256	.005
Parent Perception of School Receptivity	Parent-School Interaction (A)	.04017	.05226	.04564	1.31109	NS	.06221	.06221	0.97590	NS
	Parent-School Interaction (B)	.00078	.00099	.04438	0.00049	NS	.03562	.06098	0.34116	NS
	Parent Satisfaction with Child's Academic Success	.10494	.10061	.03348	9.03027	.005	.01768	.04631	0.14567	NS
	Parent Satisfaction with Child's Affective Growth	.11324	.14385	.04432	10.53427	.005	.18491	.05867	9.93378	.005

[a] The regression equation only includes the predictor and outcome variables.

[b] In addition to the predictor and outcome variables, the regression equation includes variables representing FT/NFT, eight Sponsors and all two and three-way interactions.

Table A MII-1

Distribution of Original Teacher Sample
by FT/NFT. Sponsor and Grade Level

SPONSOR	GRADE LEVEL											
	Kinder-garten		Entering First		Non-Entering First		Second		Third		Mixed	
	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT
1					22	14	19	11	7	9	2	3
2	42	29			27	30	9	6			5	18
3	41	31	5	3	28	18	16	25	17	14		2
5	42	26	12	5	26	24	29	15	11	2	3	5
6			6	2			3	2	16	10		
7	34	26	21	15	14	14	18	14	12	7	4	1
8	43	27			19	8	11	5			1	
9	25	26	1		8	10	9	7	10	11		
10	29	21	14	10	19	13	9	6	14	9	12	4
11	23	18	5	3	11	14	14	19	6	11	4	1
12	20	12			6	6	6		4	1	2	4
13	4	4			13	11	15	11				
14	20	12			14	20	14	9	5	4		1
20	3	1										
Total	326	233	64	38	207	182	172	130	102	78	33	39

Table A MII-2

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Teacher Satisfaction	5	If I had my choice about a way to teach, I would:	Continue, and use the model to the same extent I do now.	1	6
			Alter my teaching some, but continue to use the model.	2	5
			Use some of the model in my teaching, but change most of it.	3	2
			Not use the model at all.	4	1
	6	If a friend asked me for advice about her child, I would advise her to:	Enroll her child in the FT model in which I teach.	1	5
			Enroll her child in Follow Through but in some other model.	2	4
			Enroll her child in any FT model; the model doesn't matter.	3	4
			Not enroll her child in FT.	4	1
	7	If a friend asked for advice about what program to teach in, I would advise her to:	Teach in the FT model in which I teach.	1	6
			Teach in FT, but in another model.	2	3
			Teach in FT, any model; the model doesn't matter.	3	3
			Not teach in FT.	4	2
Perceived Faithfulness to Sponsor's Approach		How different do you think your classroom is from what the Sponsor says an ideal classroom should be?			
	10.1	Materials and physical equipment	Very different	1	2
			Somewhat different	2	4
			Not at all	3	5
	10.2	Amount of student choice	Very different	1	2
			Somewhat different	2	4
			Not at all	3	6
	10.3	Amount of teacher direction	Very different	1	1
			Somewhat different	2	3
			Not at all	3	6
	10.4	Number of structured group activities	Very different	1	2
			Somewhat different	2	3
			Not at all	3	5
	10.5	Flexibility of daily schedule	Very different	1	1
			Somewhat different	2	3
			Not at all	3	5
	10.6	Overall classroom program	Very different	1	1
			Somewhat different	2	4
			Not at all	3	6

Table A XII-2 (cont'd.)

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Amount of Training:		How much emphasis was given to each of the following areas in your initial and in-service training in FT?			
Structure	19.1	Presenting structured materials to small groups	Much emphasis	1	5
			Some emphasis	2	4
			Little emphasis	3	2
			None	4	1
	19.2	Using rewards effectively to shape behavior	Much emphasis	1	6
			Some emphasis	2	4
			Little emphasis	3	3
			None	4	2
	19.3	Developing and presenting sequenced materials	Much emphasis	1	6
			Some emphasis	2	5
			Little emphasis	3	3
			None	4	1
Child-centeredness	19.4	Using culturally relevant materials	Much emphasis	1	7
			Some emphasis	2	5
			Little emphasis	3	4
			None	4	2
	19.6	Developing problem solving and reasoning abilities	Much emphasis	1	6
			Some emphasis	2	4
			Little emphasis	3	3
			None	4	2
	19.7	Promoting optimal development of self-concept	Much emphasis	1	5
			Some emphasis	2	4
			Little emphasis	3	2
			None	4	1
	19.8	Developing social interaction skills	Much emphasis	1	6
			Some emphasis	2	5
			Little emphasis	3	3
			None	4	1
	19.9	Encouraging children to make choices and carry out plans	Much emphasis	1	6
			Some emphasis	2	4
			Little emphasis	3	3
			None	4	1
	19.11	Guiding children in individual learning activities	Much emphasis	1	6
			Some emphasis	2	4
			Little emphasis	3	2
			None	4	1
	19.12	Promoting the development of intrinsic motivation	Much emphasis	1	7
			Some emphasis	2	5
			Little emphasis	3	3
			None	4	1

Table A MII-2 (cont'd.)

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Child-centeredness, continued	19.13	Diagnosing individual learning problems	Much emphasis	1	6
			Some emphasis	2	5
			Little emphasis	3	3
			None	4	2
Working with parents and aides	19.5	Using a classroom aide effectively	Much emphasis	1	5
			Some emphasis	2	4
			Little emphasis	3	3
			None	4	1
	19.14	Training parents to use effective reinforcement techniques	Much emphasis	1	6
			Some emphasis	2	5
			Little emphasis	3	3
			None	4	2
	19.15	Giving parents a sense of participation in school	Much emphasis	1	6
			Some emphasis	2	4
			Little emphasis	3	2
			None	4	1
Teacher Attitudes Toward Meeting with Parents		How important do you think it is for you or your staff t. meet with parents for any of the following reasons:			
	55.02	Learn parents' views on teaching and curriculum	Very important	1	5
			Important	2	3
			Not very important	3	1
	55.03	Discuss availability of services to parents and children	Very important	1	6
			Important	2	3
			Not very important	3	1
	55.04	Have parents understand school program	Very important	1	6
			Important	2	5
			Not very important	3	2
	55.05	Obtain support for school program	Very important	1	5
			Important	2	4
			Not very important	3	2
	55.06	Obtain or increase number of classroom volunteers	Very important	1	4
			Important	2	3
			Not very important	3	1
	55.07	Have teachers understand parents and community	Very important	1	6
			Important	2	4
			Not very important	3	2

Table A MII-2 (cont'd.)

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Teacher Values:		Most items for these clusters were drawn from two questions: 43) How do you rate the following goals? and 44) How do you rate the importance of the things you do in your teaching? Teachers were asked to force their responses into a normal distribution as follows: Least important--up to 2 such responses could be coded Less important--up to 3 such responses could be coded Important--up to 5 such responses could be coded More important--up to 3 such responses could be coded Most important--up to 2 such responses could be coded			
Parent-community orientation	43 1	Developing ethnic pride	Least important	1	2
			Less important	2	3
			Important	3	4
			More important	4	5
			Most important	5	7
	43 m	Involving parents in their child's learning activities	Least important	1	1
			Less important	2	2
			Important	3	4
			More important	4	6
			Most important	5	7
	44 m	Working with parents	Least important	1	1
			Less important	2	3
			Important	3	5
			More important	4	6
			Most important	5	7
Social skills development	43 n	Developing the child's ability to work and play cooperatively with other children	Least important	1	1
			Less important	2	2
			Important	3	4
			More important	4	5
			Most important	5	7
	43 o	Developing the child's respect for other people	Least important	1	2
			Less important	2	3
			Important	3	4
			More important	4	6
			Most important	5	7
	44 n	Encouraging groups of children to work and play together	Least important	1	1
			Less important	2	3
			Important	3	5
			More important	4	6
			Most important		

Table A MII-2 (cont'd.)

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Structured/academic vs. child-centered orientation	43 i	Developing the child's motivation	Least important	1	5
			Less important	2	5
			Important	3	3
			More important	4	1
			Most important	5	1
	43 j	Giving the child a solid grasp of fundamental skills	Least important	1	1
			Less important	2	1
			Important	3	3
			More important	4	4
			Most important	5	5
	44 a	Presenting structured materials to small groups	Least important	1	3
			Less important	2	1
			Important	3	3
			More important	4	5
			Most important	5	6
	44 b	Using rewards to shape behavior	Least important	1	2
			Less important	2	3
			Important	3	4
			More important	4	6
			Most important	5	6
	44 c	Preparing sequenced instructional materials	Least important	1	2
			Less important	2	2
			Important	3	4
			More important	4	5
			Most important	5	7
	44 d	Preparing a classroom environment for exploration	Least important	1	7
			Less important	2	6
			Important	3	4
			More important	4	2
			Most important	5	1
	44 e	Encouraging children to explore	Least important	1	7
			Less important	2	7
			Important	3	4
			More important	4	2
			Most important	5	1
	44 i	Giving children praise, affection, and a sense of their own worth	Least important	1	7
			Less important	2	6
			Important	3	4
			More important	4	4
			Most important	5	3

Table A MII-2 (cont'd.)

Variable Name	Item #	Item	Response	Response Code	Scoring Response Code
Structured/academic vs. child-centered approach, continued	44 o	Establishing a clear time structure and routines	Least important	1	2
			Less important	2	3
			Important	3	5
			More important	4	5
			Most important	5	6
	46	Which of these views is closest to your own philosophy?	Carefully structured lessons and experiences	1	6
			Helping the child discover things for himself	2	2

Table A MII-3A
FT/NFT
TEACHER STUDIES
SUMMARY OF STATISTICS FOR UNADJUSTED SCORES
FT/NFT
PREDICTOR

PREDICTOR GRADE

	Dependent Variable					
	Teacher Attitudes Toward Meeting With Parents	Teacher Values: Parent-Community Orientation	Teacher Values: Social Skills Development	Teacher Values: Structured/Academic vs. Child Centered Orientation	Frequency of Teacher Visits to Children's Homes	Teacher Expectations of Children's Academic Progress
FT/NFT						
sr^2_C	.0253	.0020	.0053	.0046	.0454	.0006
$R^2_{Y \cdot MAIN}$	.0599	.0207	.0388	.1432	.1007	.0167
F	12.2180	.9272	2.5033	2.4374	22.9196	.2770
d.f.	1,454	1,454	1,454	1,454	1,454	1,454
p	.005	NS	.025 NS	.025 NS	.005	NS
PREDICTOR						
sr^2_A	.0115	.0046	.0062	.0168	.0036	.0009
$R^2_{Y \cdot MAIN}$	.0599	.0207	.0388	.1432	.1007	.0167
F	13.6530	5.2170	7.2150	21.7560	4.4400	.9990
d.f.	1,1110	1,1110	1,1110	1,1110	1,1110	1,1110
p	.005	.025	.01	.005	.05	NS

FACTORS:

A Predictor = GRADE
B Sponsor = 2,3,5,7,8,9,10,11,12,14
C FT/NFT
D Predictor by Sponsor
Predictor by FT/NFT
Sponsor by FT/NFT
G Predictor by Sponsor by FT/NFT

$$sr^2_C = R^2_{y \cdot ABC} - R^2_{y \cdot AB}$$

$$R^2_{y \cdot MAIN} = R^2_{y \cdot ABC}$$

$$sr^2_A = R^2_{y \cdot ABC} - R^2_{y \cdot BC}$$

sr^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table A MII-3A (cont'd.)

PREDICTOR X SPONSOR X FT/NFT

PREDICTOR GRADE

	Dependent Variable					
	Teacher Attitudes Toward Meeting With Parents	Teacher Values: Parent-Community Orientation	Teacher Values: Social Skills Development	Teacher Values: Structured/Academic vs. Child Centered Orientation	Frequency of Teacher Visits to Children's Homes	Teacher Expectations of Children's Academic Progress
PREDICTOR X SPONSOR X FT/NFT						
sr^2_G	.0097	.0091	.0037	.0168	.0081	.0079
$R^2_{Y \cdot TOTAL}$	.0959	.0625	.0743	.2180	.1982	.0533
F	1.2924	1.168	.4761	2.576	1.219	1.0027
d.f.	9,1082	9,1082	9,1082	9,1082	9,1082	9,1082
p	NS	NS	NS	.01	NS	NS

FACTORS:

A Predictor = GRADE
B Sponsor = 2,3,5,7,8,9,10,11,12,14
C FT/NFT
D Predictor by Sponsor
E Predictor by FT/NFT
F Sponsor by FT/NFT
G Predictor by Sponsor by FT/NFT

$sr^2_G = R^2_{y \cdot ABCDEFG} - R^2_{y \cdot ABCDEF}$

$R^2_{y \cdot TOTAL} = R^2_{y \cdot ABCDEFG}$

sr^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table A MII-3A (cont'd.)

PREDICTOR X FT/NFT

SPONSOR X FT/NFT

PREDICTOR GRADE

	Dependent Variable					
	Teacher Attitudes Toward Meeting With Parents	Teacher Values: Parent-Community Orientation	Teacher Values: Social Skills Development	Teacher Values: Structured/Academic , Child Centered Orientation	Frequency of Teacher Visits to Children's Homes	Teacher Expectations of Children's Academic Progress
PREDICTOR X FT/NFT						
sr_E^2	.0004	.0002	.0000	.0012	.0016	.0002
$R^2_{Y\cdot 2\ WAYS}$	.0862	.0534	.0706	.2013	.1901	.0454
F	.4364	.2728	.0000	1.6474	2.1154	.1964
d.f.	1,1091	1,1091	1,1091	1,1091	1,1091	1,1091
p	NS	NS	NS	NS	NS	NS
SPONSOR X FT/NFT						
sr_F^2	.0088	.0138	.0169	.0464	.0662	.0084
$R^2_{Y\cdot 2\ WAYS}$	.0862	.0534	.0706	.1916	.1901	.0454
F	.4655	.7046	.8789	2.7742	3.9507	.4253
d.f.	9,435	9,435	9,435	9,435	9,435	9,435
p	NS	NS	NS	.005	.005	NS

FACTORS:

A Predictor = GRADE
B Sponsor = 2,3,5,7,8,9,10,11,12.14
C FT/NFT
D Predictor by Sponsor
E Predictor by FT/NFT
F Sponsor by FT/NFT
G Predictor by Sponsor by FT/NFT

$sr_E^2 = R^2_{y\cdot ABCDEF} - R^2_{y\cdot ABCDF}$

$R^2_{y\cdot 2\ WAYS} = R^2_{y\cdot ABCDEF}$

$sr_F^2 = R^2_{y\cdot ABCDEF} - R^2_{y\cdot ABCDE}$

sr^2; represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table A MII-3B

FT/NFT
TEACHER STUDIES

SUMMARY OF STATISTICS FOR ADJUSTED SCORES

FT/NFT

PREDICTOR

PREDICTOR GRADE

	Dependent Variable					
	Teacher Attitudes Toward Meeting With Parents	Teacher Values: Parent-Community Orientation	Teacher Values: Social Skills Development	Teacher Values: Structured/Academic vs. Child Centered Orientation	Frequency of Teacher Visits to Children's Homes	Teacher Expectations of Children's Academic Progress
FT/NFT						
sr^2_C	.0230	.0013	.0038	.0043	.0434	.0000
$R^2_{Y \cdot MAIN}$	.0751	.0785	.0709	.1614	.1058	.0576
F	11.1406	.6320	1.8323	2.2971	21.8408	.000
d.f.	1,448	1,448	1,448	1,448	1,450	1,448
P	.005	NS	NS	NS	.005	NS
PREDICTOR						
sr^2_A	.0088	.0031	.0019	.0186	.0026	.0000
$R^2_{Y \cdot MAIN}$	.0751	.0785	.0709	.1614	.1058	.0576
F	10.4680	3.7536	2.208	24.5088	3.2158	.0000
d.f.	1,1104	1,1104	1,1104	1,1104	1,1106	1,1104
P	.005	.10	NS	.005	.10	NS

FACTORS:

A Predictor = GRADE
B Sponsor = 2,3,5,7,8,9,10,11,12,14
C FT/NFT
D Predictor by Sponsor
E Predictor by FT/NFT
F Sponsor by FT/NFT
G Predictor by Sponsor by FT/NFT

$sr^2_C = R^2_{y \cdot ABC} - R^2_{y \cdot AB}$

$R^2_{y \cdot MAIN} = R^2_{y \cdot ABC}$

$sr^2_A = R^2_{y \cdot ABC} - R^2_{y \cdot BC}$

sr^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table A MII-3B (cont'd.)

PREDICTOR X FT/NFT

SPONSOR X FT/NFT

PREDICTOR GRADE

	Dependent Variable					
	Teacher Attitudes Toward Meeting With Parents	Teacher Values: Parent-Community Orientation	Teacher Values: Social Skills Development	Teacher Values: Structured/Academic vs. Child Centered Orientation	Frequency of Teacher Visits to Children's Homes	Teacher Expectations of Children's Academic Progress
PREDICTOR X FT/NFT						
sr_E^2	.0006	.0001	.0002	.0013	.0016	.0003
$R^2_{Y\cdot 2\ WAYS}$	.1020	.1134	.0986	.2155	.1949	.0875
F	.7847	.1085	.2170	1.8445	2.1337	.3255
d.f.	1,1085	1,1085	1,1085	1,1085	1,1087	1,1085
p	NS	NS	NS	NS	NS	NS
SPONSOR X FT/NFT						
sr_F^2	.0090	.0172	.0156	.0424	.0658	.0109
$R^2_{Y\cdot 2\ WAYS}$	.1020	.1134	.0986	.2155	.1949	.0875
F	.4777	.9247	.8249	2.5762	3.9139	.5694
d.f.	9,429	9,429	9,429	9,429	9,431	9,429
p	NS	NS	NS	.01	.005	NS

FACTORS:

- A Predictor = GRADE
- B Sponsor = 2,3,5,7,8,9,10,11,12,14
- C FT/NFT
- D Predictor by Sponsor
- E Predictor by FT/NFT
- F Sponsor by FT/NFT
- G Predictor by Sponsor by FT/NFT

$sr_E^2 = R^2_{y\cdot ABCDEF} - R^2_{y\cdot ABCDF}$

$R^2_{y\cdot 2\ WAYS} = R^2_{y\cdot ABCDEF}$

$sr_F^2 = R^2_{y\cdot ABCDEF} - R^2_{y\cdot ABCDE}$

sr^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table A VIII-3B (cont'd.)

PREDICTOR X SPONSOR X FT/NFT

PREDICTOR GRADE

<table>
<tr><th></th><th colspan="6">Dependent Variable</th></tr>
<tr><th></th><th>Teacher Attitudes Toward Meeting With Parents</th><th>Teacher Values: Parent-Community Orientation</th><th>Teacher Values: Social Skills Development</th><th>Teacher Values: Structured/Academic vs. Child Centered Orientation</th><th>Frequency of Teacher Visits to Children's Homes</th><th>Teacher Expectations of Children's Academic Progress</th></tr>
<tr><td colspan="7">PREDICTOR X SPONSOR X FT/NFT</td></tr>
<tr><td>sr_G^2</td><td>.0107</td><td>.0100</td><td>.0045</td><td>.0148</td><td>.0079</td><td>.0076</td></tr>
<tr><td>$R^2_{Y\cdot TOTAL}$</td><td>.1127</td><td>.1234</td><td>.1032</td><td>.2303</td><td>.2028</td><td>.0951</td></tr>
<tr><td>F</td><td>1.4466</td><td>1.3629</td><td>.5978</td><td>2.2955</td><td>1.1869</td><td>1.0043</td></tr>
<tr><td>d.f.</td><td>9,1076</td><td>9,1076</td><td>9,1076</td><td>9,1076</td><td>9,1078</td><td>9,1076</td></tr>
<tr><td>p</td><td>NS</td><td>NS</td><td>NS</td><td>.025</td><td>NS</td><td>NS</td></tr>
</table>

FACTORS:

A Predictor = GRADE
B Sponsor = 2,3,5,7,8,9,10,11,12,14
C FT/NFT
D Predictor by Sponsor
E Predictor by FT/NFT
F Sponsor by FT/NFT
G Predictor by Sponsor by FT/NFT

$sr_G^2 = R^2_{y\cdot ABCDEFG} - R^2_{y\cdot ABCDEF}$

$R^2_{y\cdot TOTAL} = R^2_{y\cdot ABCDEFG}$

sr^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table A MII-4A

FT-ONLY
TEACHER STUDIES

SUMMARY OF STATISTICS FOR UNADJUSTED SCORES

SPONSOR

PREDICTOR

PREDICTOR GRADE

	Dependent Variable				
	Teacher Satisfaction	Perceived Fidelity to Sponsor's Approach	Amount of Teacher Training: Structure	Amount of Teacher Training: Child Centeredness	Amount of Teacher Training: Working With Parents and Aides
SPONSOR					
sr_B^2	.0279	.0290	.2699	.0765	.1447
$R^2_{Y \cdot MAIN}$	.0346	.0398	.2699	.0766	.1463
F	.7097	.7416	9.0776	2.0343	4.1621
d.f.	9,221	9,221	9,221	9,221	9,221
p	NS	NS	.005	.05	.005
PREDICTOR					
sr_A^2	.0076	.0100	.0011	.0003	.0005
$R^2_{Y \cdot MAIN}$	.0346	.0398	.2699	.0766	.1463
F	3.8841	5.1811	.7201	.1826	.2905
d.f.	1,496	1,496	1,496	1,496	1,496
p	.05	.025	NS	NS	NS

FACTORS:

- **A** Predictor = GRA
- **B** Sponsor = 2,3,5,7,[illegible]10,11,12,14
- **D** Predictor by Sponsor

$$sr_B^2 = R^2_{y \cdot AB} - R^2_{y \cdot A}$$

$$R^2_{y \cdot MAIN} = R^2_{y \cdot AB}$$

$$sr_A^2 = R^2_{y \cdot AB} - R^2_{y \cdot B}$$

sr^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table A MII-4A (cont'd.)

SPONSOR x PREDICTOR

PREDICTOR GRADE

	Dependent Variable				
	Teacher Satisfaction	Perceived Fidelity to Sponsor's Approach	Amount of Teacher Training: Structure	Amount of Teacher Training: Child Centeredness	Amount of Teacher Training: Working With Parents and Aides
	SPONSOR X PREDICTOR				
sr_D^2	.0209	.0404	.0292	.0284	.0331
$R^2_{Y \cdot TOTAL}$	.0555	.0802	.2991	.1049	.1794
F	1.1979	2.3752	2.2535	1.7156	2.1820
d.f.	9,487	9,487	9,487	9,487	9,487
p	NS	.025	.025	.10	.025

FACTORS:

A Predictor = GRADE
B Sponsor = 2,3,5,7,8,9,10,11,12,14
D Predictor by Sponsor

$sr_D^2 = R^2_{y \cdot ABD} - R^2_{y \cdot AB}$

$R^2_{y \cdot TOTAL} = R^2_{y \cdot ABD}$

sr^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table A MII-4B

FT-ONLY
TEACHER STUDIES

SUMMARY OF STATISTICS FOR ADJUSTED SCORES

SPONSOR

PREDICTOR

PREDICTOR GRADE

	Dependent Variable				
	Teacher Satisfaction	Perceived Fidelity to Sponsor's Approach	Amount of Teacher Training: Structure	Amount of Teacher Training: Child Centeredness	Amount of Teacher Training: Working With Parents and Aides
	SPONSOR				
sr_B^2	.0274	.0341	.2484	.0787	.1201
$R^2_{Y \cdot MAIN}$	.0706	.0957	.3583	.1690	.2279
F	.7043	.8966	9.2043	2.2624	3.6986
d.f.	9,215	9,214	9,214	9,215	9,214
p	NS	NS	.005	.025	.005
	PREDICTOR				
sr_A^2	.0070	.0097	.0005	.0000	.0025
$R^2_{Y \cdot MAIN}$	.0706	.0957	.3583	.1690	.2279
F	3.6905	5.2182	.3886	.0000	1.5580
d.f.	1,490	1,489	1,489	1,490	1,489
p	.10	.025	NS	NS	NS

FACTORS:

A Predictor = GRADE
B Sponsor = 2,3,5,7,8,9,10.11,12,14
D Predictor by Sponsor

$sr_B^2 = R^2_{y \cdot AB} - R^2_{y \cdot A}$

$R^2_{y \cdot MAIN} = R^2_{y \cdot AB}$

$sr_A^2 = R^2_{y \cdot AB} - R^2_{y \cdot B}$

sr_i^2 represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table A MII-4B (cont'd.)

SPONSOR x PREDICTOR

PREDICTOR GRADE

	Dependent Variable				
	Teacher Satisfaction	Perceived Fidelity to Sponsor's Approach	Amount of Teacher Training: Structure	Amount of Teacher Training: Child Centeredness	Amount of Teacher Training: Working With Parents and Aides
	SPONSOR X PREDICTOR				
sr_D^2	.0177	.0357	.0173	.0205	.0223
$R^2_{Y\cdot TOTAL}$	.0884	.1314	.3757	.1894	.2502
F	1.0376	2.1945	1.4813	1.3516	1.5841
d.f.	9,481	9,480	9,480	9,481	9,480
p	NS	.025	NS	NS	NS

FACTORS:

A Predictor = GRADE

B Sponsor = 2,3,5,7,8,9,10,11,12,14

D Predictor by Sponsor

$sr_D^2 = R^2_{Y\cdot ABD} - R^2_{Y\cdot AB}$

$R^2_{Y\cdot TOTAL} = R^2_{Y\cdot ABD}$

sr^2: represents the squared semi-partial correlation or the percent of the variance uniquely accounted for by the factor indicated.

Table A MII-5

MEANS AND STANDARD DEVIATIONS FOR TEACHER TRAINING: STRUCTURE BY SPONSOR AND GRADE LEVEL FOR F[illegible]CHERS ONLY

SPONSOR	KINDERGARTEN			OTHER			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
2	23	10.26	2.96	22	8.55	3.45	45	9.42	3.29
3	33	11.94	3.02	46	10.65	3.71	79	11.19	3.47
5	33	8.46	2.73	49	10.29	3.69	82	9.55	3.44
7	23	13.39	2.71	41	14.66	2.33	64	14.20	2.53
8	33	14.85	1.84	15	13.53	2.64	48	14.44	2.18
9	25	10.56	3.44	18	11.22	3.11	43	10.84	3.29
10	19	8.74	3.90	34	9.88	4.30	53	9.47	4.16
11	13	9.46	3.26	17	9.18	3.34	30	9.30	3.25
12	15	12.80	2.88	12	14.58	1.31	27	13.59	2.45
14	15	12.93	2.87	21	12.48	2.91	36	12.67	2.86
TOTAL	232	11.40	3.59	275	11.34	3.85	507	11.37	3.73

Table A MII-6

MEANS AND STANDARD DEVIATIONS FOR TEACHER TRAINING: CHILD-CENTEREDNESS BY SPONSOR AND GRADE LEVEL FOR FT TEACHERS ONLY

SPONSOR	KINDERGARTEN			OTHER			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
2	23	36.39	9.45	22	35.77	6.41	45	36.09	8.02
3	33	37.15	7.07	46	32.87	9.87	79	34.66	9.01
5	33	35.15	8.65	49	37.61	8.08	82	36.62	8.35
7	23	25.22	9.73	41	31.02	10.00	64	28.94	10.22
8	33	34.09	9.53	15	35.07	8.71	48	34.40	9.20
9	25	36.88	8.47	18	37.11	8.25	43	36.98	8.28
10	19	30.58	11.31	34	32.62	12.40	53	31.89	11.95
11	13	38.62	5.20	17	33.88	9.37	30	35.93	8.08
12	15	36.47	5.83	12	41.08	4.03	27	38.52	5.34
14	15	34.53	9.72	21	32.57	10.08	36	33.39	9.84
TOTAL	232	34.47	9.33	275	34.44	9.60	507	34.45	9.47

Table A MII-7

MEANS AND STANDARD DEVIATIONS FOR TEACHER TRAINING: WORKING WITH PARENTS AND AIDES BY SPONSOR AND GRADE LEVEL FOR FT TEACHERS ONLY

SPONSOR	KINDERGARTEN			OTHER			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
2	23	10.87	3.76	22	10.77	2.88	45	10.82	3.32
3	33	11.97	3.08	46	10.37	3.81	79	11.04	3.59
5	33	9.67	2.67	49	11.29	3.42	82	10.63	3.22
7	23	8.52	3.15	41	10.54	4.07	64	9.81	3.86
8	33	13.03	3.51	15	12.13	3.38	48	12.75	3.46
9	25	11.36	4.06	18	9.72	3.12	43	10.67	3.75
10	19	14.47	2.99	34	13.91	2.99	53	14.11	2.97
11	13	11.08	2.81	17	8.88	3.35	30	9.83	3.27
12	15	14.13	2.95	12	14.50	2.54	27	14.30	2.73
14	15	11.87	3.83	21	11.19	3.78	36	11.47	3.76
TOTAL	232	11.56	3.67	275	11.23	3.72	507	11.38	3.70

Table A MII-8

MEANS AND STANDARD DEVIATIONS FOR
TEACHER ATTITUDES TOWARD MEETING WITH PARENTS
BY FT/NFT, SPONSOR, AND GRADE LEVEL

SPONSOR	KINDERGARTEN						OTHER						TOTAL								
	FT			NFT			FT			NFT			FT			NFT			TOTAL		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
2	28	28.21	4.23	23	25.96	3.70	29	26.90	3.89	32	25.09	4.97	57	27.54	4.08	55	25.45	4.47	112	26.52	4.38
3	37	28.16	4.41	26	26.69	3.99	58	25.79	3.95	47	24.49	4.48	95	26.72	4.28	73	25.27	4.41	168	26.09	4.38
5	36	25.61	4.26	24	25.87	4.63	59	26.20	4.26	40	24.75	4.80	95	25.98	4.25	64	25.17	4.74	159	25.65	4.45
7	27	24.41	4.70	19	25.68	3.50	54	24.46	4.13	39	23.28	4.00	81	24.44	4.30	58	24.07	3.98	139	24.28	4.16
8	38	28.37	3.66	23	25.70	4.61	20	25.15	5.34	12	22.83	6.45	58	27.26	4.54	35	24.71	5.39	93	26.30	5.00
9	25	27.48	3.28	22	23.50	4.27	21	27.24	5.08	25	23.84	4.43	46	27.37	4.15	47	23.68	4.31	93	25.50	4.60
10	24	27.37	3.61	16	25.81	3.27	50	25.72	4.68	34	25.15	4.04	74	26.26	4.40	50	25.36	3.79	124	25.90	4.18
11	16	28.38	2.96	17	24.12	4.62	30	25.93	4.57	37	25.95	4.44	46	26.78	4.22	54	25.37	4.54	100	26.02	4.23
12	17	27.59	4.12	11	25.36	2.50	16	26.75	5.07	7	27.71	3.77	33	27.18	4.55	18	26.28	3.18	51	26.86	4.11
14	17	26.47	4.90	10	23.70	3.02	29	27.28	4.19	27	26.62	3.90	46	26.96	4.43	37	25.97	3.90	83	26.53	4.21
TOTAL	265	27.20	4.21	191	25.38	4.05	366	25.96	4.42	300	24.85	4.57	631	26.46	4.38	491	25.06	4.38	1122	25.86	4.43
	N = 456			$\bar{X}$ = 26.44			N = 666			$\bar{X}$ = 25.46											

Table A MII-9

MEANS AND STANDARD DEVIATIONS FOR
TEACHER VALUES: PARENT-COMMUNITY ORIENTATION
BY FT/NFT, SPONSOR, AND GRADE LEVEL

SPONSOR	KINDERGARTEN						OTHER						TOTAL								
	FT			NFT			FT			NFT			FT			NFT			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
2	28	11.48	3.00	23	12.36	2.98	29	10.72	3.50	32	9.88	3.37	57	11.52	3.33	55	10.55	3.29	112	11.05	3.33
3	37	11.32	3.33	26	10.73	2.34	58	9.84	3.20	47	9.53	3.36	95	10.42	3.32	73	9.96	3.08	168	10.22	3.21
5	36	10.11	2.90	24	11.54	2.78	59	11.12	3.40	40	11.20	2.71	95	10.73	3.24	64	11.33	2.72	159	10.98	3.05
7	27	9.00	3.21	19	11.05	2.90	54	10.46	3.62	39	10.97	3.67	81	9.98	3.54	58	11.00	3.41	139	10.40	3.51
8	38	11.26	3.25	23	9.30	2.64	20	10.20	3.64	12	10.75	3.42	58	10.90	3.40	35	9.80	2.96	93	10.48	3.27
9	25	10.84	3.04	22	10.86	3.21	21	11.81	2.86	25	9.88	3.15	46	11.28	2.96	47	10.34	3.18	93	10.81	3.10
10	24	12.83	3.40	16	12.12	2.63	50	11.58	3.33	34	9.88	3.42	74	11.99	3.38	50	10.60	3.33	124	11.43	3.42
11	16	10.44	2.73	17	10.53	3.96	30	10.23	2.84	37	10.21	3.10	46	10.30	2.77	54	10.32	3.36	100	10.31	3.09
12	17	11.29	3.80	11	9.73	4.24	16	9.38	3.63	7	10.57	2.51	33	10.36	3.79	18	10.06	3.60	51	10.26	3.69
14	17	10.59	5.15	10	9.80	3.29	29	11.93	3.12	27	10.40	3.28	46	11.44	3.99	37	10.24	3.25	83	10.90	3.70
TOTAL	265	11.01	3.44	191	10.79	3.07	366	10.76	3.38	300	10.28	3.26	631	10.86	3.40	491	10.48	3.20	1122	10.70	3.32
	N = 456	$\overline{X}$ = 10.92	S.D. = 3.29				N = 666	$\overline{X}$ = 10.54	S.D. = 3.33												

Table A MII-10

MEANS AND STANDARD DEVIATIONS FOR
TEACHER VALUES: SOCIAL SKILLS DEVELOPMENT
BY FT/NFT, SPONSOR, AND GRADE LEVEL

SPONSOR	KINDERGARTEN						OTHER						TOTAL								
	FT			NFT			FT			NFT			FT			NFT			TOTAL		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
2	28	12.68	2.71	23	13.39	3.00	29	12.45	3.19	32	12.22	3.04	57	12.56	2.94	55	12.71	3.05	112	12.63	2.98
3	37	13.60	3.30	26	13.89	2.34	58	13.02	2.95	47	13.11	2.87	95	13.24	3.08	73	13.38	2.70	168	13.30	2.92
5	36	14.28	2.98	24	14.04	3.03	59	12.76	3.40	40	12.95	2.75	95	13.34	3.32	64	13.36	2.88	159	13.35	3.14
7	27	11.89	2.50	19	13.21	3.60	54	11.46	2.98	39	13.31	2.68	81	11.61	2.82	58	13.28	2.98	139	12.30	2.99
8	38	12.37	3.24	23	12.39	3.35	20	12.80	2.76	12	13.00	2.76	58	12.52	3.07	35	12.60	3.14	93	12.55	3.08
9	25	13.36	2.41	22	15.27	3.03	21	11.67	2.85	25	13.28	2.17	46	12.59	2.73	47	14.21	2.77	93	13.41	2.85
10	24	13.17	2.84	16	13.81	2.14	50	13.06	3.18	34	13.82	2.46	74	13.10	3.05	50	13.82	2.34	124	13.39	2.80
11	16	13.31	3.44	17	14.29	3.35	30	14.23	2.73	37	14.03	2.22	46	13.91	2.99	54	14.11	2.60	100	14.02	2.77
12	17	13.59	2.40	11	12.36	2.16	16	15.25	3.44	7	12.43	2.57	33	14.39	3.02	18	12.39	2.25	51	13.69	2.92
14	17	14.41	3.26	10	13.30	3.56	29	12.86	2.81	27	13.48	2.99	46	13.44	3.05	37	13.43	3.11	83	13.43	3.05
TOTAL	265	13.21	3.00	191	13.67	3.04	366	12.80	3.15	300	13.24	2.68	631	12.98	3.09	491	13.41	2.83	1122	13.16	2.99
	N = 456	$\bar{X}$ = 13.41	S.D. = 3.02				N = 666	$\bar{X}$ = 13.00	S.D. = 2.96												

Table A MII-11

MEANS AND STANDARD DEVIATIONS FOR
TEACHER VALUES: STRUCTURED/ACADEMIC vs. CHILD-CENTERED ORIENTATION
BY FT/NFT, SPONSOR, AND GRADE LEVEL

SPONSOR	KINDERGARTEN						OTHER						TOTAL								
	FT			NFT			FT			NFT			FT			NFT			TOTAL		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
2	28	27.70	9.97	23	26.65	5.79	29	28.93	7.67	32	32.31	7.80	57	28.32	8.82	55	29.95	7.52	112	29.12	8.21
3	37	26.27	4.83	26	28.15	4.36	58	28.67	5.55	47	32.13	6.55	95	27.74	5.39	73	30.71	6.14	168	29.03	5.90
5	36	26.44	4.49	24	25.54	5.79	59	29.34	6.35	40	29.03	5.65	95	28.24	5.86	64	27.72	5.91	159	28.03	5.87
7	27	39.19	8.44	19	31.00	5.23	54	38.41	8.07	39	33.69	7.21	81	38.67	8.15	58	32.81	6.70	139	36.22	8.09
8	38	37.97	7.51	23	29.48	4.57	20	34.80	7.35	12	30.67	3.92	58	36.89	7.54	35	29.89	4.34	93	34.25	7.34
9	25	26.08	6.93	22	31.59	9.46	21	32.71	9.76	25	27.60	6.25	46	29.11	8.90	47	29.47	8.08	93	29.29	8.45
10	24	28.33	7.64	16	25.81	4.83	50	30.48	6.03	34	31.85	7.00	74	29.78	6.62	50	29.92	6.95	124	29.84	6.72
11	16	27.31	8.96	17	29.65	5.48	30	29.67	6.48	37	30.54	6.95	46	28.85	7.42	54	30.26	6.48	100	29.61	6.93
12	17	30.47	5.38	11	27.73	6.07	16	27.56	5.76	7	29.29	5.94	33	29.06	5.67	18	28.33	5.89	51	28.80	5.70
14	17	33.88	7.25	10	28.10	4.48	29	35.90	8.44	27	29.59	6.61	46	35.15	7.99	37	29.19	6.08	83	32.49	7.76
TOTAL	265	30.43	8.65	191	28.39	6.06	366	31.66	7.82	300	30.98	6.80	631	31.14	8.20	491	29.97	6.64	1122	30.63	7.57
	N = 456 $\bar{X}$ = 29.58 S.D. = 7.73						N = 666 $\bar{X}$ = 31.35 S.D. = 7.38														

Table A MII-12

MEANS AND STANDARD DEVIATIONS FOR FREQUENCY OF TEACHER VISITS TO PUPILS' HOMES BY FT/NFT, SPONSOR, AND GRADE LEVEL

SPONSOR	KINDERGARTEN						OTHER						TOTAL								
	FT			NFT			FT			NFT			FT			NFT			TOTAL		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
2	28	7.00	10.23	23	2.83	5.94	29	2.45	5.65	32	1.84	3.17	57	4.68	8.47	55	2.26	4.51	112	3.49	6.90
3	37	15.62	9.61	26	1.15	2.38	58	8.33	8.13	47	1.75	2.99	95	11.17	9.40	73	1.53	2.78	168	6.98	8.72
5	36	4.44	6.51	24	3.83	8.95	59	6.25	7.61	40	6.63	9.97	95	5.57	7.23	64	5.58	9.62	159	5.57	8.25
7	27	.93	1.54	19	4.21	6.66	54	1.83	3.63	39	4.15	10.12	81	1.53	3.12	58	4.17	9.07	139	2.63	6.43
8	38	2.61	5.28	23	2.04	3.01	20	2.15	4.88	12	4.75	9.81	58	2.45	5.11	35	2.97	6.22	93	2.65	5.53
9	25	8.40	8.87	22	2.36	3.14	21	4.91	6.76	25	1.64	3.73	46	6.80	8.09	47	1.98	3.45	93	4.37	6.62
10	24	6.54	8.47	16	5.06	8.90	50	2.54	3.69	34	.94	1.69	74	3.84	5.94	50	2.26	5.47	124	3.20	5.79
11	16	1.81	4.69	17	1.94	4.94	30	2.03	3.14	37	1.97	3.66	46	1.96	3.70	54	1.96	4.06	100	1.96	3.88
12	17	11.06	17.91	11	1.18	3.60	16	.13	.34	7	.00	.00	33	5.76	13.83	18	.72	2.82	51	3.98	11.45
14	17	13.71	13.36	10	3.40	4.25	29	11.86	12.28	27	1.70	5.42	46	12.54	12.57	37	2.16	5.13	83	7.92	11.19
TOTAL	265	7.08	10.08	191	2.76	5.67	366	4.65	7.24	300	2.72	6.41	631	5.67	8.63	491	2.74	6.12	1122	4.39	7.77
	N = 456 $\bar{X}$ = 5.27 S.D. = 8.77						N = 666 $\bar{X}$ = 3.78 S.D. = 6.94														

Table A MII-13

MEANS AND STANDARD DEVIATIONS FOR TEACHER EXPECTATIONS FOR PUPILS' ACADEMIC PROGRESS BY FT/NFT, SPONSOR, AND GRADE LEVEL

SPONSOR	KINDERGARTEN						OTHER						TOTAL								
	FT			NFT			FT			NFT			FT			NFT			TOTAL		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
2	28	3.43	.96	23	2.96	.48	29	3.52	1.06	32	3.66	1.10	57	3.47	1.00	55	3.36	.95	112	3.42	.97
3	37	3.22	.58	26	3.50	.86	58	3.17	.96	47	3.13	.99	95	3.19	.93	73	3.26	.96	168	3.22	.89
5	36	3.44	.91	24	3.42	.89	59	3.61	1.16	40	3.23	.95	95	3.55	1.07	64	3.30	.92	159	3.45	1.02
7	27	3.85	1.13	19	3.68	.95	54	3.11	1.13	39	3.41	.97	81	3.36	1.18	58	3.50	.96	139	3.42	1.09
8	38	3.47	1.01	23	3.35	.65	20	3.40	.82	12	3.25	1.36	58	3.45	.94	35	3.31	.90	93	3.40	.89
9.	25	3.24	.97	22	3.27	.77	21	2.95	.97	25	3.44	1.23	46	3.11	.97	47	3.36	1.03	93	3.24	1.00
10	24	3.54	.98	16	3.19	.98	50	3.16	1.13	34	2.97	.94	74	3.28	1.09	50	3.04	.95	124	3.19	1.04
11	16	3.56	1.03	17	3.35	1.00	30	3.57	1.07	37	3.24	.76	46	3.57	1.05	54	3.28	.83	100	3.41	.94
12	17	3.12	.33	11	3.55	1.13	16	4.00	.73	7	3.86	.90	33	3.55	.71	18	3.67	1.03	51	3.59	.83
14	17	3.06	.97	10	3.00	.47	29	3.24	1.09	27	3.15	.99	46	3.17	1.04	37	3.11	.88	83	3.15	.96
TOTAL	265	3.41	.92	191	3.33	.84	366	3.33	1.07	300	3.28	.99	631	3.36	1.01	491	3.30	.93	1122	3.38	.98
	N = 456 $\overline{X}$ = 3.38 S.D. = .89						N = 666 $\overline{X}$ = 3.31 S.D. = 1.04														

Table A MII-14

MEANS AND STANDARD DEVIATIONS FOR TEACHER SATISFACTION BY SPONSOR AND GRADE LEVEL FOR FT TEACHERS ONLY

SPONSOR	KINDERGARTEN			OTHER			TOTAL		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
2	23	15.48	3.03	22	15.18	2.89	45	15.33	2.93
3	33	16.21	1.34	46	15.20	2.63	79	15.62	2.23
5	33	15.18	2.93	49	14.98	2.42	82	15.06	2.62
7	23	13.82	2.98	41	14.73	3.33	64	14.41	3.22
8	33	15.09	3.18	15	13.07	4.91	48	14.46	3.86
9	25	14.28	4.20	18	14.78	2.76	43	14.49	3.63
10	19	15.95	2.01	34	14.38	3.82	53	14.94	3.35
11	13	16.08	1.44	17	14.65	2.03	30	15.27	1.91
12	15	15.87	1.96	12	16.42	1.44	27	16.11	1.74
14	15	14.87	2.82	21	14.24	3.75	36	14.50	3.37
TOTAL	232	15.25	2.84	275	14.79	3.10	507	15.00	2.99

Table A MII-15

MEANS AND STANDARD DEVIATIONS FOR PERCEIVED FAITHFULNESS TO SPONSOR'S APPROACH BY SPONSOR AND GRADE LEVEL FOR FT TEACHERS ONLY

SPONSOR	KINDERGARTEN			OTHER			TOTAL		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
2	23	28.65	4.36	22	25.14	4.57	45	26.93	4.76
3	33	25.73	5.13	46	27.26	4.17	79	26.62	4.62
5	33	25.91	3.48	49	24.94	5.78	82	25.33	4.98
7	23	25.61	4.53	41	26.58	4.69	64	26.23	4.62
8	33	26.94	6.90	15	28.73	3.54	48	27.50	6.07
9	25	26.44	5.18	18	22.94	6.69	43	24.98	6.04
10	19	29.42	4.55	34	26.65	5.28	53	27.64	5.16
11	13	26.69	3.92	17	23.71	4.51	30	25.00	4.46
12	15	28.93	3.30	12	24.42	3.45	27	26.93	4.02
14	15	27.67	4.81	21	25.14	6.58	36	26.19	5.97
TOTAL	232	26.97	4.96	275	25.79	5.22	507	26.33	5.13

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